REVISED REPORT
WETLAND AND STREAM DELINEATION
PACIFIC NORTHWEST SALMON CENTER SITE
BELFAIR, WASHINGTON

OCTOBER 10, 2007

FOR
PACIFIC NORTHWEST SALMON CENTER

GeoEngineers

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Wetland and Stream Delineation
File No. 16264-001-01

October 10, 2007

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INTRODUCTION

GeoEngineers, Inc. (GeoEngineers) was contracted by the Pacific Northwest Salmon Center (PNSC) to perform wetland and stream delineation services at the proposed PNSC property in Belfair, Washington. Twenty-nine wetland features and one stream feature were identified and delineated within the property boundary. GeoEngineers evaluated and categorized wetland and stream features on the property in general accordance with Mason County Resource Ordinance (MCRO) 17.01.040-Fish and Wildlife Habitat Conservation Areas and MCRO 17.01.070-Wetlands. Shallow groundwater data was collected to determine positive wetland hydrology in areas that are disturbed by agricultural activities.

PROJECT LOCATION

The project is located in the southern portion of Belfair, Washington which is located in the northeastern portion of Mason County (Figure 1 – Vicinity Map). The proposed property (site) consists of five parcels which include parcels 123325000026, 123325000087, 123325000088, 123325000089 and 123325000090. The site is approximately 90 acres in size and is bordered to the west by the mouth of the Union River and Lynch Cove. A dike is located between the Union River and the subject property and a walking trail associated with the Theler Wetlands Center has been developed on top of the dike. Several single-family residences, a barn and associated outbuildings are located to the south and east of the site with some forest land interspersed along the property boundaries. Highway 3 is located approximately 600 feet to the east of the site and the property is accessed by Roessel Road, which runs through the center of the property. A gated entrance is located at the southern portion of the property on Roessel Road. The Washington Department of Fish and Wildlife (WDFW) own the land to the north of the site, which is open to the public. The project is located in Section 32 of Township 23 North, Range 01 West of the Willamette Meridian. The local jurisdiction and lead environmental review is Mason County.

PROJECT DESCRIPTION

The PNSC is proposing to develop the subject property into a salmon and wetland habitat learning center for use by the public, universities and government agencies. The site has been divided into two halves for the purpose of this report. The eastern half of the site is located to the east of Roessel Road and the western half of the site is located to the west of Roessel Road. The PNSC is proposing to develop the eastern half of the site with several educational buildings, parking spaces and stormwater facilities. The western half of the site has been identified for restoration of salt marsh habitat that historically occupied this area. A dike is located along western edge of the property adjacent to the mouth of the Union River. This dike prevents saltwater from flowing onto the property from the Hood Canal. Proposed restoration of the western half of the site will include breaching the dike in several locations to allow tidal waters associated with Hood Canal to inundate historical salt marsh wetlands on the site.

A salmon bearing stream, identified as Mindy Creek, is located on the northern portion of the property. Mindy Creek enters the site from the northeast and flows north off site where it connects with the Union River. The creek has been impacted by historical agricultural practices on the property and contains a

limited riparian corridor through most of the site. The portion of Mindy Creek within the property boundaries is also being proposed for restoration.

A new entrance road has been proposed on the eastern side of the property. The entrance road will provide direct access to the site from Highway 3. A wetland and stream assessment was performed within the offsite area to the east to identify potential wetlands and the least impacting route for the access road. This wetland and stream delineation report summarizes the wetland and stream investigations on and adjacent to the property.

PROJECT SCOPE

GeoEngineers was retained by the PNSC to delineate wetlands and streams on the proposed Salmon Center property and prepare a delineation report. This report documents the findings of the field investigation and the results associated with the wetland and stream assessments. This report specifically includes:

- A review of national and county wetland inventory data, county soils data, previous reports associated with the project and other relevant background data for the project area;
- Documentation of the vegetation, soil and hydrologic conditions associated with the existing wetlands on the property;
- Shallow groundwater monitoring well data from 39 wells on the site;
- Determination of the wetland category and stream typing according to MCRO;
- Determination of required buffer widths according to MCRO;
- Wetland functional assessment of all wetlands using Cooke Scientific Services Semi-quantitative Assessment Methodology (SAM); and
- Compile wetland information from previous reports and the field reconnaissance's into one comprehensive report.

METHODS

PAPER INVENTORY

The Washington State Department of Ecology (Ecology) (1989) recommends a thorough review of existing information regarding a particular site prior to conducting the fieldwork. GeoEngineers scientists conducted a search for pertinent and applicable data and maps. Reviews were conducted of the 1994 United States Geological Survey (USGS) topographic map, the 1987 United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, the United Stated Department of Agriculture (USDA) 1960 *Soil Survey of Mason County, Washington* and the Washington State Department of Natural Resources (DNR) Forest Practices Application Review System (FPARS) maps of known stream types for Mason County (DNR 2002). GeoEngineers also reviewed recent aerial photographs to determine changes in cover and land use practices that have occurred in the project area (USGS 1990 & Mason County 2005).

FIELD DELINEATION

GeoEngineers biologists conducted a preliminary site visit on August 2, 2006 to perform a cursory assessment of onsite wetlands. On September 15, 2006 GeoEngineers biologists returned to the site to conduct a field investigation as to the potential presence and extent of wetlands on the property. A

wetland feasibility study was prepared for the PNSC from these two site visits describing the potential presence of wetlands on the site (GeoEngineers 2006).

GeoEngineers biologists visited the site to delineate existing critical aquatic features on June 18 through June 22, 2007 and August 2, 2007. The weather during the site visits varied from cloudy to sunny with temperatures ranging from 60ºF to 80ºF. All wetlands and uplands on the site had not been hayed prior or during the time of the site investigations. The region was experiencing average precipitation during the time of the delineations. Precipitation in Belfair, Washington two weeks prior to and during the week of the delineations totaled 0.44 inches (Accuweather 2007). As defined in MCRO (2006) Wetland 17.01.070C, wetland delineation methods used during the entire course of the on site delineations followed the guidelines for the *Washington State Wetlands Identification and Delineation Manual* (Ecology 1997) as well as the *United States Army Corps of Engineers Wetland Delineation Manua*l ([USACE] 1987).

A thorough field review of each wetland and the surrounding hydrology was performed. Upon discovery of a wetland indicator, GeoEngineers biologists examined the area for presence of all three wetland parameters – hydrophytic plant species, hydric soils and positive hydrology. Based upon positive confirmation of the three wetland parameters, a sample plot was established. When changes were noted in plant community composition, hydrology or topographic position, additional sample plots were established to characterize the site. Upland plots were also established to characterize the upland conditions. In areas where a clear topographic break was not a direct indicator of the wetland boundary, upland plots were established to determine the location of the wetland boundary. Additional shovel probes were conducted in any areas where primary indicators of wetland hydrology including visual observations of saturated and inundated soils was not apparent, but hydrophytic vegetation was present, to determine the presence of hydric soil and/or indicators of wetland hydrology. These indicators include but are not limited to drainage patterns, drift lines, sediment deposition, water marks, oxidized rhizospheres, water stained leaves, algal mats, stream gauge data and flood predictions and historic records. Sample plot locations were flagged with red and white flagging, given a corresponding number and locations surveyed. The edges of each wetland were flagged with pink flagging to denote the boundary. Photographs of each wetland are located in Appendix A.

The site was examined for stream channels exhibiting sign of an ordinary high water mark (OHWM) as outlined in the USACE OHWM Identification Manual (2005). When an indicator of the OHWM was observed, a thorough investigation of the area was performed to identify additional indicators. The OHWM of the stream was then flagged with orange flagging to denote the boundary of the stream. Photographs of streams identified on site are located in Appendix A.

The site also contains agricultural drainage ditches that were constructed by hand throughout the site. GeoEngineers biologists examined the drainage ditches for signs of habitat, hydrology and direction of flow. It appears that the majority of the drainage ditches drain into the southwest corner of the site and eventually drain into the Union River through a tide gate during low tide. The drainage ditches were examined for signs of an OHWM associated with stream channels according to the USACE OHWM Identification Manual (2005). None of the drainage ditches on site were observed to exhibit an OHWM; therefore, none of the drainage ditches were classified as streams. The drainage ditches were also examined for signs of hydrology, hydric soils and hydrophytic vegetation associated with wetlands. The drainage ditches met all three parameters and are classified as wetlands in this report. However, agricultural activities associated with the current haying operation on site have removed vegetation from these ditches since our formal field delineation. A jurisdictional determination by reviewing agencies will

be required to determine the regulatory status of these drainage ditches. Photographs of the drainage ditches are located in Appendix A.

GeoEngineers prepared a sketch of the wetland and drainage ditch boundaries and submitted the figures to AES Consultants, Inc. for surveying. A wetland and stream delineation map (Appendix B-1) was created for reference. A general description of our findings is provided below. Site photographs are provided in Appendix A and detailed information for each sample plot is provided on wetland data sheets in Appendix C.

STREAM CLASSIFICATION

Mason County requires the classification of all streams under their regulation to follow the DNR Stream Typing System as established in Washington Administrative Code Section 222-16-030. GeoEngineers categorized all streams on site according to the Mason County current water typing system. The current water typing system categories are briefly described as following:

- **Type S:** those streams inventoried as "shorelines of the state".
- **Type F:** those segments of streams not classified as Type S with high fish, wildlife, or human use.
- **Type SP:** streams that are proposed for consideration if any specific streams are identified that are significant in terms of anadromous fish and recommended to be protected by a larger buffer.
- **Type Np:** those segments of natural waters within bankfull width of defined channels that are perennial non-fish habitat streams.
- **Type Ns:** all segments of natural waters within bankfull width of defined channels that are not Types S, F, or Np and are seasonal, non-fish habitat streams.

The classification of streams was based upon an evaluation of stream structures and function. Streams on site were delineated according to the USACE regulatory guidance letter on OHWM identification (USACE 2005). Specifically, the characteristics identified for each stream included:

- Determination of flow regime (seasonal or perennial flow),
- Channel width at ordinary high water discharge,
- Stream gradient,
- Potential use as fish habitat, and
- Shelving, scouring, sediment deposits, changes in plant community, litter and debris and matted or absence of vegetation,

Stream buffers were identified according to the criteria set forth in MCRO 17.01.110 D2 Table 3. Mason County stream buffers applied to this project are identified below.

Table 1. Fish and Wildlife Conservation Area Development Standards

Stream Type	Buffer
Type "S"	150 feet
Type "F"	150 feet
Type “SP”	200 feet
Type "Np"	100 feet
Type "Ns"	75 feet
Saltwater and Lakes over 20 acres	100 feet

WETLAND PARAMETERS

Wetlands are identified by the clear presence of three physical parameters. These parameters are hydrophytic plant species, hydric soils, and positive hydrology. A detailed description of each of these parameters is provided below.

Hydrophytic Plants

Hydrophytic plants are species that generally prefer areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils sufficient to exert a controlling influence on the plant species present (Ecology 1997). The relative strength of an individual species' preference for wetness determines the indicator status for that species. The USFWS has determined wetland plant indicator status; a summary of this information for areas west of the Cascades is contained in Reed *et al*. (1993). To meet the wetland criteria established in Ecology (1997) and the USACE (1987), hydrophytic vegetation must exceed fifty percent of the total dominance measure for each vegetative stratum (tree, shrub or herbaceous layer). When more than 50 percent of the dominant species in each unit of vegetation have a wetland indicator status of obligate wet (OBL), facultative wet (FACW), or facultative (FAC), the vegetation unit meets the hydrophytic vegetation criterion. Plant nomenclature generally follows *The Flora of the Pacific Northwest* (Hitchcock and Cronquist 1973).

Hydric Soils

Hydric soils are soils that are saturated or ponded long enough during the growing season to develop anaerobic conditions in the upper layer (USDA 1999). Prolonged anaerobic soil conditions lead to a chemically reducing environment. The chemical reduction of some soil components (e.g., iron and manganese oxides) leads to the development of soil colors and other physical characteristics that are usually indicative of hydric soils (Ecology 1997). Hydric soils can be identified by the use of a color comparison chart. A commercial color chart of soils is produced by Kollmorgen (1988) and commonly used by wetland scientists. Soil color is typically identified by hue (ex. 10YR), value (ex. 2/) and chroma (ex. /1). Hue describes the soil based on its relation to the spectral colors (red, yellow, green, blue, purple or a mixture of these colors); value describes the degree of lightness; and chroma indicates the strength or purity of the color. These terms reflect the variable amount of moisture, organics, and overall composition of any given soil sample providing critical information on soil wetness and degree of saturation and inundation (Kent 1994). In general, the lower the number for chroma and value, the more likely the soil sample is to be hydric. The color chart is also used to compare mapped soil types (USDA 1960) with field observations. Redoximorphic concentrations are present in soils when hydrology creates reducing conditions. These concentrations are depletions of oxygen in the soil resulting in the

accumulation of Iron and Manganese. The concentrations are typically colored yellow to red and appear as a sharp contrast in color to the native soil.

Hydrology

Hydrology is defined as the presence of water. The term "wetland hydrology" encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Numerous factors (e.g., precipitation, topography, soil permeability, plant cover and human disturbance) influence the hydrology of an area (Ecology 1997). Hydrology is often the least exact of the parameters, and indicators of wetland hydrology are sometimes difficult to find in the field. This is especially prevalent when wetlands are delineated in the summer months when springs or seeps may not be apparent. Under these conditions, indicators of hydrology are used as positive identification. Indicators such as drainage patterns, sediment deposits, dried algae, and water stained leaves or bark are examples of hydrology. The presence of these (or other) indicators, hydric soils, and hydrophytic vegetation confirm the presence of a wetland.

WETLAND EVALUATION

Several standard methods for evaluating wetlands functions and values were used in conjunction with professional experience to provide qualitative and quantitative characterization of the wetlands on site. Additionally, many reference materials were used to support these evaluations. These are cited where appropriate throughout the text to justify and explain the results of these investigations.

Wetland Classification and Categorization Assessment

Wetlands on site were classified using the Cowardin system (Cowardin *et al.* 1979). The Cowardin system describes wetlands by the plant communities, soils, and hydrologic regimes present. The hierarchical order identifies five major types of wetland systems: marine, estuarine, riverine, lacustrine, and palustrine. These systems are further stratified into classes and subclasses based on substrate materials, flooding regime, and vegetation life forms. Each class and subclass is then annotated with specific modifiers for water regimes, water chemistry, soil, and other special conditions. The naming convention from Cowardin has been adopted by the USFWS in their NWI maps.

Wetlands on site were also categorized using the four-tiered rating system as set forth in the 2004 *Washington State Wetlands Rating System for Western Washington* (Ecology 2004) according to MCRO 17.01.070 E1. Wetland categories are intended to capture the functions a wetland provides based upon landscape setting, wetland and vegetation classes, physical characteristics, and other value-based and function-based criteria to place wetlands into one of four categories. This system was developed to differentiate between wetlands based on their sensitivity to disturbance, rarity and the functions they provide. The rating categories that are used as management standards were adopted by Mason County for the purpose of assigning buffer widths and limitations on activities that may impact the wetlands. Land use intensity, wetland categories and associated buffers as defined in MCRO 17.01.070 B through F are listed below.

Table 2. Ratings of Impact from Land Uses

Rating	Examples of Land Uses That Cause the Impact Based on Common Zoning Categories
High	Commercial, Urban, Industrial, Institutional, Retail Sales, Residential subdivisions with more than 1 unit/acre, New agriculture (high-intensity processing such as dairies, nurseries and green houses, raising and harvesting crops requiring annual tilling, raising and maintaining animals), New transportation corridors, High intensity recreation (golf courses, ball fields), hobby farms
Medium	Single-family residential lots, residential subdivisions with 1 unit/acre or less, Moderate-Intensity Open Space (parks), New agriculture (moderate- intensity such as orchards and hay fields), Transportation enhancement projects
Low	Forestry, Open space (low-intensity such as passive recreation and natural resources preservation, minor transportation improvements)

Table 3. Wetland Categories and Buffers

Category	Habitat >29	Habitat 20-28	Water Quality 24-32 & Habitat <20	Habitat <20
IV	--	--	--	Low Impact: 25 ft Moderate Impact: 40 ft High Impact: 50 ft
III	--	Low Impact: 75 ft Moderate Impact: 110 ft High Impact: 150 ft	--	Low Impact: 40 ft Moderate Impact: 60 ft High Impact: 80 ft
II	Low Impact: 150 ft Moderate Impact: 200 ft High Impact: 225 ft	Low Impact: 75 ft Moderate Impact: 110 ft High Impact: 150 ft	Low Impact: 75 ft Moderate Impact: 90 ft High Impact: 100 ft	Low Impact: 50 ft Moderate Impact: 75 ft High Impact: 100 ft
I	Low Impact: 150 ft Moderate Impact: 225 ft High Impact: 250 ft	Low Impact: 75 ft Moderate Impact: 110 ft High Impact: 200 ft	Low Impact: 50 ft Moderate Impact: 75 ft High Impact: 100 f ft	Low Impact: 50 ft Moderate Impact: 75 ft High Impact: 100 ft

Wetland Functional Assessment

GeoEngineers scientists used SAM to determine how well a wetland and its buffers function. This technique is designed to examine the presence of discrete functions and to determine how well a discrete wetland performs a particular function. The functional attributes analyzed are:

- Flood/Stormwater Control;
- Erosion/Shoreline Protection;
- Natural Biological Support;
- Specific Habitat Functions;
- Base Flow/Groundwater Support;
- Water Quality Improvement; and
- General Habitat Functions.

Each function is divided into three groups based on observed characteristics that, when totaled, determine the relative quality of the function being examined. These groups are as follows: Group 1 (higher quality

characteristics), Group 2 (medium quality characteristics), and Group 3 (lower quality characteristics). The sum of these characteristics is then expressed as a percentage of maximum possible points and an overall rating of High, Medium or Low is applied to the function.

The purpose of SAM is to assist wetland professionals in identifying and quantifying a potential wetland function in an individual wetland. The term "potential" is important, because it is usually not possible to verify the presence of a function from a single site visit. A determination of the potential for a function to occur, based on the presence of physical characteristics that are conducive to that function, is all that can be determined in a quick evaluation. For example, we can tell that a site has good amphibian habitat, but it is not always possible, at every season, to tell whether amphibians are using that habitat. SAM is based on a system developed by Reppert (Reppert *et al*. 1979) that has been modified for greater applicability to Northwest wetland ecosystems.

WETLAND HYDROLOGY MONITORING

Due to the disturbed nature of the agricultural fields, positive primary and secondary hydrology indicators within 12 inches of the surface were not identifiable throughout the majority of the site. Observations of hydrology during initial site visits were inconclusive and more extensive hydrological monitoring was deemed necessary to accurately describe the presence or absence of wetland hydrology. Wetland hydrology data was collected using shallow groundwater monitoring wells from March through June 2007. This groundwater data was incorporated into the wetland delineation determination process on June 18 through June 22, 2007 and August 2, 2007 to aide in the identification of the wetland boundaries on site. Documenting the presence of hydrology within 12 inches of the ground surface will aide in the confirmation or invalidation of marginal areas that were originally thought may meet wetland criteria.

The *Washington State Wetlands Identification and Delineation Manual* (Ecology 1997) and the 1987 *Corps of Engineers Wetland Delineation Manual* define wetland hydrology criteria as areas in which soil conditions are seasonally inundated and/or saturated for a consecutive number of days greater than or equal to 5 percent of the growing season. When this level of saturation occurs within 12 inches of the surface, it promotes the establishment of hydrophytic vegetation and the formation of hydric soils. The USDA WETS table for Shelton, Washington states that there is a 50 percent probability that the air temperature will be 28°F or higher starting on April 6 and ending on November 19 of any given year (USDA 2002). Biological indicators indicating that the growing season has begun include the presence of two or more different non-evergreen vascular plant species growing in a wetland or surrounding areas that exhibit one or more of the following indicators: emergence of herbaceous plants from the ground, appearance of new growth from vegetative crowns, coleoptile/cotyledon emergence from seed, bud burst on woody plants, emergence or elongation of leaves on woody plants and/or the emergence or opening of flowers. In order to meet the criteria for wetland hydrology on site, groundwater must be present within 12 inches of the surface for 13 days once the growing season has begun.

Thirty six shallow groundwater monitoring wells were initially installed by the PNSC with oversight from GeoEngineers on March 6, 2007. Since the site is relatively flat and heavily disturbed from agricultural activities, well locations were selected by GeoEngineers to determine the presence of hydrology in areas that contained vegetation varying from obligate to upland species. Shallow groundwater monitoring wells were placed in small depressions, on the edges of depressions, near the edges of the drainage ditches and in upland hummocks scattered throughout the site in order to collect sufficient hydrology data to conclude the presence of water within 12 inches of the surface. Hand measurements were taken of each well four times a week on three different days. Two measurements were taken, one during high tide and one during low tide, one day a week to identify if there was tidal influence on groundwater within onsite wetlands

from the Hood Canal. Three electronic pressure transducers were also installed on April 9, 2007 to measure hour to hour fluctuations in the groundwater levels. Groundwater data was recorded through June 10, 2007 by both hand and pressure transducers. The data collected was analyzed and used in the delineation of wetlands in the agricultural fields. Monitoring well locations are shown in Appendix B-1-Wetland and Stream Delineation Map.

RESULTS

PAPER INVENTORY

The digital data available from the 1987 NWI map indicates that the majority of the site is covered by wetlands (Figure 2). The wetland types documented on site are as follows:

- PEMAH: Palustrine, Emergent, Temporarily/Permanently Flooded,
- PEMCH: Palustrine, Emergent, Seasonally/Permanently Flooded,
- PFOC: Palustrine, Forested, Seasonally Flooded,
- PFOA: Palustrine, Forested, Temporarily Flooded, and
- PSSCH: Palustrine, Shrub-Scrub, Seasonally/Permanently Flooded.

However, NWI maps are produced from aerial photographs and topographic maps and are subject to error. Recent changes in the nature of the vegetation and hydrology, as well as recent development activities in the surrounding area, are not reflected in the maps and must be considered when evaluating this site.

The *Soil Survey of Mason County, Washington* (USDA 1960) identifies three soil types as being present within the boundaries of the site. Figure 3 (Soils Survey Map) depicts the locations of the three different soil types. The soil type along eastern portion of the site is Mukilteo peat, shallow over gravel, 0 to 2 percent slopes. Edmonds fine sandy loam, 0 to 2 percent slopes is present in central portion of the site. This soil survey does not recognize the dike along the southwestern portion of the site and existing agricultural activities and lists the western portion of the site as tidal marsh, 0 to 2 percent slopes. All three soils are listed as hydric soils on the hydric soils list for Mason County (USDA 2001).

Mukilteo peat, shallow over gravel, 0 to 2 percent slopes is a strongly acid brown peat, saturated to the surface throughout the year. It is a very poorly drained soil that has moderately high water movement in the most restrictive layer. A dense root restrictive layer is greater than 60 inches below the surface. The seasonal zone of water saturation is about 9 inches during January, February, March, and December. The available water capacity is very moderate, the shrink-swell potential is low, it is not flooded and it is not ponded. Organic matter content in the surface horizon is about 40 percent.

Edmonds fine sandy loam, 0 to 2 percent slopes is a friable, medium to strongly acid soil located exclusively in the lower valley of the Union River. During most of the year the water table is within one foot of the surface. Edmonds find sandy loam can appear dark grayish-brown to light-gray with mottles of varying colors. The soil is poorly drained and water movement in the most restrictive layer is moderately high. A dense root restrictive layer forms greater than 60 inches below the surface. The seasonal zone of water saturation is about 0 inches during January, February, March, April, May, November, and December. The available water capacity to a depth of 60 inches is high, the shrink-swell potential is low, it is not flooded and it is not ponded. Organic matter content in the surface horizon is about 4 percent.

Tidal marsh, 0 to 2 percent slopes is reached by salt water during high tides. It is composed of various kinds of silt, but is mainly medium and fine textured material mixed with fibrous peat. These sediments contain excessive amounts of soluble salt. The soil is very poorly drained and water movement in the most restrictive layer is moderately high. A dense root restrictive layer forms greater than 60 inches below the surface. The seasonal zone of water saturation is about 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. The available water capacity to a depth of 60 inches is high, the shrink-swell potential is low, it is frequently flooded and it is frequently ponded. Organic matter content in the surface horizon is about 1 percent. The soil has a moderately saline horizon within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

The 1994 topographic map from the USGS depicts that the site is relatively flat. The dikes on the western boundary of the site were not shown on any historic topographic map examined. The 1990 aerial photo from the USGS clearly shows the presence of the dike and agricultural fields on site. It appears from photographic interpretation that the land use and buildings on site have not changed in the past 17+ years. The DNR FPARS map indicates that one stream runs through the northeast portion of the site from east to west (DNR 2006).

SITE DESCRIPTION AND EXISTING CONDITIONS

The site is approximately 90 acres in size and located where the mouth of the Union River meets Lynch Cover at the tip of the Hood Canal. The majority of the 90 acre site has been historically farmed for agricultural hay as well as pasture for livestock. A dike was built along the western and southern boundaries of the site to block tidal waters from the Hood Canal entering the site and numerous man-made ditches were constructed throughout the site to drain water from the agricultural fields. The site is primarily comprised of hay fields and all of the native vegetation has been removed from these fields and hay grasses have been planted. The top 10 inches of the soil in the agricultural fields has been disturbed on a regular basis for haying. This herbaceous plant community dominates the agricultural fields, but some forested areas exist in the eastern and southeastern portions of the site. Several existing structures are located on site including two single-family residences, a barn and several outbuildings. The topography of the site is relatively flat and the elevations of the fields are lower than the observed high tide elevations along the outer edge of the dike.

The surrounding land use to the west consists of the Union River and WDFW public land on the western side of the river. WDFW also owns the land to the north and this land is also open to the public. A public walking trail associated with the Theler Wetlands Center runs along the southwestern, western and northwestern boundary of the site on top of the dike. The eastern and southeastern portions of the site are bordered by single-family residences and several small commercial businesses along Highway 3.

Wetland and upland vegetation varies throughout the site based upon topography, soil type and land use. Two types of wetland vegetation communities are present onsite. Forested wetlands are located on the eastern and southeastern portion of the site. The forested layer in these wetlands is primarily comprised of red alder (*Alnus rubra,* FAC), western red cedar (*Thuja plicata,* FAC) and black cottonwood (*Populus balsamifera spp. Trichocarpa,* FAC). The shrub layer is comprised mainly of salmonberry (*Rubus spectabilis,* FAC+), Nootka rose (*Rosa nutkana,* FAC), Pacific willow (*Salix lasiandra,* FACW+) and red-osier dogwood (*Cornus stolonifera,* FACW) with an herbaceous layer of skunk cabbage (*Lysichiton americanum,* OBL), water parsley (*Oenanthe sarmentosa,* OBL), small-fruited bulrush (*Scirpus microcarpus,* OBL) and slough sedge (*Carex obnupta,* OBL). The herbaceous wetlands are located in the agricultural fields and are dominated by sawbeak sedge (*Carex stipata,* OBL), soft rush (*Juncus effusus,*

FACW), Baltic rush (*Juncus balticus,* FACW+), silverweed (*Potentilla anserine,* OBL), slough sedge, meadow foxtail (*Alopecurus geniculatis,* FACW), short-awn foxtail (*Alopecurus aequalis spp. Aequalis,* OBL) and velvet grass (*Holcus lanatus,* FAC). The upland areas of the site are also generally located in the agricultural fields and were noted to contain sweet vernalgrass (*Anthoxanthum odoratum,* FACU), tall fescue (*Festuca arundincacea,* FAC-), orchardgrass (*Dactylis glomerata,* FACU), perennial ryegrass (*Lolium perenne,* FACU), common timothy (*Phleum pretense spp. Pretense,* FAC-), colonial bentgrass (*Agrostis capillaris,* FAC), birdsfoot trefoil (*Lotus corniculatus,* FAC), smooth hawksbeard (*Crepis capillaris,* FACU) and red clover (*Trifolium pretense,* FACU).

Hydrological input into the forested wetlands along the eastern and southeastern portion of the site is fed from a high groundwater table and seasonal precipitation. Standing pockets of water were observed throughout the forested wetlands and the soil was saturated to the surface with areas of shallow inundation. The herbaceous wetlands in the agricultural fields are a mixture of a shallow groundwater and seasonal precipitation that ponds in topographic depressions. Soil type and permeability in these wetlands influence the amount of time that hydrology stays on the ground surface.

Soils with clay and silts absorb water slower than sandy or loamy soil. The eastern portion of the site was noted to contain more silt in the upper 12 inches of the ground than the western portion of the site which contained more sandy soils. Redoximorphic concentrations were observed throughout the majority of the site in each soil type. However, due to the disturbed nature of the site from agricultural activities and the presence of relic soils from tidal influence before the dike was constructed, soils were examined for recent indicators of hydric conditions including oxidized rhizospheres, anoxic "rotten egg" odor, organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types.

Drainage ditches are present throughout the entire site to drain the agricultural fields. The ditches on the western portion of the site drain to a tide gate on the southwest portion of the dike. The water in these ditches drain into the Union River during low tide events and backs up and fills the ditches during high tide. The tide gate has a functioning flap valve that allows only one directional flow, eliminating the free exchange of salt water and fish species into the southern drainage ditches. The tide gate appears to be a fish barrier and therefore fish use is not expected to occur in the southern drainage ditches. There was an OHWM associated with these ditches, which consisted of water marks and shifts in vegetation. Wetland vegetation primarily consisting of common cattail (*Typha latifolia,* OBL), hardstem bulrush (*Scirpus acutus,* OBL) and small-fruited bulrush was observed within the western drainage ditches. The eastern drainage ditches drain under the road to the west only when the water level raises high enough. Otherwise, the water drains subsurface or to Mindy Creek, a salmon-bearing stream, which flows through the northeastern portion of the site. These drainage ditches contained red alder, Pacific willow, cattail, hardstem bulrush, field horsetail (*Equisetum arvense,* FAC) and small-fruited bulrush with Himalayan blackberry (*Rubus armeniacus,* FACU) and stinging nettle (*Urtica dioia spp. Gracilis,* FAC+) along the upland edges. Photographs visually depicting the wetland and upland conditions can be found in Appendix A.

After the formal delineation was completed, the drainage ditches on site were cleared of all vegetation to allow for optimal drainage of the agricultural fields. Vegetation was removed using hand tools and industrial mowers, piled in the northeastern upland portion of the site and burned. None of the soils or hydrologic connections were disrupted during the clearing event. These drainage ditches have been historically cleared of all vegetation approximately every ten years. Soil was also excavated out of these ditches in the 1980's to remove excess sediment that had migrated to the bottom of the ditches. Photographs visually depicting the drainage ditches before and after clearing can be found in Appendix A.

WETLAND HYDROLOGY MONITORING

Groundwater data was collected at 36 shallow groundwater monitoring wells located throughout the site. Data was collected four times a week beginning on March 6, 2007 and ending on June 10, 2007. This period was selected for monitoring because groundwater in each well will typically dry up during the summer months. The period of highest groundwater depths during the growing season is assumed to be at the beginning of the growing season and gradually drop through the spring and summer. According to the USDA WETS Table for Shelton, Washington, the growing season typically starts on April 6 and ends on November 19 (USDA 2002). However, biological indicators observed in the field suggested that the growing season started on March 9, 2007. Biological indicators observed included the emergence of herbaceous plants from the ground and bud bursts on woody plants. Therefore, the critical period for defining wetland hydrology is from March 9 through June 10.

A review of groundwater data indicates that shallow groundwater depth on site fluctuates primarily in accordance with precipitation. Peaks in groundwater elevation coincide with precipitation events. Soil types observed during the installation of wells indicated the presence of a silty loam layer in the upper 24 inches on the eastern half of the site. Silty sands were observed in the upper 24 inches on the western half of the site. Shallow groundwater appears to be perched atop this less permeable silty loam layer and groundwater appears to percolate through the silty sand layer quicker. Inundation depths and wetland presence are largely determined by the heterogeneity of depth to the silty soil layer throughout the site. Data was compared to tidal data as well to determine whether tidal fluctuations affect shallow groundwater depth on site. Minor fluctuations ranging from one to three inches were observed in the hand measured and pressure transducer wells. These fluctuations are caused by the pooling of water in the drainage ditches when the tide gate is closed during high tide. Once the tide drops low enough for the tide gate to open, the water in the ditches drains out of the site. These minor water level fluctuations are not substantial enough to impact wetland hydrology onsite and we conclude that rainfall on top of a less permeable layer is the primary determinant for shallow groundwater elevation throughout the site.

Twenty three out of the 36 groundwater monitoring wells met or exceeded wetland hydrology criteria. However, wells D-3, D-5, E-2, E-4, E-7, E-10, E-11, F-3, F-5 and F-6 met the hydrology requirements for wetlands but did not meet the wetland requirements for hydric soils and/or hydrophytic vegetation. Therefore, the areas surrounding these wells were considered upland. Data sheets depicting the vegetation and soils surrounding these wells are located in Appendix C-Wetland Data Sheets. Table 4 below outlines the wells that have positive wetland hydrology. Appendix D-Shallow Groundwater Well Monitoring Data depicts the groundwater level in each well. The hydrology data collected was used in the determination of the wetlands on site.

Table 4. Shallow Groundwater Monitoring Wells Hydrology

Well #	Wetland Hydrology	Well #	Wetland Hydrology	Well #	Wetland Hydrology
A-1	No	A-2	No	A-3	No
A-4	No	B-1	Yes	B-2	No
B-3	No	B-4	No	B-5	No
C-1	No	C-2	No	C-3	No
C-4	No	C-5	Yes	D-1	Yes
D-2	Yes	D-3	Yes	D-4	Yes
D-5	Yes	E-1	Yes	E-2	Yes
E-3	No	E-4	Yes	E-5	Yes

Table 4. Shallow Groundwater Monitoring Wells Hydrology (Continued)

Well #	Wetland Hydrology	Well #	Wetland Hydrology	Well #	Wetland Hydrology
E-6	Yes	E-7	Yes	E-8	Yes
E-9	Yes	E-10	Yes	E-11	Yes
F-1	Yes	F-2	Yes	F-3	Yes
F-4	Yes	F-5	Yes	F-6	Yes

STREAM CLASSIFICATION AND EVALUATION

GeoEngineers identified and delineated one stream (Mindy Creek) on site by documenting and verifying OHWM parameters. The wetland map (Appendix B-1) depicts the location of the OHWM boundaries. The OHWM of Mindy Creek was not delineated throughout the entire site since Mindy Creek is located within the Wetland A complex and the wetland buffers are larger than the identified stream buffer in the northeastern corner of the site.

STREAM PARAMETERS

Mindy Creek enters the site from the northeast and exits the site in the center of the northern boundary. Mindy Creeks flows into the Union River 450 feet to the north of where it exits the site. Tidal influence in the Union River from the Hood Canal almost reaches the northern boundary of the site through Mindy Creek. The OHWM of Mindy Creek was delineated starting where it leaves the site next to the culvert and ended where it meets the forested portion of Wetland A.

The stream channel in between the OHWM was approximately two to three feet wide and two feet deep. A steep topographic break was present at the OHWM line. The OHWM was determined by topographic changes, scour lines and vegetation community composition. Mindy Creek flows year-round and high water typically occurs during the winter months. A riparian wetland is associated with Mindy Creek on both sides and this area contains wetland vegetation. The vegetation communities along Mindy Creek contained both shrub and herbaceous layers. The shrub layer is primarily composed of Pacific willow, hardhack, red alder and sitka willow. The herbaceous layer consisted of soft rush, slough sedge, lady fern and small-fruited bulrush. Site photographs of the creek bank and vegetation are located in Appendix A.

Stream Classification

Mason County has specified that all streams located in Mason County will be typed according to MCRO 17.01.110D2.

Table 5. Stream Classification

Stream	Surface Flow	Classification	Required Buffer
Mindy Creek	Perennial	Type F	150 Feet

WETLAND CATEGORIZATION AND EVALUATION

GeoEngineers identified and delineated 29 wetlands (A-X) on site by documenting and verifying wetland parameters throughout the site. The wetland map (Appendix B-1) depicts the location of the wetland

boundaries and associated sample points. Wetland specific information is contained in the wetland data sheets located in Appendix C.

WETLAND PARAMETERS

Wetland A

Wetland A is a complex of several different hydrogeomorphic wetlands including slope, depressional and riverine. These wetlands are all connected via subsurface and overland water flow but were divided into their respective hydrogeomorphic classifications for rating purposes.

A-1

Wetland A-1 is a 812,230 square feet (18.65 acres) sloped wetland located on the eastern half of the site. This wetland extends off site to the north, east and south. It contains a mixture of emergent, scrub-shrub and forested vegetation. The forested layer of the wetland is dominated by red alder, western red cedar and black cottonwood in the southeastern and eastern portions of the wetland on the outskirts of the agricultural fields. The shrub layer in the forested wetland is dominated by salmonberry, Nootka rose and Pacific willow and the herbaceous layer consists of skunk cabbage, water parsley and slough sedge. Pockets of standing water were observed throughout the forested portion of Wetland A and the soil was saturated to the surface in the area where no standing water was present. Soil color in this area consisted primarily of 10YR2/1.

Portions of this wetland are located in the agricultural fields in the southeastern portion of the site. FAC, FACW and OBL species including field horsetail (*Equisetum arvense,* FAC), meadow foxtail, colonial bentgrass, velvet grass, tall fescue, tall buttercup (*Ranunculus acris,* FACW-), soft rush and sawbeak sedge were observed in this area. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species with recent indicators of hydric soils and wetland hydrology as well as monitoring well data to determine the wetland boundary. Recent indicators of hydric soils included anoxic "rotten egg" odor, organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Precipitation and a high groundwater table in this portion of the wetland is the main source of hydrology. Soil color in this wetland consisted of 10YR4/2 with moderate redoximorphic concentrations. The texture of the soil was identified to be silt loam.

One drainage ditch is included in the boundary of Wetland A-1. This ditch runs north and south along the eastern edge of the agricultural field and drains into Mindy Creek during high precipitation events. This ditch contained the same vegetation as the forested wetland but also contained Himalayan blackberry on the western side of the ditch. The ditch contains standing water and hydrology in the ditches originates from seeps and surface water draining from the fields. Soils in the ditch were also colored 10YR2/1.

A-2

Wetland A-2 is a 69,999 square feet (1.61 acres) sloped wetland located in the northeastern corner of the site. FAC and FACW species including field horsetail (*Equisetum arvense,* FAC), meadow foxtail, colonial bentgrass, velvet grass, tall fescue, tall buttercup (*Ranunculus acris,* FACW-) and soft rush were observed throughout all of the fields on site. However, wetland hydrology data collected from the monitoring well indicated that only certain portions of the field meet wetland criteria. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species such as soft rush, meadow foxtail and sawbeak sedge with recent indicators of hydric soils and wetland hydrology as well as monitoring well data to determine the wetland boundary. Recent indicators of hydric soils included anoxic "rotten egg" odor, organic accumulation on the surface layer and diffuse soil layer

boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Precipitation and a high groundwater table in this wetland is the main source of hydrology. Soil color consisted of 10YR4/2 with moderate redoximorphic concentrations. The texture of the soil was identified to be sandy silt.

A-3

Wetland A-3 is a 33,698 square feet (0.77 acres) riverine wetland associated with Mindy Creek, located on the eastern half of the site. Mindy Creek runs through the northern portion of the site from east to west. The associated drainage ditches in the eastern portion of the site drain into Mindy Creek during high precipitation events. The riparian wetland associated with the creek contains Pacific willow, hardstem bulrush, small-fruited bulrush, sawbeak sedge, soft rush and cattail. Wetland A-3 contained standing pockets of water and the soil was saturated to the surface. Hydrology in this wetland originates from ditches draining the fields and over bank flooding from Mindy Creek. Soils in the wetland were colored 10YR2/1.

A-4

Wetland A-4 is a 97,726 square feet (2.24 acres) sloped wetland located on the eastern half of the site. FAC and FACW species including field horsetail (*Equisetum arvense,* FAC), meadow foxtail, colonial bentgrass, velvet grass, tall fescue, tall buttercup (*Ranunculus acris,* FACW-) and soft rush were observed throughout all of the fields on site. However, wetland hydrology data collected from the monitoring wells indicated that only certain portions of the fields meet wetland criteria. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species such as soft rush, meadow foxtail and sawbeak sedge with recent indicators of hydric soils and wetland hydrology as well as monitoring well data to determine the wetland boundary. Recent indicators of hydric soils included anoxic "rotten egg" odor, organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Precipitation and a high groundwater table in the eastern half of the site is the main source of hydrology for this wetland. Soil color in this wetland consisted of 10YR4/2 with moderate redoximorphic concentrations. The texture of the soil was identified to be sandy silt.

A-5

Wetland A-5 is a 22,030 square feet (0.51 acres) depressional wetland located on the eastern half of the site. This wetland is located in a drainage ditch for the agricultural fields. This wetland contained Pacific willow, red alder, Sitka willow (*Salix sitchensis,* FACW), cattail, soft rush and sawbeak sedge. A culvert located in the southwestern portion of the wetland drains this ditch into Wetland S-1 under Roessel Road. It is connected to Wetland A-4 which is a slope wetland; however, water drains into this drainage ditch from seeps and does not drain out. The wetland contained standing water and portions of the wetland were saturated to the surface. Hydrology originates from seeps draining the fields. Soils in the wetland were colored 10YR2/1.

Wetland B

Wetland B is a slope wetland and the delineated size is 19,832 square feet (0.46 acres). This wetland contains a mixture of mature red alder, hardhack (*Spiraea douglasii,* FACW), small-fruited bulrush and false-lily-of-the-valley (*Maianthemum dilatatum,* FAC) in the portion of the wetland not located in the agricultural field. The field portion of the wetland contained velvetgrass, tall fescue, soft rush, field horsetail and sawbeak sedge. The delineated wetland boundary in the agricultural field followed the line of FAC, FACW and OBL species such as soft rush, meadow foxtail, sawbeak sedge, skunk cabbage and hardhack with recent indicators of hydric soils and wetland hydrology as well as a topographic depression to determine the wetland boundary. Recent indicators of hydric soils included anoxic "rotten egg" odor,

organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres and matted vegetation. A dense patch of Himalayan blackberry is located to the east of this wetland in the adjacent upland. Wetland hydrology originates from precipitation and a high groundwater table. Soils were noted to be 10YR3/1 in color in the wetland and standing water was observed 4 inches below the surface.

Wetland C

Wetland C is a slope wetland and the delineated size is 9,524 square feet (0.22 acres). This wetland contains only an herbaceous layer consisting of field horsetail, meadow foxtail, velvet grass and tall buttercup. Orchard grass and sweet vernalgrass were present on the edge of the wetland in the adjacent upland. A small topographic break, approximately six inches, was also observed around the boundary of the wetland. Monitoring well B-1 showed positive hydrology inside of the wetland and wetland the boundary was based off of a distinct topographic break, the presence of FAC, FACW and OBL species such as soft rush, meadow foxtail and sawbeak sedge and recent indicators of hydric soils and wetland hydrology. Recent indicators of hydric soils included anoxic "rotten egg" odor, organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Wetland hydrology originates from precipitation and a high groundwater table. Soil color in the wetland consisted of 2.5Y5/1 with moderate redoximorphic concentrations.

Wetland D

Wetland D is a depressional wetland located in the drainage ditch running east to west through the southeastern agricultural field. This wetland does not extend west across the road. It is 16,644 square feet (0.38 acres) in size and drains to the west under the road through a culvert only during times of heavy precipitation. Vegetation observed within the wetland consists of red alder, sitka willow, cattail, hardstem bulrush, small-fruited bulrush and water parsley. Himalayan blackberry and stinging nettle were present along the edges of the wetland. Wetland hydrology is fed from seeps draining the agricultural fields surrounding the ditch and direct precipitation. Standing water was present throughout the entire ditch but it was not observed to be flowing. Soils were noted to be comprised of silt and 10YR2/1 in color.

Wetland E

Wetland E is a depressional wetland with a delineated size of 17,599 square feet (0.40 acres). This wetland is located next to the northern single-family residence and the northern portion of this wetland resides in a maintained garden. A small topographic break was observed along the boundary of the wetland. A distinct vegetation shift was also noted at this break and vegetation in the wetland consisted of soft rush, Baltic rush, slough sedge, meadow foxtail and silverweed. Matted vegetation and algal mats were noted in the wetland indicating the presence of inundation during the growing season. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species such as soft rush, meadow foxtail slough sedge and silverweed with recent indicators of hydric soils and wetland hydrology as well as a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in the wetland were silty sand and the primary soil color consisted of 2.5Y5/2 with moderate redoximorphic concentrations.

Wetland F

Wetland F is a small depressional wetland with a delineated size of 2,097 square feet (0.05 acres). Signs of inundation including matted vegetation and algal mats were observed in the deepest portions of the wetland and a small topographic break was observed along the delineated boundary. Wetland vegetation included slough sedge and meadow foxtail. Monitoring well D-2 was located in the northeastern corner of this wetland. Hydrology data from this well confirmed the presence of wetland hydrology during the growing season. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species such as meadow foxtail and slough sedge with recent indicators of hydric soils and wetland hydrology as well as a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland consist of a silty sand and the color was 2.5Y5/2 with moderate redoximorphic concentrations.

Wetland G

Wetland G is a depressional wetland with a delineated size of 3,890 square feet (0.09 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland and a small topographic break was observed along the boundary of the wetland. Vegetation observed within the wetland included soft rush, Baltic rush, meadow foxtail, tall buttercup, silverweed and twinberry (*Lonicera involucrate,* FAC+). The twinberry in the wetland was observed to be less than 1-foot tall. Monitoring well D-4 was located in the eastern portion of this wetland. Hydrology data from this well confirmed the presence of wetland hydrology during the growing season. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species such as soft rush, meadow foxtail and silverweed with recent indicators of hydric soils and wetland hydrology as well as well data and a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y5/2 with moderate redoximorphic concentrations.

Wetland H

Wetland H is a depressional wetland and the delineated size is 1,053 square feet (0.02 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland and a small topographic break was observed along the boundary of the wetland. Vegetation observed within the wetland included soft rush, Baltic rush, meadow foxtail and silverweed. Wetland hydrology appears to primarily originate from precipitation and a high groundwater table at the beginning of the growing season. The wetland boundary was determined by correlating the presence of FAC, FACW and OBL species such as meadow foxtail and silverweed with recent indicators of hydric soils and wetland hydrology as well as a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y4/2 with moderate redoximorphic concentrations.

Wetland I

Wetland I is a depressional wetland and the delineated size is 1,944 square feet (0.04 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland. Vegetation observed within the wetland included soft rush, Baltic rush, meadow foxtail and silverweed. A small topographic break was observed along the boundary of the wetland. Monitoring well E-1 was located in the northeastern portion of this wetland. Hydrology data from this well confirmed the presence of wetland hydrology during the growing season. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species such as soft rush, meadow foxtail and silverweed with recent indicators of hydric soils and wetland hydrology as well as monitoring well data and a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y4/2 with moderate redoximorphic concentrations.

Wetland J

Wetland J is a depressional wetland and the delineated size is 2,043 square feet (0.05 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland. Vegetation observed within the wetland included Baltic rush, meadow foxtail and silverweed. A small topographic break was observed along the boundary of the wetland. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. The wetland boundary was determined by correlating the presence of FAC, FACW and OBL species such as meadow foxtail and silverweed with recent indicators of hydric soils and wetland hydrology as well as a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y5/2 with moderate redoximorphic concentrations.

Wetland K

Wetland K is a depressional wetland and the delineated size is 607 square feet (0.01 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland. Vegetation observed within the wetland included soft rush, Baltic rush, velvet grass and slough sedge. A small topographic break was observed along the boundary of the wetland. Monitoring well E-5 was located in the center of this wetland. Hydrology data from this well confirmed the presence of wetland hydrology during the growing season. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species such as soft rush, meadow foxtail and slough sedge with recent indicators of hydric soils and wetland hydrology as well as monitoring well data and a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y5/2 with moderate redoximorphic concentrations.

Wetland L

Wetland L is a mosaic of small depressional wetlands and the delineated size of the mosaic is 13,725 square feet (0.32 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of all of the wetlands. Vegetation observed within the wetland areas included soft rush, Baltic rush, meadow foxtail, short-awn foxtail and silverweed. A small topographic break was observed along the boundary of each wetland. Upland areas between the wetlands included vegetation such as tall fescue, sweet vernalgrass, birdsfoot trefoil, smoth hawksbeard and tall buttercup. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. The wetland boundary was determined by correlating the presence of FAC, FACW and OBL species such as meadow foxtail and silverweed with recent indicators of hydric soils and wetland hydrology as well as a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y5/2 with moderate redoximorphic concentrations.

Wetland M

Wetland M is a depressional wetland and the delineated size is 1,387 square feet (0.03 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland. Vegetation observed within the wetland included soft rush, meadow foxtail and silverweed. A small topographic break was observed along the boundary of the wetland. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. The wetland boundary was determined by correlating the presence of FAC, FACW and OBL species such as meadow foxtail and silverweed with recent indicators of hydric soils and wetland hydrology as well as a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y5/2 with moderate redoximorphic concentrations.

Wetland N

Wetland N is a depressional wetland and the delineated size is 3,778 square feet (0.09 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland. Vegetation observed within the wetland included soft rush, meadow foxtail and silverweed. A small topographic break was observed along the boundary of the wetland. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. The wetland boundary was determined by correlating the presence of FAC, FACW and OBL species such as meadow foxtail and silverweed with recent indicators of hydric soils and wetland hydrology as well as a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y5/2 with moderate redoximorphic concentrations.

Wetland O

Wetland O is a depressional wetland and the delineated size is 7,736 square feet (0.18 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland.

Vegetation observed within the wetland included soft rush, meadow foxtail, slough sedge and silverweed. A small topographic break was observed along the boundary of the wetland. Monitoring well E-6 was located in the northeastern portion of this wetland. Hydrology data from this well confirmed the presence of wetland hydrology during the growing season. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species such as soft rush, meadow foxtail and slough sedge with recent indicators of hydric soils and wetland hydrology as well as monitoring well data and a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y5/2 with moderate redoximorphic concentrations.

Wetland P

Wetland P is a depressional wetland and the delineated size is 1,218 square feet (0.03 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland. Vegetation observed within the wetland included soft rush, Baltic rush, meadow foxtail and silverweed. A small topographic break was observed along the boundary of the wetland. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. The wetland boundary was determined by correlating the presence of FAC, FACW and OBL species such as meadow foxtail and silverweed with recent indicators of hydric soils and wetland hydrology as well as a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y4/2 with moderate redoximorphic concentrations.

Wetland Q

Wetland Q is a mosaic of small depressional wetlands and the delineated size is 26,401 square feet (0.61 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of all of the wetlands. Vegetation observed within the wetlands included soft rush, Baltic rush, meadow foxtail, short-awn foxtail and silverweed. A small topographic break was observed along the boundary of each wetland. Upland areas between the wetlands included vegetation such as tall fescue, sweet vernalgrass, birdsfoot trefoil, smoth hawksbeard and tall buttercup. Monitoring wells E-8 and E-9 were located in the northern and southern portion of this wetland. Hydrology data from both of these wells confirmed the presence of wetland hydrology during the growing season. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species such as soft rush, meadow foxtail and slough sedge with recent indicators of hydric soils and wetland hydrology as well as monitoring well data and a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y5/2 with moderate redoximorphic concentrations.

Wetland R

Wetland R is a depressional wetland and the delineated size is 3,024 square feet (0.07 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland. Vegetation observed within the wetland included soft rush, Baltic rush, meadow foxtail and silverweed. A small topographic break was observed along the boundary of the wetland. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. The wetland boundary was determined by correlating the presence of FAC, FACW and OBL species such as meadow foxtail and silverweed with recent indicators of hydric soils and wetland hydrology as well as a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. The wetland boundary was determined by following the topographic break and identifying the presence of OBL species such as silverweed. Soils in this wetland were silty sand and the color was 2.5Y5/2 with moderate redoximorphic concentrations.

Wetland S

Wetland S contains two different hydrogeomorphic wetlands including slope and depressional. Both wetlands are connected primarily via subsurface flow but a small overland water flow is present on the eastern portion of the wetland. These wetlands were divided into their respective hydrogeomorphic classifications for rating purposes.

S-1

Wetland S-1 is a depressional wetland controlled by a tide gate on the Union River. The delineated size of Wetland S-1 is 153,879 square feet (3.53 acres). This wetland is part of the drainage ditch system on the western portion of the site. The water in the ditch drains out into the Union River during low tide. The ditch fills up with water during high tide when the tide gate is closed. Vegetation in the wetland consisted primarily of hardstem bulrush and cattail. The southeast portion of the wetland contained water parsely, skunk cabbage, nootka rose and small-fruited bulrush. Wetland hydrology originates from precipitation and seeps draining the agricultural fields surrounding the ditch. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species with recent indicators of hydric soils and wetland hydrology as well as a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included anoxic “rotten egg” odor, organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were a silty and the color was 10YR2/1.

S-2

Wetland S-2 is 10,333 square feet (0.24 acres) in size located in the northern tip of the agricultural field west of the road. This area contains emergent vegetation including soft rush, velvet grass, meadow foxtail, small-fruited bulrush and sawbeak sedge. A distinct topographic break was present along the boundary of the wetland. Monitoring well D-1 was located in the field in this portion of the wetland. Hydrology data from this well confirmed the presence of wetland hydrology during the growing season. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species such as soft rush, meadow foxtail and sawbeak sedge with recent indicators of hydric soils and wetland hydrology as well as monitoring well data and a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent

indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils were observed to be saturated about 8 inches below the surface and soil coloring consisted primarily of 2.5Y4/1 and 2.5Y5/2 with redoximorphic concentrations in the lower layer.

Wetland T

Wetland T is a depressional wetland and the delineated size is 9,961 square feet (0.23 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland. Vegetation observed within the wetland included soft rush, Baltic rush, velvet grass, meadow foxtail, short-awn foxtail and silverweed. A small topographic break was observed along the boundary of the wetland. Monitoring well F-1 was located in the northeastern portion of this wetland. Hydrology data from this well confirmed the presence of wetland hydrology during the growing season. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species such as meadow foxtail, short-awn foxtail and silverweed with recent indicators of hydric soils and wetland hydrology as well as monitoring well data and a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. The wetland boundary was determined by analyzing the hydrology data, following the topographic break and identifying the presence of OBL species such as silverweed and short-awn foxtail. Soils in this wetland were silty sand and the color was 2.5Y6/2 with moderate redoximorphic concentrations.

Wetland U

Wetland U is a depressional wetland and the delineated size is 2,073 square feet (0.05 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland. Vegetation observed within the wetland included meadow foxtail, velvet grass, tall buttercup and slough sedge. A small topographic break was observed along the boundary of the wetland. Monitoring well F-2 was located in the western portion of this wetland. Hydrology data from this well confirmed the presence of wetland hydrology during the growing season. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species such as meadow foxtail and silverweed with recent indicators of hydric soils and wetland hydrology as well as monitoring well data and a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. The wetland boundary was determined by analyzing the hydrology data, following the topographic break and identifying the presence of OBL species such as silverweed. Soils in this wetland were silty sand and the color was 2.5Y6/2 with moderate redoximorphic concentrations.

Wetland V

Wetland V is a depressional and slope wetland and the delineated size is 8,456 square feet (0.19 acres). This wetland includes a small depressional wetland in the field, a small ditch which drains the wetland to the road and the roadside drainage ditch which transports water to the southern portion of the site. Signs of inundation including matted vegetation and algal mats were observed in the bottom of the western portion of the wetland. Vegetation observed within the wetland included soft rush, meadow foxtail, slough sedge and silverweed. A small topographic break was observed along the boundary of the wetland. Wetland hydrology primarily appears to originate from precipitation and a high groundwater

table at the beginning of the growing season. The wetland boundary was determined by correlating the presence of FAC, FACW and OBL species such as meadow foxtail, slough sedge and silverweed with recent indicators of hydric soils and wetland hydrology as well as a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y6/2 with moderate redoximorphic concentrations.

Wetland W

Wetland W is a depressional and slope wetland and the delineated size is 1,480 square feet (0.03 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland. Vegetation observed within the wetland included Baltic rush, meadow foxtail, tall fescue and silverweed. A small topographic break was observed along the boundary of the wetland. Monitoring well F-4 was located in the northeastern portion of this wetland. Hydrology data from this well confirmed the presence of wetland hydrology during the growing season. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. Due to the disturbed nature of the site, we correlated the presence of FAC, FACW and OBL species such as meadow foxtail, short-awn foxtail and silverweed with recent indicators of hydric soils and wetland hydrology as well as monitoring well data and a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y6/2 with moderate redoximorphic concentrations.

Wetland X

Wetland X is a depressional and slope wetland and the delineated size is 1,142 square feet (0.03 acres). Signs of inundation including matted vegetation and algal mats were observed in the bottom of the wetland. Vegetation observed within the wetland included Baltic rush, meadow foxtail, tall fescue, short-awn foxtail and silverweed. A small topographic break was observed along the boundary of the wetland. Wetland hydrology primarily appears to originate from precipitation and a high groundwater table at the beginning of the growing season. The wetland boundary was determined by correlating the presence of FAC, FACW and OBL species such as meadow foxtail, short-awn foxtail and silverweed with recent indicators of hydric soils and wetland hydrology as well as a distinct topographic break to determine the wetland boundary. Recent indicators of hydric soils included organic accumulation on the surface layer and diffuse soil layer boundaries between varying soil types and recent indicators of wetland hydrology included oxidized rhizospheres, matted vegetation and algal mats. Soils in this wetland were silty sand and the color was 2.5Y6/2 with moderate redoximorphic concentrations.

WETLAND EVALUATION

Wetland Characterization

The wetland features were classified using both the Cowardin *et al.* (1979) and Mason County systems, as appropriate (Table 3). Mason County has specified under MCRO 17.01.070E that all wetlands located in Mason County will be rated under the *Washington State Wetlands Rating System for Western Washington* (Ecology 2004). The wetland rating forms for all wetlands on site are located in Appendix E. The proposed project will have moderate land use impact intensity since any new structures will be located on more than one acre and have a passive use that includes occasional maintenance. The buffers assigned by Mason County are depicted on the Wetland and Stream Buffer Map located in Appendix B-2.

Table 6. Categorization of Wetland Features

Wetland Feature	Area: square feet (acre)	Cowardin Rating System			Mason County	
		System	Class	Water Regime	Rating	Required Buffer
A-1	812,230 (18.65)	Palustrine	Forested	Seasonally Flooded	Category III	110 feet
A-2	69,999 (1.61)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
A-3	33,698 (0.77)	Palustrine	Emergent, Scrub-shrub	Seasonally Flooded	Category II	75 feet
A-4	97,726 (2.24)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
A-5	22,030 (0.51)	Palustrine	Emergent, Scrub-shrub	Permanently Flooded	Category III	60 feet
B	19,832 (0.46)	Palustrine	Emergent, Scrub-shrub	Saturated	Category III	60 feet
C	9,524 (0.22)	Palustrine	Emergent	Saturated	Category IV	40 feet
D	16,644 (0.38)	Palustrine	Emergent, Scrub-shrub	Permanently Flooded	Category IV	40 feet
E	17,599 (0.40)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
F	2,097 (0.05)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet

Table 6. Categorization of Wetland Features (Continued)

Wetland Feature	Area: square feet (acre)	Cowardin Rating System			Mason County	
		System	Class	Water Regime	Rating	Required Buffer
G	3,890 (0.09)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
H	1,053 (0.02)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
I	1,944 (0.04)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
J	2,043 (0.05)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
K	607 (0.01)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
L	13,725 (0.32)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
M	1,387 (0.03)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
N	3,778 (0.09)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
O	7,736 (0.18)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
P	1,218 (0.03)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
Q	26,401 (0.61)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
R	3,024 (0.07)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
S-1	153,879 (3.53)	Palustrine	Emergent, Scrub-shrub	Permanently Flooded	Category III	60 feet
S-2	10,333 (0.24)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
T	9,961 (0.23)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
U	2,073 (0.05)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet

Table 6. Categorization of Wetland Features (Continued)

Wetland Feature	Area: square feet (acre)	Cowardin Rating System			Mason County	
		System	Class	Water Regime	Rating	Required Buffer
V	8,456 (0.19)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
W	1,480 (0.03)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
X	1,142 (0.03)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet
Y	5,584 (0.13)	Palustrine	Emergent	Seasonally Flooded	Category IV	40 feet

Wetland Functional Assessment

GeoEngineers used the Wetland and Buffer Functions Semi-Quantitative Assessment Methodology (Cooke 2000) to determine the functions of the wetlands on site. Each individual function indicates its importance relative to the overall watershed system. Physical characteristics, topography, flow, site and watershed location, vegetation, species use and adjacent land use were considered in this assessment.

Wetland A-1

Wetland A-1 was assessed as a slope wetland for the purpose of this functional assessment. The following functional ratings were determined based on existing site conditions:

- Flood/Stormwater Control Medium
- Base Flow/Groundwater Support Medium
- Erosion/Shoreline Protection N/A
- Water Quality Improvement High
- Natural Biological Support High
- General Habitat Functions Medium
- Specific Habitat Functions High

Wetland A-1 has a high diversity of wetland classes and vegetation species within those classes. Dominant native vegetation provides valuable wildlife habitat and biological support. Primarily, water quality improvement and groundwater recharge are moderate functioning aspects of this wetland complex. Habitat functions are high due to an uninterrupted connection to estuarine and marine habitats.

Wetland A-2

Wetland A-2 was assessed as a slope wetland for the purpose of functional assessment. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Medium
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland A-2 has a low diversity of wetland classes and vegetation species within those classes. The hayed emergent vegetation provides limited wildlife habitat and biological support. Primarily, water quality improvement and groundwater recharge are the greatest functioning aspects of this wetland complex. Habitat functions are low due to the disturbed nature of the wetland and surrounding buffers.

Wetland A-3

Wetland A-3 was assessed as a riverine wetland for the purpose of functional assessment. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Medium
- Natural Biological Support Medium
- General Habitat Functions Medium
- Specific Habitat Functions Medium

The structural diversity of this wetland provides a medium functional rating for wildlife habitat. It provides low water functions due to the narrow channel and lack of woody vegetation. There is a medium diversity of vegetation within the wetland and associated buffers.

Wetland A-4

Wetland A-4 was assessed as a slope wetland for the purpose of functional assessment. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low

- Specific Habitat Functions Low

The lack of persistent vegetation in this wetland provides a low functional rating for wildlife habitat. The size of this wetland and its lack of connection to streams lower its potential for stormwater storage and support to hydrologic features to a low rating.

Wetland A-5

Wetland A-5 was assessed as a depressional wetland for the purpose of functional assessment. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Medium
- Base Flow/Groundwater Support Medium
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Medium
- Natural Biological Support Medium
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland A-5 does not provide significant wildlife habitat due to the disturbed nature of the wetland and buffers. The groundwater support rating is medium due to the high water table and saturation of the ground year round. Water quality improvement and stormwater control ratings are medium due to the potential to reduce flows coming from the fields.

Wetland B

Wetland B was assessed as a slope wetland for the purpose of functional assessment. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Medium
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Medium
- Natural Biological Support Medium
- General Habitat Functions Medium
- Specific Habitat Functions Low

Wetland B provides moderate wildlife habitat even though it is located in an agricultural field. This wetland contains a forested canopy that partially connects to the Union River. This wetland helps slow down water velocity entering the wetland and recharges the shallow groundwater table. Therefore the rating for groundwater support and water quality improvement is medium.

Wetland C

Wetland C was assessed as a slope wetland for the purpose of functional assessment. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland C is a slope wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland D

Wetland D was assessed as a slope wetland for the purpose of functional assessment. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Medium
- Base Flow/Groundwater Support Medium
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Medium
- Natural Biological Support Medium
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland D does not provide significant wildlife habitat due to the disturbed nature of the wetland and buffers. The groundwater support rating is medium due to the high water table and saturation of the ground year round. Water quality improvement and stormwater control ratings are medium due to the potential to reduce flows coming from the fields.

Wetland E

Wetland E was assessed as a depressional wetland for the purpose of functional assessment. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low

- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland E is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland F

Wetland F was assessed as a depressional wetland for the purpose of functional assessment. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland F is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland G

Wetland G was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland G is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland H

Wetland H was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland H is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland I

Wetland I was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland I is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland J

Wetland J was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland J is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland K

Wetland K was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland K is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland L

Wetland L was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low

- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland L is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland M

Wetland M was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland M is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland N

Wetland N was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland N is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland O

Wetland O was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland O is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland P

Wetland P was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland P is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland Q

Wetland Q was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland Q is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland R

Wetland R was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland R is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland S-1

Wetland S-1 was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Medium
- Base Flow/Groundwater Support Medium

- Erosion/Shoreline Protection N/A
- Water Quality Improvement Medium
- Natural Biological Support Medium
- General Habitat Functions Medium
- Specific Habitat Functions Low
- Cultural/Socioeconomic Functions Low

Wetland S-1 does not provide significant wildlife habitat due to the disturbed nature of the wetland and buffers. The groundwater support rating is medium due to the high water table and saturation of the ground year round. Water quality improvement and stormwater control ratings are medium due to the potential to reduce flows coming from the fields.

Wetland S-2

Wetland S-2 was assessed as a slope wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low
- Cultural/Socioeconomic Functions Low

Wetland S-2 is a slope wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland T

Wetland T was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low

- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland T is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland U

Wetland U was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland U is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland V

Wetland V was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland V is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland

provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland W

Wetland W was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland W is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

Wetland X

Wetland X was assessed as a depressional wetland for the purpose of this functional analysis. The following functional ratings were determined based on existing site conditions.

- Flood/Stormwater Control Low
- Base Flow/Groundwater Support Low
- Erosion/Shoreline Protection N/A
- Water Quality Improvement Low
- Natural Biological Support Low
- General Habitat Functions Low
- Specific Habitat Functions Low

Wetland X is a depressional wetland located in the agricultural field. The vegetation in the wetland is removed once a year for haying activities. Due to the removal of vegetation annually, this wetland provides low habitat value. The wetland is small in size providing minimal stormwater control, groundwater support and water quality functions.

CONCLUSIONS

This report and associated maps serve to formally describe and characterize the wetlands and stream on site and their functions. The majority of the project site has been altered from its native condition through agricultural activities and the construction of a dike and drainage ditches. A total of 29 different wetland

areas were identified on site. The total wetland area located on site is estimated to be 31.1 acres. The majority of the wetlands are located in small topographic depressions in the agricultural fields. A combination of high groundwater table, seasonal precipitation and a confining layer near the surface has resulted in the creation of these wetlands. Wetland conditions were observed within the drainage ditches created to drain the fields. Water observed within these drainage ditches flow out during low tide events, but ponds at high tide when the tide gate closes. Many of the depressional wetlands associated with the agricultural fields appear to have no surface water connection to the ditches but may be connected through groundwater. The forested wetland observed on the eastern portion of the site extends off site and appears to connect to the Union River estuary.

Mindy Creek is the only natural stream feature that flows through the site. It originates off site and flows through the site and into the tidally influenced portion of the Union River. According to our interpretation of the Mason County Stream Rating System, we classified the on site portion of Mindy Creek as a type "F" water that requires a 150-foot buffer.

Wetlands and streams on site have been classified, rated and buffers identified according to Mason County regulations. GeoEngineers biologists performed habitat characterizations of the wetlands to identify areas of high and low-quality habitat in the wetland and surrounding buffer areas to identify buildable area on the site. Impacts to wetlands and buffers will be identified once the location of buildings, parking areas and the access road have been determined. These impacts and proposed mitigation measures will be identified in a separate mitigation report.

LIMITATIONS

GeoEngineers has developed this Wetland Delineation Report in general accordance with the scope and limitations of our proposal within the limitations of scope, schedule and budget, our services have been executed in accordance with the generally accepted practices for Wetland Delineations in this area at the time this report was prepared.

This report has been prepared for the exclusive use of the Pacific Northwest Salmon Center, their authorized agents, and regulatory agencies following the described methods and information available at the time of the work. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. The information contained herein should not be applied for any purpose or project except the one originally contemplated.

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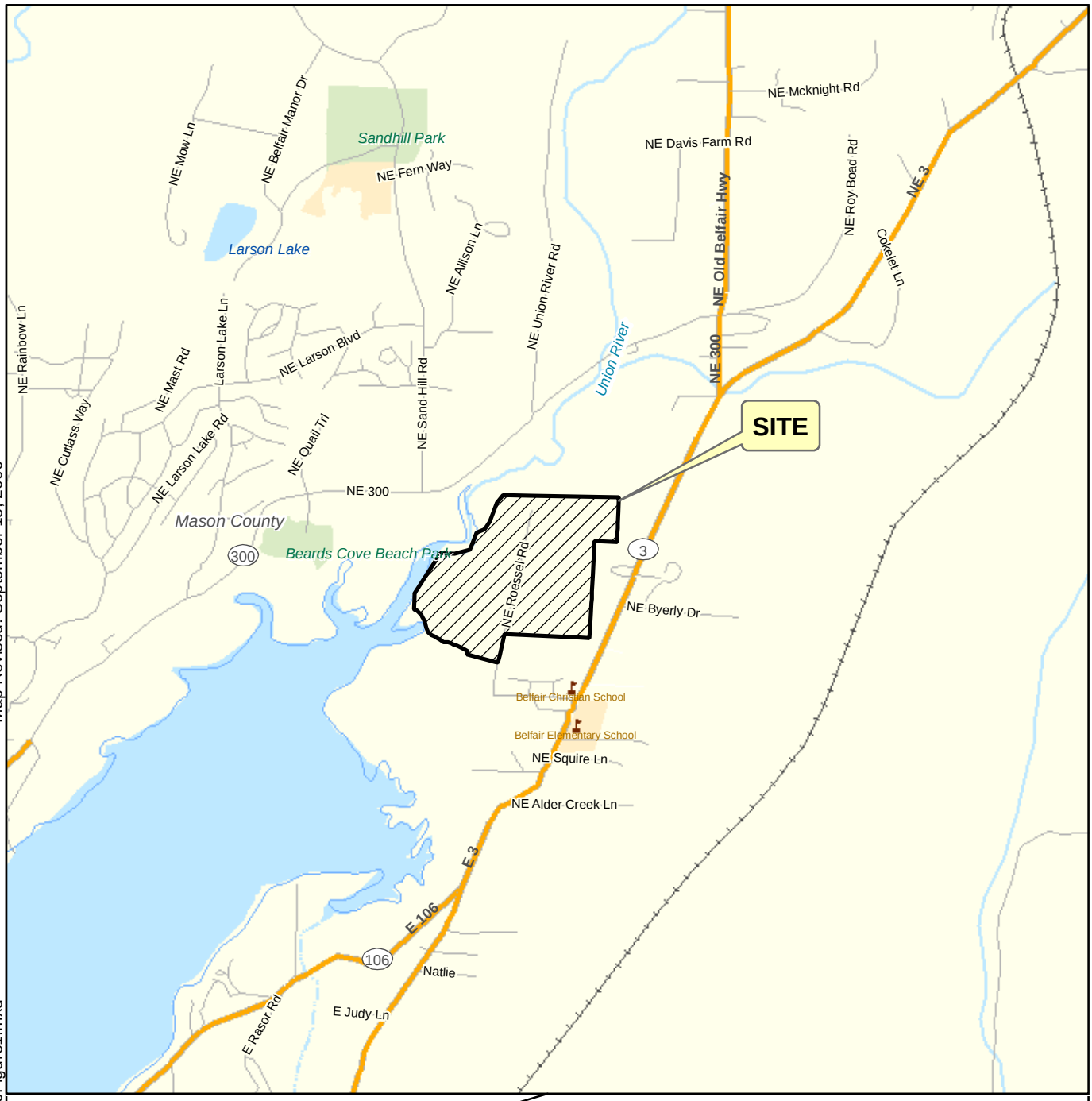

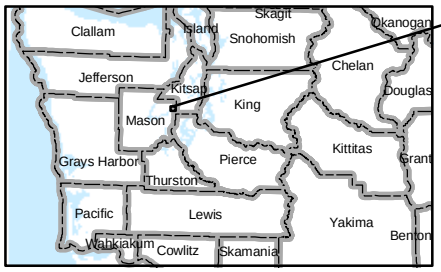

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Feet

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2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
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Data Sources: ESRI Data & Maps, Street Maps 2005.

Lambert Conformal Conic, Washington State Plane North, North American Datum 1983

Vicinity Map

Pacific Northwest Salmon Center
Belfair, Washington

GeoEngineers

Figure 1

Map Revised: September 18, 2006

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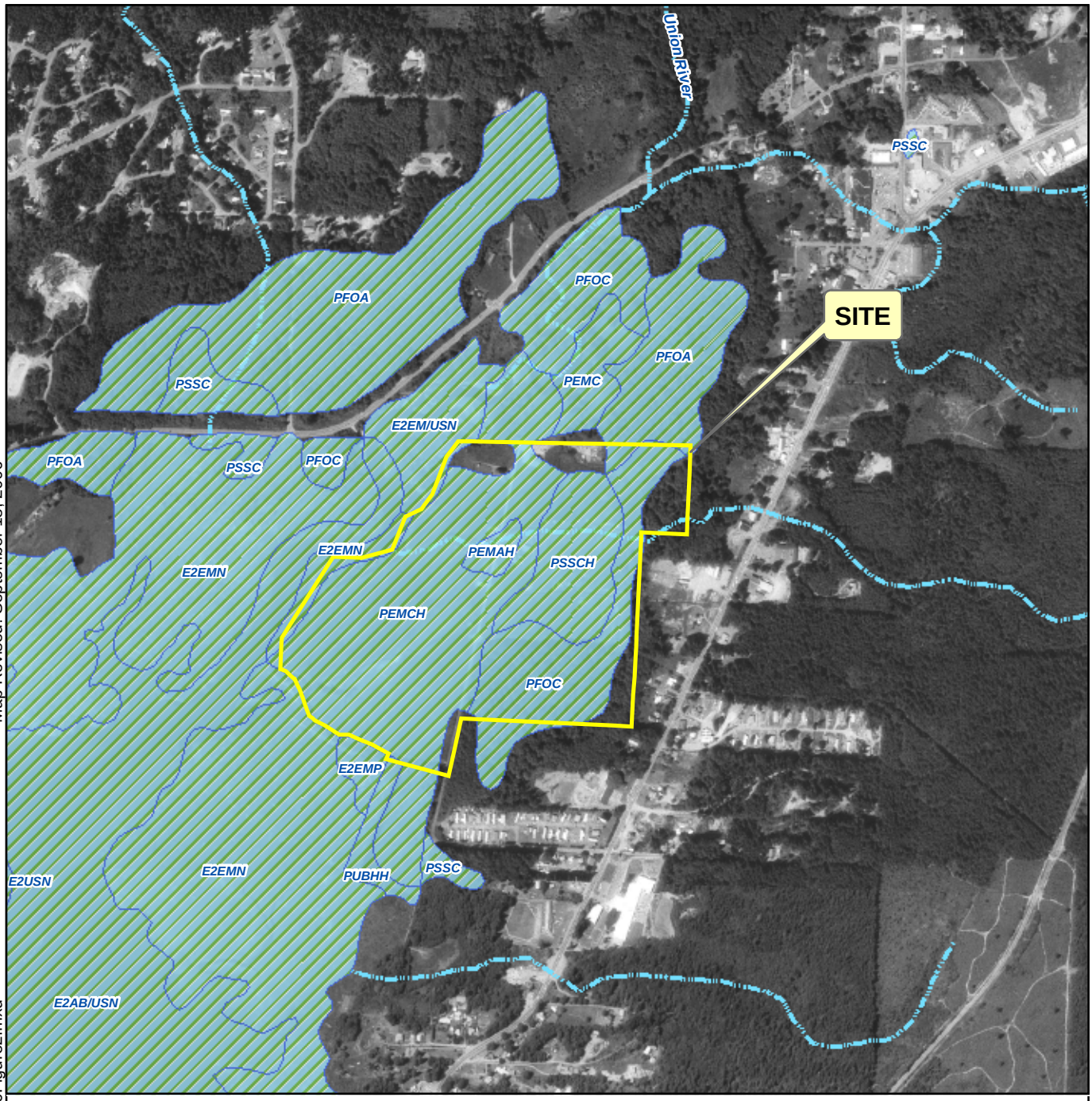

Streams

Site

National Wetland Inventory Data

PSSCH = Palustrine, Scrub-Shrub, Seasonally/Permanently Flooded
PEMAH = Palustrine, Emergent, Temporarily/Permanently Flooded
PEMCH = Palustrine, Emergent, Seasonally/Permanently Flooded
PFOC = Palustrine, Forested, Seasonally Flooded

PFOA = Palustrine, Forested, Temporarily Flooded
E2EM/USN = Estuarine, Intertidal, Emergent/Unconsolidated Shore, Regularly Flooded
E2EMN = Estuarine, Intertidal, Emergent, Regularly Flooded
E2EMP = Estuarine, Intertidal, Emergent, Irregularly Flooded

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Data Sources: Streams from Mason County. NWI data from Washington State Fish and Wildlife (obtained October 2005). Aerial photograph (June 1990, 1 meter resolution) from TerraServer (obtained September 2006).

Lambert Conformal Conic, Washington State Plane North, North American Datum 1983

Streams and Wetland Map

Pacific Northwest Salmon Center
Belfair, Washington

GeoEngineers

Figure 2

Map Revised: September 18, 2006

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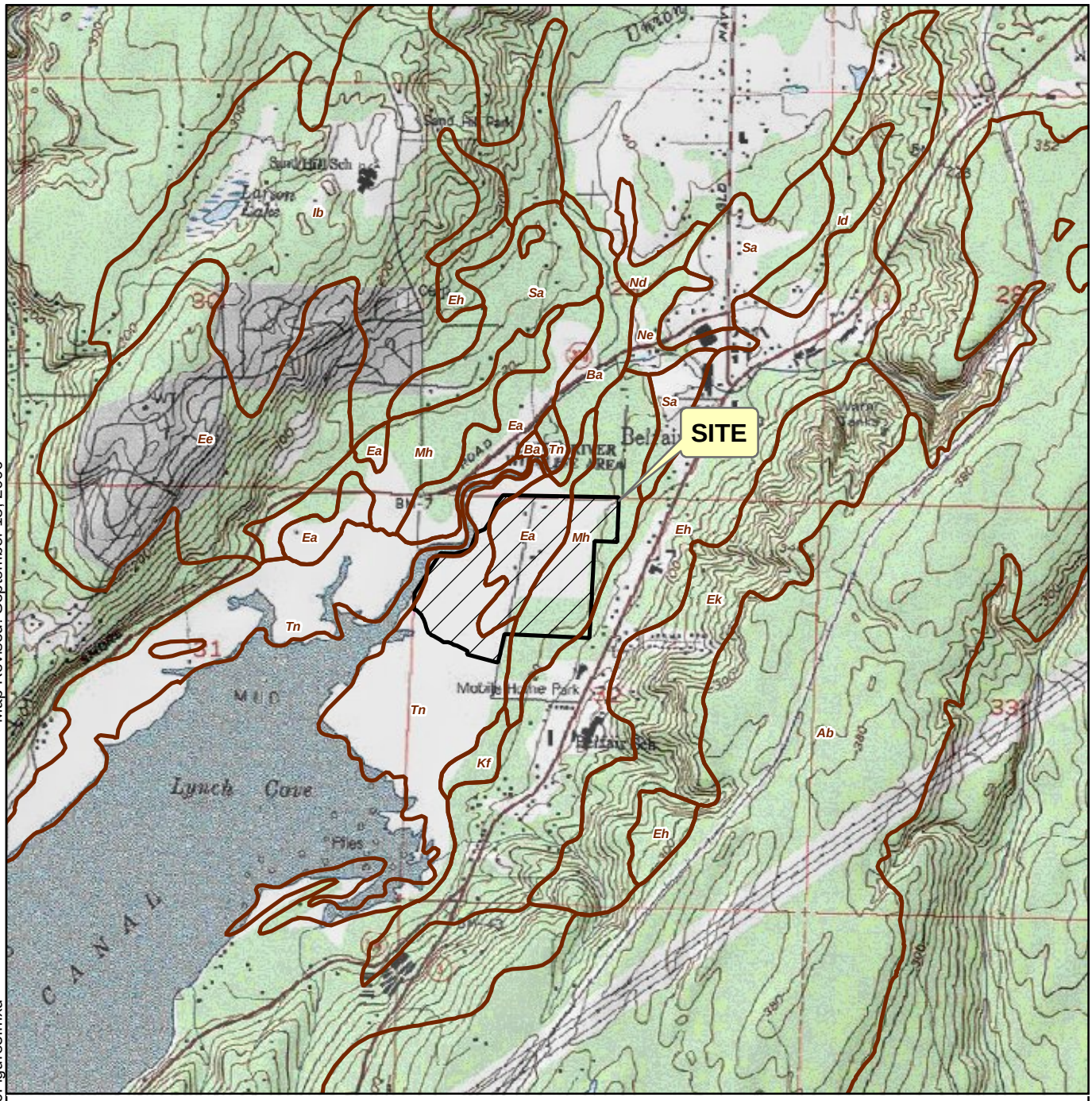

Site

Soils Boundary

Mh = Mukilteo peat, shallow over gravel, 0% to 2% slopes.
Tn = Tidal marsh, 0% to 2% slopes.

Ea = Edmonds fine sandy loam, 0% to 2% slopes.
Eh = Everett gravelly sandy loam, 5% to 15% slopes.
Ea = Edmonds fine sandy loam, 0% to 2% slopes.
Eh = Everett gravelly sandy loam, 5% to 15% slopes.

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Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
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Data Sources: NRCS soils data from United States Department of Agriculture. U.S. topographic map from National Geographic Society (obtained Sept. 2006).

Lambert Conformal Conic, Washington State Plane North, North American Datum 1983

Soils Survey Map

Pacific Northwest Salmon Center
Belfair, Washington

GeoEngineers

Figure 3

Map Revised: September 18, 2006

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Office: ORCH

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APPENDIX A
SITE PHOTOGRAPHS

APPENDIX A
SITE PHOTOGRAPHS

Photograph 1
Wetland A along main road looking northeast

Photograph 2
Wetland A in field looking east

Photograph 3
Wetland A drainage ditch on east side of fields looking south

Photograph 4
Riparian portion of Wetland A associated with Mindy Creek

Photograph 5
Wetland A looking north next to drainage ditch in the field

Photograph 6
Wetland A looking east in northern field

Photograph 7
Northern drainage ditch running east to west in Wetland A looking east from road

Photograph 8
West side of Wetland B looking north

Photograph 9
Wetland B looking southeast at mature vegetation

Photograph 10
Wetland C looking west

Photograph 11
Wetland D looking west

Photograph 12
Wetland E looking west

Photograph 13
Wetland F

Photograph 14
Wetland G

Photograph 15
Wetland H

Photograph 16
Wetland I

Photograph 17
Matted vegetation and algal mats in Wetland I

Photograph 18
Wetland J

Photograph 19
Wetland K

Photograph 20
Wetland L

Photograph 21
Wetland M

Photograph 22
Wetland N

Photograph 23
Wetland O

Photograph 24
Wetland P

Photograph 25
Matted vegetation, algal mat and silverweed in Wetland P

Photograph 26
Wetland Q

Photograph 27
Wetland R

Photograph 28
Wetland S in the southern portion of the site

Photograph 29
Wetland S in southwestern corner of site

Photograph 30
Wetland S next to tide gate

Photograph 31
Tide gate inlet in Wetland S

Photograph 32
Tide gate outlet in Union River

Photograph 33
Wetland S looking west

Photograph 34
Wetland S in the northern portion of the site in the field

Photograph 35
Wetland T

Photograph 36
Wetland U

Photograph 37
Wetland V

Photograph 38
Wetland W

Photograph 39
Wetland X

Photograph 40
Cleared drainage ditch in northern tip of S-1 looking west

Photograph 41
Cleared drainage ditch in Wetland A-5 looking south

Photograph 42
Cleared drainage ditch in Wetland D looking east

Photograph 43
Cleared drainage ditch in Wetland S-1 along Roessel Road looking north

Photograph 44
Cleared area along Mindy Creek looking south

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APPENDIX B
SITE MAPS

UNION RIVER

TIDE GATE

STATE HIWAY NO. 3

Mindy Creek OHWM

Property Boundary

A-1 A-2 A-3 A-4 A-5 S-1 S-2

WET SP1 D1 S-2
WET E SP1 E
WET E,F,G,H SP2
WET G SP1 G
WET F SP1 F
WET E,F,G,H SP3
WET H SP1 H
WET E,F,G,H SP4
WET A–3 SP1
WET A–2 SP1
WET A–4 SP1
WET A–5 SP2 C1
WET A–5 SP1
C2 C3 C4 C5
WET A–4 SP2
WET I SP1 I E1
WET I,J SP2
WET K,L,M,N,O SP2 E6
WET K SP1 K E5
WET I,J SP3 E2
WET J SP1 J E4
WET P,Q,R SP3 E7
WET O SP1 O
WET P SP1 P
WET SP1 L
WET P,Q,R SP2
WET Q SP1 Q E8
WET N SP1 N
WET M SP1 M E10
WET K,L,M,N,O SP3
WET K,L,M,N,O SP4 E11
WET R SP1 R E9
WET S SP1
WET W SP1 W F4
WET X SP1 X
WET W,X SP2
WET W,X SP4 F6 F5
WET T SP1 T F1
WET T,U,V SP2 F2
WET U SP1 U
WET T,U,V SP3 F3
WET V SP1 V
E3
B1 B2 B3 B4 B5
WET B,C SP2
WET C SP1 C
WET B SP1 B
WET D SP1 D
WET A–1 SP4 A1
A3
A2
WET A–1 SP1
A4
WET A–1 SP3
WET A–1 SP2

Legend
- WETLAND
- F1 MONITORING WELLS
- SAMPLE PLOTS
- WATER FLOW
- CULVERT
- MINDY CREEK OHWM

N W E S

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Feet

Notes:
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Reference: AES Consultants, Inc.

Wetland and Stream Delineation Map

Pacific Northwest Salmon Center
Belfair, Washington

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Appendix B-1

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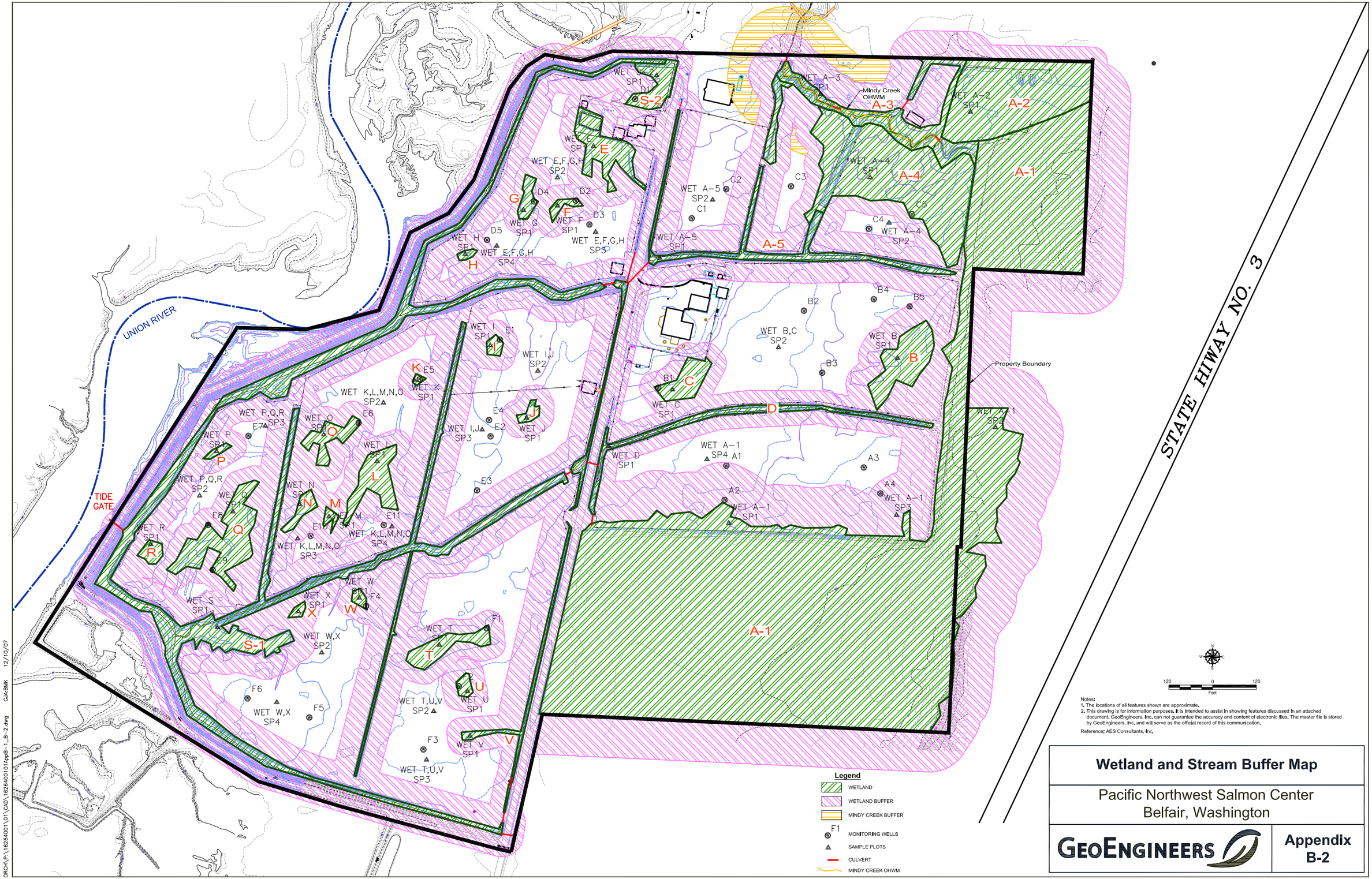

Wetland and Stream Buffer Map

Pacific Northwest Salmon Center
Belfair, Washington

GeoEngineers

Appendix B-2

ORCH:\P:\1626400101\01\CAD\1626400101AppB-1_B-2.dwg 12/10/07 GA:BMK

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APPENDIX C
WETLAND DATA SHEETS

Project Name: PNSC Wetland A -1	Date: 06/18/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & SMM	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 37"	
No Is the site a potential Problem Area?	West: 122° 50' 11"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	HOLCUS LANATUS	Herb	FAC	20.00	Yes
2	EQUISETUM ARVENSE	Herb	FAC	20.00	Yes
3	JUNCUS EFFUSUS	Herb	FACW	20.00	Yes
4	RANUNCULUS REPENS	Herb	FACW	30.00	Yes
5	CAREX STIPATA	Herb	OBL	10.00	No

Total Number of Species: 5 Total Dominants: 4
Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00
Prevalence Index: 2.30 FAC Neutral: Yes

HYDROLOGY

Recorded Data:
- _____ Stream, Lake, or Tide Gauge
- _____ Aerial Photographs
- X Other
- _____ No Recorded Data Available

Field Observations:
- Depth of Surface Water: _____ (in.)
- Depth to Free Water in Pit: 6<8 (in.)
- Depth to Saturated Soil: 0<1 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- _____ Inundated
- X Saturated in Upper 12 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- X Local Soil Survey Data
- X FAC-Neutral Test
- _____ Other (Explain in Remarks)

SOILS

Map Unit Name: Mulkiteo peat, shallow over gravel Mh
(Series and Phase): 0 to 2 percent slopes
Taxonomy (Subgroup): mesic Terric Medisaprists
Drainage Class: very poorly drained
Field Observations
Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		10YR4/3	Sandy loam		
8-12		10YR4/2	Silt loam	Common	10YR5/6
12-16		10YR4/1	Silt loam	Common	5YR4/6

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
X	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

The portion of Wetland A-1 in the agricultural field has been historically hayed and the vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well A2 in the agricultural field.

Wetland	**WoUS**		
X Yes	____ Yes	5	Species Richness
____ No	X No	2.30	Prevalence Index

Project Name: PNSC Wetland A -1	Date: 06/18/2007	Time:
Sample Point Number: 2	County: Mason	State: WA
Investigators: GJA & SMM	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 38"	
No Is the site a potential Problem Area?	West: 122° 50' 02"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	LYSICHITON AMERICANUM	Herb	OBL	20.00	Yes
2	ATHYRIUM FILIX-FEMINA	Herb	FAC	25.00	Yes
3	RUBUS SPECTABILIS	Shrub	FAC+	10.00	Yes
4	ALNUS RUBRA	Tree	FAC	70.00	Yes
5	SALIX LASIANDRA	Tree	FACW+	20.00	Yes
6	OENANTHE SARMENTOSA	Herb	OBL	20.00	Yes
7	SCIRPUS MICROCARPUS	Herb	OBL	15.00	No
8	RANUNCULUS REPENS	Herb	FACW	20.00	Yes

Total Number of Species: 8 Total Dominants: 7
Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00
Prevalence Index: 2.25 FAC Neutral: Yes

HYDROLOGY

Recorded Data:
- _____ Stream, Lake, or Tide Gauge
- _____ Aerial Photographs
- X Other
- _____ No Recorded Data Available

Field Observations:
- Depth of Surface Water: _____ (in.)
- Depth to Free Water in Pit: 3<4 (in.)
- Depth to Saturated Soil: 0<1 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- _____ Inundated
- X Saturated in Upper 12 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 inches
- X Water-Stained Leaves
- X Local Soil Survey Data
- X FAC-Neutral Test
- _____ Other (Explain in Remarks)

SOILS

Map Unit Name: Mulkiteo peat, shallow over gravel Mh
(Series and Phase): 0 to 2 percent slopes
Taxonomy (Subgroup): mesic Terric Medisaprists

Drainage Class: very poorly drained
Field Observations
Confirm Mapped Type? Yes

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-16		10YR2-2.5/1	Silt loam		

Hydric Soil Indicators:

	Histosol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
X	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
	Reducing Conditions		Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors		Organic Pan
			Other (Explain in Remarks)

NRCS Field Indicators:

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

This sample point is located in the undisturbed, forested portion of the wetland to the east of the site.

Wetland	**WoUS**		
X Yes	Yes	8	Species Richness
No	X No	2.25	Prevalence Index

Project Name: PNSC Wetland A -1	Date: 06/18/2007	Time:
Sample Point Number: 3	County: Mason	State: WA
Investigators: GJA & SMM	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 37"	
No Is the site a potential Problem Area?	West: 122° 50' 06"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	HOLCUS LANATUS	Herb	FAC	25.00	Yes
2	DACTYLIS GLOMERATA	Herb	FACU	25.00	Yes
3	JUNCUS EFFUSUS	Herb	FACW	15.00	No
4	ALOPECURUS PRATENSIS	Herb	FACW	10.00	No
5	LOLIUM PERENNE	Herb	FACU	20.00	Yes

Total Number of Species: 5 Total Dominants: 3
Percent of Dominants that are Wetland Species: 50/20: 33.00 FAC(minus)- applied: 33.00
Prevalence Index: 3.21 FAC Neutral: No

HYDROLOGY

Recorded Data:
_____ Stream, Lake, or Tide Gauge
_____ Aerial Photographs
__X__ Other
_____ No Recorded Data Available

Field Observations:
Depth of Surface Water: _____ (in.)
Depth to Free Water in Pit: _____ (in.)
Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
_____ Inundated
_____ Saturated in Upper 12 inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
_____ Oxidized Root Channels in Upper 12 inches
_____ Water-Stained Leaves
__X__ Local Soil Survey Data
_____ FAC-Neutral Test
_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Mulkiteo peat, shallow over gravel Mh
(Series and Phase): 0 to 2 percent slopes
Taxonomy (Subgroup): mesic Terric Medisaprists

Drainage Class: very poorly drained
Field Observations
Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-16		10YR4/2			

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	X Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

No Hydrophytic Vegetation Present?	No Is this Sampling Point Within a Wetland?
No Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

The portion of Wetland A-1 in the agricultural field has been historically hayed and the vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well A4 in the agricultural field.

Wetland	**WoUS**		
____ Yes	____ Yes	5	Species Richness
X No	X No	3.21	Prevalence Index

Project Name: PNSC Wetland A -1	Date: 06/18/2007	Time:
Sample Point Number: 4	County: Mason	State: WA
Investigators: GJA & SMM	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 39"	
No Is the site a potential Problem Area?	West: 122° 50' 12"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	DACTYLIS GLOMERATA	Herb	FACU	40.00	Yes
2	JUNCUS EFFUSUS	Herb	FACW	20.00	Yes
3	HOLCUS LANATUS	Herb	FAC	10.00	No
4	ANTHOXANTHUM ODORATUM	Herb	FACU	30.00	Yes

Total Number of Species: 4 Total Dominants: 3
Percent of Dominants that are Wetland Species: 50/20: 33.00 FAC(minus)- applied: 33.00
Prevalence Index: 3.50 FAC Neutral: No

HYDROLOGY

Recorded Data:
- _____ Stream, Lake, or Tide Gauge
- _____ Aerial Photographs
- X Other
- _____ No Recorded Data Available

Field Observations:
- Depth of Surface Water: _____ (in.)
- Depth to Free Water in Pit: _____ (in.)
- Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- _____ Inundated
- X Saturated in Upper 12 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- _____ Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- X Local Soil Survey Data
- _____ FAC-Neutral Test
- _____ Other (Explain in Remarks)

SOILS

Map Unit Name: Mulkiteo peat, shallow over gravel Mh
(Series and Phase): 0 to 2 percent slopes
Taxonomy (Subgroup): mesic Terric Medisaprists

Drainage Class: very poorly drained
Field Observations
Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		10YR4/3	Silt loam		
8-16		10YR4/2	Sandy loam	Few	10YR5/6

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

No Hydrophytic Vegetation Present?	No Is this Sampling Point Within a Wetland?
No Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

The portion of Wetland A-1 in the agricultural field has been historically hayed and the vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well A1 in the agricultural field.

Wetland	**WoUS**		
____ Yes	____ Yes	4	Species Richness
X No	X No	3.50	Prevalence Index

Project Name: PNSC Wetland A-2	Date: 06/19/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & SMM	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 48"	
No Is the site a potential Problem Area?	West: 122° 50' 02"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS EFFUSUS	Herb	FACW	30.00	Yes
2	HOLCUS LANATUS	Herb	FAC	20.00	Yes
3	CAREX OBNUPTA	Herb	OBL	20.00	Yes
4	RANUNCULUS REPENS	Herb	FACW	25.00	Yes
5	CAREX STIPATA	Herb	OBL	5.00	No

Total Number of Species: 5 Total Dominants: 4

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.95 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

_____ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 6<8 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

X Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

X Local Soil Survey Data

X FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Mukilte peat, shallow over gravel Mh
(Series and Phase): 0 to 2 percent slopes
Taxonomy (Subgroup): mesic Terric Medisaprists

Drainage Class: very poorly drained
Field Observations
Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5Y5/1	Loamy sand		
10-16		2.5Y4/1	Loamy sand	Common	7.5YR5/8

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- X Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Organic Pan
- ____ Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

- Yes Hydrophytic Vegetation Present?
- Yes Wetland Hydrology Present?
- Yes Hydric Soils Present?
- Yes Is this Sampling Point Within a Wetland?
- No Is this Sampling Point a Waters of the US?
- No Have the determination results been overridden by the user?

REMARKS

Wetland A-2 is located in the agricultural field and has been historically hayed. The vegetation has been removed every year for the past 20+ years.

Wetland	**WoUS**		
X Yes	Yes	5	Species Richness
No	X No	1.95	Prevalence Index

Project Name: PNSC Wetland A-3	Date: 06/19/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & SMM	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 48"	
No Is the site a potential Problem Area?	West: 122° 50' 10"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	CAREX OBNUPTA	Herb	OBL	55.00	Yes
2	ALNUS RUBRA	Shrub	FAC	20.00	Yes
3	ROSA NUTKANA	Shrub	FAC	30.00	Yes
4	JUNCUS EFFUSUS	Herb	FACW	20.00	Yes
5	PHALARIS ARUNDINACEA	Herb	FACW	15.00	No

Total Number of Species: 5 Total Dominants: 4

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.96 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

_____ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 3<4 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

X Saturated in Upper 12 inches

X Water Marks

X Drift Lines

X Sediment Deposits

X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches

X Water-Stained Leaves

X Local Soil Survey Data

X FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea Drainage Class: poorly drained
(Series and Phase): 0 to 2 percent slopes Field Observations
Taxonomy (Subgroup): mesic, ortstein Andic Duraquods Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-16		10YR2-2.5/1			

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
X	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ____
____
____

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

Wetland	**WoUS**		
X Yes	____ Yes	5	Species Richness
____ No	X No	1.96	Prevalence Index

Project Name: PNSC Wetland A-4	Date: 06/19/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & SMM	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 46"	
No Is the site a potential Problem Area?	West: 122° 50' 07"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS EFFUSUS	Herb	FACW	45.00	Yes
2	ALOPECURUS PRATENSIS	Herb	FACW	20.00	Yes
3	HOLCUS LANATUS	Herb	FAC	20.00	Yes
4	CAREX LYNGBYEI	Herb	OBL	10.00	No
5	CAREX STIPATA	Herb	OBL	5.00	No

Total Number of Species: 5 Total Dominants: 3
Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00
Prevalence Index: 2.05 FAC Neutral: Yes

HYDROLOGY

Recorded Data:
- _____ Stream, Lake, or Tide Gauge
- _____ Aerial Photographs
- X Other
- _____ No Recorded Data Available

Field Observations:
- Depth of Surface Water: _____ (in.)
- Depth to Free Water in Pit: _____ (in.)
- Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- _____ Inundated
- X Saturated in Upper 12 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- X Local Soil Survey Data
- X FAC-Neutral Test
- _____ Other (Explain in Remarks)

SOILS

Map Unit Name: Mukilteo peat, shallow over gravel Mh
(Series and Phase): 0 to 2 percent slopes
Taxonomy (Subgroup): mesic Terris Medisaprists

Drainage Class: very poorly drained
Field Observations
Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		10YR4/2	Loamy sand		
8-16		2.5Y4/1	Loamy sand	Common/Prominent	7.5YR5/8

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- X Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Organic Pan
- ____ Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

- Yes Hydrophytic Vegetation Present?
- Yes Wetland Hydrology Present?
- Yes Hydric Soils Present?
- Yes Is this Sampling Point Within a Wetland?
- No Is this Sampling Point a Waters of the US?
- No Have the determination results been overridden by the user?

REMARKS

Wetland A-4 is located in the agricultural field and has been historically hayed. The vegetation has been removed every year for the past 20+ years.

Wetland
X Yes
No

WoUS
Yes
X No

5 Species Richness
2.05 Prevalence Index

Project Name: PNSC Wetland A-4	Date: 06/19/2007	Time:
Sample Point Number: 2	County: Mason	State: WA
Investigators: GJA & SMM	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 46"	
No Is the site a potential Problem Area?	West: 122° 50' 07"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ANTHOXANTHUM ODORATUM	Herb	FACU	30.00	Yes
2	DACTYLIS GLOMERATA	Herb	FACU	35.00	Yes
3	HOLCUS LANATUS	Herb	FAC	20.00	Yes
4	JUNCUS EFFUSUS	Herb	FACW	15.00	No

Total Number of Species: 4 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 33.00 FAC(minus)- applied: 33.00

Prevalence Index: 3.50 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

_____ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Mukilteo peat, shallow over gravel Mh
(Series and Phase): 0 to 2 percent slopes
Taxonomy (Subgroup): mesic Terris Medisaprists
Drainage Class: very poorly drained
Field Observations
Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		10YR3/2	Loamy sand		
10-16		10YR4/3	Sandy loam		

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan

NRCS Field Indicators: ____ ____ ____ ____Other (Explain in Remarks)

WETLAND DETERMINATION

__No__ Hydrophytic Vegetation Present?	__No__ Is this Sampling Point Within a Wetland?
__No__ Wetland Hydrology Present?	__No__ Is this Sampling Point a Waters of the US?
__Yes__ Hydric Soils Present?	__No__ Have the determination results been overridden by the user?

REMARKS

Wetland A-4 is located in the agricultural field and has been historically hayed. The vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well C4 in the agricultural field.

Wetland	**WoUS**		
____ Yes	____ Yes	4	Species Richness
X No	X No	3.50	Prevalence Index

Project Name: PNSC Wetland A-5	Date: 06/20/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 44"	
No Is the site a potential Problem Area?	West: 122° 50' 15"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	SCIRPUS ACUTUS	Herb	OBL	20.00	Yes
2	TYPHA LATIFOLIA	Herb	OBL	50.00	Yes
3	ALOPECURUS PRATENSIS	Herb	FACW	10.00	No
4	ROSA NUTKANA	Shrub	FAC	20.00	Yes
5	EQUISETUM ARVENSE	Herb	FAC	15.00	No

Total Number of Species: 5 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.70 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: 3<4 (in.)

Depth to Free Water in Pit: 0<1 (in.)

Depth to Saturated Soil: 0<1 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

__X__ Inundated

__X__ Saturated in Upper 12 inches

__X__ Water Marks

__X__ Drift Lines

__X__ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

__X__ Oxidized Root Channels in Upper 12 inches

__X__ Water-Stained Leaves

__X__ Local Soil Survey Data

__X__ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea
(Series and Phase): 0 to 2 percent slopes
Taxonomy (Subgroup): mesic ortstein Andic Duroquads

Drainage Class: poorly drained
Field Observations
Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-16		10YR2-2.5/1			

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
X	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

This sample point is located in the agricultural drainage ditch constructed for drainage of the fields.

Wetland	**WoUS**		
X Yes	____ Yes	5	Species Richness
____ No	X No	1.70	Prevalence Index

Project Name: PNSC Wetland A-5	Date: 06/20/2007	Time:
Sample Point Number: 2	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 46"	
No Is the site a potential Problem Area?	West: 122° 50' 13"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	DACTYLIS GLOMERATA	Herb	FACU	20.00	Yes
2	ANTHOXANTHUM ODORATUM	Herb	FACU	25.00	Yes
3	TRIFOLIUM PRATENSE	Herb	FACU	45.00	Yes
4	HOLCUS LANATUS	Herb	FAC	10.00	No

Total Number of Species: 4 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 0.00 FAC(minus)- applied: 0.00

Prevalence Index: 3.90 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

_____ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea
(Series and Phase): 0 to 2 percent slopes
Taxonomy (Subgroup): mesic ortstein Andic Duroquads

Drainage Class: poorly drained
Field Observations
Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		10YR3/2	Loamy sand		
8-16		10YR4/3	Sandy loam		

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan

NRCS Field Indicators: ____ ____ ____ ____Other (Explain in Remarks)

WETLAND DETERMINATION

No Hydrophytic Vegetation Present?	No Is this Sampling Point Within a Wetland?
No Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

Wetland A-5 is located in the agricultural drainage ditch. This sample point is located in the upland field to the north of the drainage ditch.

Recorded hydrology data for this sample point included shallow groundwater monitoring wells C1 and C2 in the agricultural field.

Wetland	**WoUS**		
____ Yes	____ Yes	4	Species Richness
X No	X No	3.90	Prevalence Index

Project Name: PNSC Wetland B	Date: 06/18/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & SMM	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 41"	
No Is the site a potential Problem Area?	West: 122° 50' 05"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ALNUS RUBRA	Tree	FAC	80.00	Yes
2	RUBUS SPECTABILIS	Shrub	FAC+	30.00	Yes
3	SPIRAEA DOUGLASII	Shrub	FACW	30.00	Yes
4	EQUISETUM ARVENSE	Herb	FAC	20.00	Yes
5	MAIANTHEMUM DILATATUM	Herb	FAC	60.00	Yes
6	LYSICHITON AMERICANUM	Herb	OBL	5.00	No

Total Number of Species: 6 Total Dominants: 5

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 2.82 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

- ____ Stream, Lake, or Tide Gauge
- ____ Aerial Photographs
- ____ Other
- X No Recorded Data Available

Field Observations:

- Depth of Surface Water: ____ (in.)
- Depth to Free Water in Pit: 3<4 (in.)
- Depth to Saturated Soil: 0<1 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

- ____ Inundated
- X Saturated in Upper 12 inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

- X Oxidized Root Channels in Upper 12 inches
- ____ Water-Stained Leaves
- X Local Soil Survey Data
- X FAC-Neutral Test
- ____ Other (Explain in Remarks)

SOILS

Map Unit Name: Mulkiteo Peat, shallow over gravel Mh
(Series and Phase): 0 to 2 percent slopes
Taxonomy (Subgroup): mesic Terric Medisaprists

Drainage Class: very poorly drained
Field Observations
Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-16		10YR3/1	Silt loam		

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- X Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- X Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Organic Pan
- ____ Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

- Yes Hydrophytic Vegetation Present?
- Yes Wetland Hydrology Present?
- Yes Hydric Soils Present?
- Yes Is this Sampling Point Within a Wetland?
- No Is this Sampling Point a Waters of the US?
- No Have the determination results been overridden by the user?

REMARKS

Wetland B is located in both the agricultural field and a forested portion of the site. The vegetation has been removed in the agricultural field every year for the past 20+ years.

Wetland	**WoUS**		
X Yes	Yes	6	Species Richness
No	X No	2.82	Prevalence Index

Project Name: PNSC Wetland C	Date: 06/19/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & SMM	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 40"	
No Is the site a potential Problem Area?	West: 122° 50' 14"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	EQUISETUM ARVENSE	Herb	FAC	10.00	Yes
2	ANTHOXANTHUM ODORATUM	Herb	FACU	10.00	Yes
3	HOLCUS LANATUS	Herb	FAC	10.00	Yes
4	ALOPECURUS PRATENSIS	Herb	FACW	40.00	Yes
5	RANUNCULUS ACRIS	Herb	FACW-	10.00	Yes

Total Number of Species: 5 Total Dominants: 5

Percent of Dominants that are Wetland Species: 50/20: 80.00 FAC(minus)- applied: 80.00

Prevalence Index: 2.50 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 4<5 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

__X__ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

__X__ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

__X__ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea
(Series and Phase): 0 to 2 percent slopes
Taxonomy (Subgroup): mesic, ortstein Andic Duraquods

Drainage Class: poorly drained
Field Observations
Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-9		10YR3/2	Loamy sand		
9-16		2.5Y5/1	Sandy loam	Common	7.5YR5/8

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
X Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	X Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
X Gleyed or Low-Chroma Colors	____ Organic Pan
NRCS Field Indicators: ___	____ Other (Explain in Remarks)
___	
___	

WETLAND DETERMINATION

Yes Hydrophytic Vegetation Present?	Yes Is this Sampling Point Within a Wetland?
Yes Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

Wetland C is located in the agricultural field and has been historically hayed. The vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well B1 in the agricultural field.

Wetland	**WoUS**		
X Yes	____ Yes	5	Species Richness
____ No	X No	2.50	Prevalence Index

Project Name: PNSC Wetlands E, F, G & H Upland	Date: 06/21/2007	Time:
Sample Point Number: 2	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 46"	
No Is the site a potential Problem Area?	West: 122° 50' 19"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ANTHOXANTHUM ODORATUM	Herb	FACU	30.00	Yes
2	DACTYLIS GLOMERATA	Herb	FACU	20.00	Yes
3	FESTUCA ARUNDINACEA	Herb	FAC-	10.00	No
4	HOLCUS LANATUS	Herb	FAC	20.00	Yes
5	LOLIUM PERENNE	Herb	FACU	20.00	Yes

Total Number of Species: 5 Total Dominants: 4

Percent of Dominants that are Wetland Species: 50/20: 25.00 FAC(minus)- applied: 25.00

Prevalence Index: 3.70 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

_____ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea Drainage Class: poorly drained
(Series and Phase): 0 to 2 percent slopes Field Observations
Taxonomy (Subgroup): mesic, ortstein Andic Duraquods Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		10YR4/2	Loamy sand		
10-16		10YR6/3	Sandy loam		

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___

___

___

WETLAND DETERMINATION

__No__ Hydrophytic Vegetation Present?	__No__ Is this Sampling Point Within a Wetland?
__No__ Wetland Hydrology Present?	__No__ Is this Sampling Point a Waters of the US?
__Yes__ Hydric Soils Present?	__No__ Have the determination results been overridden by the user?

REMARKS

This sample point is located in the agricultural field and has been historically hayed. The vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring wells B2 and B3 in the agricultural field.

Wetland	**WoUS**		
____ Yes	____ Yes	5	Species Richness
__X__ No	__X__ No	3.70	Prevalence Index

Project Name: PNCS Wetland D	Date: 06/20/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 38"	
No Is the site a potential Problem Area?	West: 122° 50' 17"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	TYPHA LATIFOLIA	Herb	OBL	50.00	Yes
2	SALIX SITCHENSIS	Tree	FACW	20.00	Yes
3	EQUISETUM ARVENSE	Herb	FAC	20.00	Yes
4	JUNCUS EFFUSUS	Herb	FACW	20.00	Yes
5	ALNUS RUBRA	Tree	FAC	20.00	Yes

Total Number of Species: 5 Total Dominants: 5
Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00
Prevalence Index: 1.92 FAC Neutral: Yes

HYDROLOGY

Recorded Data:
- ____ Stream, Lake, or Tide Gauge
- ____ Aerial Photographs
- ____ Other
- X No Recorded Data Available

Field Observations:
- Depth of Surface Water: 6<8 (in.)
- Depth to Free Water in Pit: 0<1 (in.)
- Depth to Saturated Soil: 0<1 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- X Inundated
- X Saturated in Upper 12 inches
- X Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 inches
- X Water-Stained Leaves
- ____ Local Soil Survey Data
- X FAC-Neutral Test
- ____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea
(Series and Phase): 0 to 2 percent slopes
Taxonomy (Subgroup): mesic, ortstein Andic Duraquods
Drainage Class: poorly drained
Field Observations
Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-16		10YR2-2.5/1	Silt loam		

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
X	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ____

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

Wetland D is located in the drainage ditch which drains the agricultural fields. There is standing water in this ditch year round.

Wetland	**WoUS**		
X Yes	Yes	5	Species Richness
No	X No	1.92	Prevalence Index

Project Name: PNSC Wetland E	Date: 06/21/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 47"	
No Is the site a potential Problem Area?	West: 122° 50' 18"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS EFFUSUS	Herb	FACW	20.00	Yes
2	JUNCUS BALTICUS	Herb	FACW+	25.00	Yes
3	CAREX OBNUPTA	Herb	OBL	20.00	Yes
4	ALOPECURUS PRATENSIS	Herb	FACW	20.00	Yes
5	POTENTILLA ANSERINA	Herb	OBL	15.00	No

Total Number of Species: 5 Total Dominants: 4

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.65 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

_____ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 3<4 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

X Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

X Local Soil Survey Data

X FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea Drainage Class: poorly drained
(Series and Phase): 0 to 2 percent slopes Field Observations
Taxonomy (Subgroup): mesic, ortstein Andic Duraquods Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		2.5YR4/1	Loamy sand		
8-16		2.5YR5/2	Loamy sand	Many	7.5YR5/6

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
__X__ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

Yes Hydrophytic Vegetation Present?	Yes Is this Sampling Point Within a Wetland?
Yes Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

Wetland E is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Wetland	**WoUS**		
X Yes	Yes	5	Species Richness
No	X No	1.65	Prevalence Index

Project Name: PNSC Wetland F	Date: 06/21/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 45"	
No Is the site a potential Problem Area?	West: 122° 50' 19"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	CAREX OBNUPTA	Herb	OBL	20.00	Yes
2	ALOPECURUS PRATENSIS	Herb	FACW	80.00	Yes

Total Number of Species: 2 Total Dominants: 2

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.80 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

X Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 3<4 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

X Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches

X Water-Stained Leaves

X Local Soil Survey Data

X FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea Drainage Class: poorly drained
(Series and Phase): 0 to 2 percent slopes Field Observations
Taxonomy (Subgroup): mesic, ortstein Andic Duraquods Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5YR4/2	Loamy sand		
10-16		2.5YR5/1	Loamy sand	Common	7.5YR5/8

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
__X__ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

Yes Hydrophytic Vegetation Present?	Yes Is this Sampling Point Within a Wetland?
Yes Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

Wetland F is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well D2 in the agricultural field.

Wetland	**WoUS**		
X Yes	Yes	2	Species Richness
No	X No	1.80	Prevalence Index

Project Name: PNSC Wetland G	Date: 06/21/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 45"	
No Is the site a potential Problem Area?	West: 122° 50' 21"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS EFFUSUS	Herb	FACW	15.00	No
2	JUNCUS BALTICUS	Herb	FACW+	30.00	Yes
3	ALOPECURUS PRATENSIS	Herb	FACW	45.00	Yes
4	POTENTILLA ANSERINA	Herb	OBL	10.00	No

Total Number of Species: 4 Total Dominants: 2

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.90 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 5<6 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

__X__ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

__X__ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

__X__ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea Drainage Class: poorly drained
(Series and Phase): 0 to 2 percent slopes Field Observations
Taxonomy (Subgroup): mesic, orstein Andic Duraquods Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5Y5/2	Loamy sand		
10-16		2.5Y4/1	Loamy sand	Common	7.5YR5/6

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
__X__ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ____

WETLAND DETERMINATION

Yes Hydrophytic Vegetation Present?	Yes Is this Sampling Point Within a Wetland?
Yes Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

Wetland G is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well D4 in the agricultural field.

Wetland	**WoUS**		
X Yes	Yes	4	Species Richness
No	X No	1.90	Prevalence Index

Project Name: PNSC Wetland H	Date: 06/21/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 44"	
No Is the site a potential Problem Area?	West: 122° 50' 22"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS EFFUSUS	Herb	FACW	15.00	No
2	JUNCUS BALTICUS	Herb	FACW+	30.00	Yes
3	ALOPECURUS PRATENSIS	Herb	FACW	30.00	Yes
4	POTENTILLA ANSERINA	Herb	OBL	10.00	No
5	RANUNCULUS ACRIS	Herb	FACW-	15.00	No

Total Number of Species: 5 Total Dominants: 2

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.90 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

_____ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 5<6 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

X Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

X Local Soil Survey Data

X FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sany loam Ea Drainage Class: poorly drained
(Series and Phase): 0 to 2 percent slopes Field Observations
Taxonomy (Subgroup): mesic, ortstein Andic Duraquods Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5YR5/2	Loamy sand		
10-16		2.5YR4/1	Loamy sand	Common	7.5YR5/6

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
__X__ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

Yes Hydrophytic Vegetation Present?	Yes Is this Sampling Point Within a Wetland?
Yes Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

Wetland H is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Wetland	**WoUS**		
X Yes	Yes	5	Species Richness
No	X No	1.90	Prevalence Index

Project Name: PNSC Wetlands E, F, G & H Upland	Date: 06/21/2007	Time:
Sample Point Number: 2	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 46"	
No Is the site a potential Problem Area?	West: 122° 50' 19"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ANTHOXANTHUM ODORATUM	Herb	FACU	30.00	Yes
2	DACTYLIS GLOMERATA	Herb	FACU	20.00	Yes
3	FESTUCA ARUNDINACEA	Herb	FAC-	10.00	No
4	HOLCUS LANATUS	Herb	FAC	20.00	Yes
5	LOLIUM PERENNE	Herb	FACU	20.00	Yes

Total Number of Species: 5 Total Dominants: 4

Percent of Dominants that are Wetland Species: 50/20: 25.00 FAC(minus)- applied: 25.00

Prevalence Index: 3.70 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

_____ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea Drainage Class: poorly drained
(Series and Phase): 0 to 2 percent slopes Field Observations
Taxonomy (Subgroup): mesic, orstein Andic Duraquods Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		10YR4/2	Loamy sand		
10-16		10YR6/3	Sandy loam		

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

No Hydrophytic Vegetation Present?	No Is this Sampling Point Within a Wetland?
No Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Wetland	**WoUS**		
____ Yes	____ Yes	5	Species Richness
X No	X No	3.70	Prevalence Index

Project Name: PNSC Wetlands E, F, G & H Upland	Date: 06/21/2007	Time:
Sample Point Number: 3	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 45"	
No Is the site a potential Problem Area?	West: 122° 50' 17"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ANTHOXANTHUM ODORATUM	Herb	FACU	20.00	Yes
2	DACTYLIS GLOMERATA	Herb	FACU	25.00	Yes
3	FESTUCA ARUNDINACEA	Herb	FAC-	20.00	Yes
4	LOLIUM PERENNE	Herb	FACU	15.00	No
5	TRIFOLIUM PRATENSE	Herb	FACU	20.00	Yes

Total Number of Species: 5 Total Dominants: 4

Percent of Dominants that are Wetland Species: 50/20: 25.00 FAC(minus)- applied: 0.00

Prevalence Index: 3.80 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: __none__ (in.)

Depth to Saturated Soil: __none__ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

__X__ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea Drainage Class: poorly drained
(Series and Phase): 0 to 2 percent slopes Field Observations
Taxonomy (Subgroup): mesic, orstein Andic Duraquods Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-9		2.5Y4/2	Loamy sand		
9-16		2.5Y4/3	Sandy loam	Few	2.5Y5/6

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___

___

___

WETLAND DETERMINATION

__No__ Hydrophytic Vegetation Present?	__No__ Is this Sampling Point Within a Wetland?
__No__ Wetland Hydrology Present?	__No__ Is this Sampling Point a Waters of the US?
__Yes__ Hydric Soils Present?	__No__ Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well D3 in the agricultural field.

Wetland	**WoUS**		
____ Yes	____ Yes	5	Species Richness
X No	X No	3.80	Prevalence Index

Project Name: PNSC Wetlands E, F, G & H Upland	Date: 06/21/2007	Time:
Sample Point Number: 4	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 44"	
No Is the site a potential Problem Area?	West: 122° 50' 22"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	FESTUCA ARUNDINACEA	Herb	FAC-	30.00	Yes
2	ANTHOXANTHUM ODORATUM	Herb	FACU	30.00	Yes
3	DACTYLIS GLOMERATA	Herb	FACU	20.00	Yes
4	RANUNCULUS ACRIS	Herb	FACW-	20.00	Yes

Total Number of Species: 4 Total Dominants: 4

Percent of Dominants that are Wetland Species: 50/20: 50.00 FAC(minus)- applied: 25.00

Prevalence Index: 3.30 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: __none__ (in.)

Depth to Saturated Soil: __none__ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

__X__ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea Drainage Class: poorly drained
(Series and Phase): 0 to 2 percent slopes Field Observations
Taxonomy (Subgroup): mesic, orstein Andic Duraquods Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5Y4/2	Loamy sand		
10-16		2.5Y4/3	Sandy loam	Few	2.5Y5/6

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

No Hydrophytic Vegetation Present?	No Is this Sampling Point Within a Wetland?
No Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well D5 in the agricultural field.

Wetland	**WoUS**		
____ Yes	____ Yes	4	Species Richness
X No	X No	3.30	Prevalence Index

Project Name: PNSC Wetland I	Date: 06/21/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 41"	
No Is the site a potential Problem Area?	West: 122° 50' 22"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS BALTICUS	Herb	FACW+	25.00	Yes
2	JUNCUS EFFUSUS	Herb	FACW	10.00	No
3	ALOPECURUS PRATENSIS	Herb	FACW	55.00	Yes
4	POTENTILLA ANSERINA	Herb	OBL	10.00	No

Total Number of Species: 4 Total Dominants: 2

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.90 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 5<6 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

__X__ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

__X__ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

__X__ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea Drainage Class: poorly drained
(Series and Phase): 0 to 2 percent slopes Field Observations
Taxonomy (Subgroup): mesic, ortstein Andic Duraquods Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		2.5Y4/2	Loamy sand		
8-16		2.5Y6/2	Loamy sand	Common	7.5YR5/8

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	X	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ____

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

Wetland I is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well E1 in the agricultural field.

Wetland	**WoUS**		
X Yes	Yes	4	Species Richness
No	X No	1.90	Prevalence Index

Project Name: PNSC Wetland J	Date: 06/21/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 39"	
No Is the site a potential Problem Area?	West: 122° 50' 20"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS BALTICUS	Herb	FACW+	20.00	Yes
2	ALOPECURUS PRATENSIS	Herb	FACW	70.00	Yes
3	POTENTILLA ANSERINA	Herb	OBL	10.00	No

Total Number of Species: 3 Total Dominants: 2

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.90 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

_____ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 6<8 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

X Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

X Local Soil Survey Data

X FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea Drainage Class: poorly drained
(Series and Phase): 0 to 2 percent slopes Field Observations
Taxonomy (Subgroup): mesic, ortstein ANdic Duraquods Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5Y5/2	Loamy sand		
10-16		2.5Y4/2	Loamy sand	Common	7.5YR4/6

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	X Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	X Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
X Gleyed or Low-Chroma Colors	____ Organic Pan
NRCS Field Indicators: ___	____ Other (Explain in Remarks)
___	
___	

WETLAND DETERMINATION

Yes Hydrophytic Vegetation Present?	Yes Is this Sampling Point Within a Wetland?
Yes Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

Wetland J is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Wetland	**WoUS**		
X Yes	Yes	3	Species Richness
No	X No	1.90	Prevalence Index

Project Name: PNSC Wetlands I & J Upland	Date: 06/21/2007	Time:
Sample Point Number: 2	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 41"	
No Is the site a potential Problem Area?	West: 122° 50' 20"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ANTHOXANTHUM ODORATUM	Herb	FACU	35.00	Yes
2	CREPIS CAPILLARIS	Herb	FACU	15.00	No
3	TRIFOLIUM PRATENSE	Herb	FACU	20.00	Yes
4	FESTUCA ARUNDINACEA	Herb	FAC-	30.00	Yes

Total Number of Species: 4 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 33.00 FAC(minus)- applied: 0.00

Prevalence Index: 3.70 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

_____ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea
(Series and Phase): 0 to 2 percent slopes
Taxonomy (Subgroup): mesic, ortstein Andic Duraquods

Drainage Class: poorly drained
Field Observations
Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5Y4/3	Loamy sand		
10-16		2.5Y6/2	Loamy sand		

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

No Hydrophytic Vegetation Present?	No Is this Sampling Point Within a Wetland?
No Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Wetland	**WoUS**		
____ Yes	____ Yes	4	Species Richness
X No	X No	3.70	Prevalence Index

Project Name: PNSC Wetlands I & J Upland	Date: 06/21/2007	Time:
Sample Point Number: 3	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 39"	
No Is the site a potential Problem Area?	West: 122° 50' 22"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ANTHOXANTHUM ODORATUM	Herb	FACU	25.00	Yes
2	CREPIS CAPILLARIS	Herb	FACU	10.00	No
3	TRIFOLIUM PRATENSE	Herb	FACU	25.00	Yes
4	FESTUCA ARUNDINACEA	Herb	FAC-	30.00	Yes
5	ALOPECURUS PRATENSIS	Herb	FACW	10.00	No

Total Number of Species: 5 Total Dominants: 3
Percent of Dominants that are Wetland Species: 50/20: 33.00 FAC(minus)- applied: 0.00
Prevalence Index: 3.50 FAC Neutral: No

HYDROLOGY

Recorded Data:
- _____ Stream, Lake, or Tide Gauge
- _____ Aerial Photographs
- X Other
- _____ No Recorded Data Available

Field Observations:
- Depth of Surface Water: _____ (in.)
- Depth to Free Water in Pit: none (in.)
- Depth to Saturated Soil: none (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- _____ Inundated
- X Saturated in Upper 12 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- _____ Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- X Local Soil Survey Data
- _____ FAC-Neutral Test
- _____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea Drainage Class: poorly drained
(Series and Phase): 0 to 2 percent slopes Field Observations
Taxonomy (Subgroup): mesic, ortstein Andic Duraquods Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5Y4/3	Loamy sand		
10-16		2.5Y6/2	Loamy sand		

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

__No__ Hydrophytic Vegetation Present?	__No__ Is this Sampling Point Within a Wetland?
__No__ Wetland Hydrology Present?	__No__ Is this Sampling Point a Waters of the US?
__Yes__ Hydric Soils Present?	__No__ Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring wells E2 and E4 in the agricultural field.

Wetland	**WoUS**		
____ Yes	____ Yes	5	Species Richness
X No	X No	3.50	Prevalence Index

Project Name: PNSC Wetland K	Date: 06/21/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 41"	
No Is the site a potential Problem Area?	West: 122° 50' 24"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS BALTICUS	Herb	FACW+	25.00	Yes
2	JUNCUS EFFUSUS	Herb	FACW	15.00	No
3	CAREX OBNUPTA	Herb	OBL	35.00	Yes
4	HOLCUS LANATUS	Herb	FAC	25.00	Yes

Total Number of Species: 4 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.90 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 10<12 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

__X__ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

__X__ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

__X__ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5Y5/2	Loamy sand		
10-16		2.5Y4/2	Loamy sand	Common	7.5YR5/6

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	X Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	X Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

Yes Hydrophytic Vegetation Present?	Yes Is this Sampling Point Within a Wetland?
Yes Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

Wetland K is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well E5 in the agricultural field.

Wetland	**WoUS**		
X Yes	____ Yes	4	Species Richness
____ No	X No	1.90	Prevalence Index

Project Name: PNSC Wetland L	Date: 06/21/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 38"	
No Is the site a potential Problem Area?	West: 122° 50' 26"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS BALTICUS	Herb	FACW+	20.00	Yes
2	JUNCUS EFFUSUS	Herb	FACW	10.00	No
3	POTENTILLA ANSERINA	Herb	OBL	30.00	Yes
4	ALOPECURUS AEQUALIS	Herb	OBL	30.00	Yes
5	ALOPECURUS PRATENSIS	Herb	FACW	10.00	No

Total Number of Species: 5 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.40 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

_____ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 10<12 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

X Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

X Local Soil Survey Data

X FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-7		2.5Y4/1	Loamy sand		
7-16		2.5Y4/2	Loamy sand	Common	7.5YR5/8

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	__X__ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
__X__ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___

___

___

WETLAND DETERMINATION

Yes Hydrophytic Vegetation Present?	Yes Is this Sampling Point Within a Wetland?
Yes Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

Wetland L is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Wetland	**WoUS**		
X Yes	Yes	5	Species Richness
No	X No	1.40	Prevalence Index

Project Name: PNSC Wetland M	Date: 06/21/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 37"	
No Is the site a potential Problem Area?	West: 122° 50' 28"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS EFFUSUS	Herb	FACW	20.00	Yes
2	ALOPECURUS PRATENSIS	Herb	FACW	55.00	Yes
3	POTENTILLA ANSERINA	Herb	OBL	25.00	Yes

Total Number of Species: 3 Total Dominants: 3
Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00
Prevalence Index: 1.75 FAC Neutral: Yes

HYDROLOGY

Recorded Data:
- _____ Stream, Lake, or Tide Gauge
- _____ Aerial Photographs
- _____ Other
- X No Recorded Data Available

Field Observations:
- Depth of Surface Water: _____ (in.)
- Depth to Free Water in Pit: _____ (in.)
- Depth to Saturated Soil: 10<12 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- _____ Inundated
- X Saturated in Upper 12 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- X Local Soil Survey Data
- X FAC-Neutral Test
- _____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5Y4/3	Loamy sand		
10-17		2.5Y4/2	Loamy sand	Common	7.5YR5/6

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	X	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ____
____
____

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

Wetland M is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Wetland	**WoUS**		
X Yes	Yes	3	Species Richness
No	X No	1.75	Prevalence Index

Project Name: PNSC Wetland N	Date: 06/21/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 37"	
No Is the site a potential Problem Area?	West: 122° 50' 29"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS EFFUSUS	Herb	FACW	20.00	Yes
2	POTENTILLA ANSERINA	Herb	OBL	25.00	Yes
3	ALOPECURUS PRATENSIS	Herb	FACW	55.00	Yes

Total Number of Species: 3 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.75 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

_____ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 10<12 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

X Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

X Water-Stained Leaves

X Local Soil Survey Data

X FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		2.5Y5/3	Loamy sand		
8-16		2.5Y5/2	Loamy sand	Common	7.5YR4/6

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	X	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

Wetland N is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Wetland	**WoUS**		
X Yes	Yes	3	Species Richness
No	X No	1.75	Prevalence Index

Project Name: PNSC Wetland O	Date: 06/21/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 39"	
No Is the site a potential Problem Area?	West: 122° 50' 28"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS EFFUSUS	Herb	FACW	20.00	Yes
2	ALOPECURUS PRATENSIS	Herb	FACW	40.00	Yes
3	POTENTILLA ANSERINA	Herb	OBL	20.00	Yes
4	CAREX OBNUPTA	Herb	OBL	20.00	Yes

Total Number of Species: 4 Total Dominants: 4

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.60 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 10<12 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

__X__ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

__X__ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

__X__ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		2.5Y5/3	Loamy sand		/
8-16		2.5Y5/2	Loamy sand	Common	7.5YR5/6

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	X	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ____
____
____

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

Wetland O is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well E6 in the agricultural field.

Wetland	**WoUS**		
X Yes	Yes	4	Species Richness
No	X No	1.60	Prevalence Index

Project Name: PNSC Wetlands K, L, M, N & O Upland	Date: 06/21/2007	Time:
Sample Point Number: 2	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 40"	
No Is the site a potential Problem Area?	West: 122° 50' 26"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ANTHOXANTHUM ODORATUM	Herb	FACU	40.00	Yes
2	CREPIS CAPILLARIS	Herb	FACU	15.00	No
3	TRIFOLIUM PRATENSE	Herb	FACU	15.00	No
4	LOLIUM PERENNE	Herb	FACU	30.00	Yes

Total Number of Species: 4 Total Dominants: 2

Percent of Dominants that are Wetland Species: 50/20: 0.00 FAC(minus)- applied: 0.00

Prevalence Index: 4.00 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

_____ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		2.5Y6/3			
8-16		2.5Y6/2			

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan

NRCS Field Indicators: ____ ____ ____ ____Other (Explain in Remarks)

WETLAND DETERMINATION

No Hydrophytic Vegetation Present?	No Is this Sampling Point Within a Wetland?
No Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Wetland	**WoUS**		
____ Yes	____ Yes	4	Species Richness
X No	X No	4.00	Prevalence Index

Project Name: PNSC Wetlands K, L, M, N & O Upland	Date: 06/21/2007	Time:
Sample Point Number: 3	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 36"	
No Is the site a potential Problem Area?	West: 122° 50' 29"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ANTHOXANTHUM ODORATUM	Herb	FACU	35.00	Yes
2	CREPIS CAPILLARIS	Herb	FACU	15.00	No
3	TRIFOLIUM PRATENSE	Herb	FACU	20.00	Yes
4	LOLIUM PERENNE	Herb	FACU	20.00	Yes
5	AGROSTIS TENUIS	Herb	FAC	10.00	No

Total Number of Species: 5 Total Dominants: 3
Percent of Dominants that are Wetland Species: 50/20: 0.00 FAC(minus)- applied: 0.00
Prevalence Index: 3.90 FAC Neutral: No

HYDROLOGY

Recorded Data:
- _____ Stream, Lake, or Tide Gauge
- _____ Aerial Photographs
- X Other
- _____ No Recorded Data Available

Field Observations:
- Depth of Surface Water: _____ (in.)
- Depth to Free Water in Pit: _____ (in.)
- Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- _____ Inundated
- X Saturated in Upper 12 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- _____ Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- X Local Soil Survey Data
- _____ FAC-Neutral Test
- _____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		2.5Y6/3	Loamy sand		
8-16		2.5Y6/2	Loamy sand		

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

__No__ Hydrophytic Vegetation Present?	__No__ Is this Sampling Point Within a Wetland?
__No__ Wetland Hydrology Present?	__No__ Is this Sampling Point a Waters of the US?
__Yes__ Hydric Soils Present?	__No__ Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well E10 in the agricultural field.

Wetland	**WoUS**		
____ Yes	____ Yes	5	Species Richness
X No	X No	3.90	Prevalence Index

Project Name: PNSC Wetlands K, L, M, N & O Upland	Date: 06/21/2007	Time:
Sample Point Number: 4	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 36"	
No Is the site a potential Problem Area?	West: 122° 50' 25"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ANTHOXANTHUM ODORATUM	Herb	FACU	30.00	Yes
2	CREPIS CAPILLARIS	Herb	FACU	20.00	Yes
3	TRIFOLIUM PRATENSE	Herb	FACU	20.00	Yes
4	LOLIUM PERENNE	Herb	FACU	15.00	No
5	AGROSTIS TENUIS	Herb	FAC	15.00	No

Total Number of Species: 5 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 0.00 FAC(minus)- applied: 0.00

Prevalence Index: 3.85 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

__X__ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		2.5Y5/3	Loamy sand		
8-16		2.5Y6/2	Loamy sand		

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan

NRCS Field Indicators: ____ ____ ____ ____Other (Explain in Remarks)

WETLAND DETERMINATION

__No__ Hydrophytic Vegetation Present?	__No__ Is this Sampling Point Within a Wetland?
__No__ Wetland Hydrology Present?	__No__ Is this Sampling Point a Waters of the US?
__Yes__ Hydric Soils Present?	__No__ Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well E11 in the agricultural field.

Wetland	**WoUS**		
____ Yes	____ Yes	5	Species Richness
X No	X No	3.85	Prevalence Index

Project Name: PNSC Wetland P	Date: 06/22/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 38"	
No Is the site a potential Problem Area?	West: 122° 50' 33"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS BALTICUS	Herb	FACW+	30.00	Yes
2	JUNCUS EFFUSUS	Herb	FACW	10.00	No
3	ALOPECURUS PRATENSIS	Herb	FACW	40.00	Yes
4	POTENTILLA ANSERINA	Herb	OBL	20.00	Yes

Total Number of Species: 4 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.80 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

_____ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 8<10 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

X Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

X Local Soil Survey Data

X FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5Y6/2	Loamy sand		
10-16		2.5Y5/2	Loamy sand	Common	7.5YR5/6

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	X Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	X Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
X Gleyed or Low-Chroma Colors	____ Organic Pan
NRCS Field Indicators: ___	____ Other (Explain in Remarks)
___	
___	

WETLAND DETERMINATION

Yes Hydrophytic Vegetation Present?	Yes Is this Sampling Point Within a Wetland?
Yes Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

Wetland P is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Wetland	**WoUS**		
X Yes	Yes	4	Species Richness
No	X No	1.80	Prevalence Index

Project Name: PNSC Wetland Q	Date: 06/22/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 36"	
No Is the site a potential Problem Area?	West: 122° 50' 31"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS BALTICUS	Herb	FACW+	20.00	Yes
2	JUNCUS EFFUSUS	Herb	FACW	10.00	No
3	POTENTILLA ANSERINA	Herb	OBL	20.00	Yes
4	ALOPECURUS AEQUALIS	Herb	OBL	35.00	Yes
5	ALOPECURUS PRATENSIS	Herb	FACW	15.00	No

Total Number of Species: 5 Total Dominants: 3
Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00
Prevalence Index: 1.45 FAC Neutral: Yes

HYDROLOGY

Recorded Data:
- _____ Stream, Lake, or Tide Gauge
- _____ Aerial Photographs
- X Other
- _____ No Recorded Data Available

Field Observations:
- Depth of Surface Water: _____ (in.)
- Depth to Free Water in Pit: _____ (in.)
- Depth to Saturated Soil: 8<10 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- _____ Inundated
- X Saturated in Upper 12 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- X Local Soil Survey Data
- X FAC-Neutral Test
- _____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		2.5Y6/2	Loamy sand		
8-16		2.5Y4/2	Loamy sand	Common	7.5YR5/8

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	X	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

Wetland Q is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

This wetland is a mosiac of wetlands all located within 100 feet of each other.

Recorded hydrology data for this sample point included shallow groundwater monitoring wells E8 and E9 in the agricultural field.

Wetland	**WoUS**		
X Yes	____ Yes	5	Species Richness
____ No	X No	1.45	Prevalence Index

Project Name: PNSC Wetland R	Date: 06/22/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 35"	
No Is the site a potential Problem Area?	West: 122° 50' 35"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS BALTICUS	Herb	FACW+	20.00	Yes
2	JUNCUS EFFUSUS	Herb	FACW	10.00	No
3	POTENTILLA ANSERINA	Herb	OBL	20.00	Yes
4	ALOPECURUS PRATENSIS	Herb	FACW	50.00	Yes

Total Number of Species: 4 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.80 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

_____ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 10<12 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

X Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

X Local Soil Survey Data

X FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5Y6/2	Loamy sand		
10-16		2.5Y5/2	Loamy sand	Common	7.5YR6/8

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	__X__ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
__X__ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

Yes Hydrophytic Vegetation Present?	Yes Is this Sampling Point Within a Wetland?
Yes Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

Wetland R is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Wetland	**WoUS**		
X Yes	Yes	4	Species Richness
No	X No	1.80	Prevalence Index

Project Name: PNSC Wetlands P, Q & R Upland	Date: 06/22/2007	Time:
Sample Point Number: 2	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 37"	
No Is the site a potential Problem Area?	West: 122° 50' 33"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	LOLIUM PERENNE	Herb	FACU	20.00	Yes
2	ANTHOXANTHUM ODORATUM	Herb	FACU	35.00	Yes
3	CREPIS CAPILLARIS	Herb	FACU	10.00	No
4	TRIFOLIUM PRATENSE	Herb	FACU	20.00	Yes
5	HOLCUS LANATUS	Herb	FAC	15.00	No

Total Number of Species: 5 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 0.00 FAC(minus)- applied: 0.00

Prevalence Index: 3.85 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

_____ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-12		2.5Y6/3	Loamy sand		
12-16		2.5Y5/2	Loamy sand		

Hydric Soil Indicators:

_____ Histosol
_____ Histic Epipedon
_____ Sulfidic Odor
_____ Aquic Moisture Regime
_____ Reducing Conditions
_____ Gleyed or Low-Chroma Colors

_____ Concretions
_____ High Organic Content in Surface Layer in Sandy Soils
_____ Organic Streaking in Sandy Soils
X Listed on Local Hydric Soils List
_____ Listed on National Hydric Soils List
_____ Organic Pan
_____ Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

No Hydrophytic Vegetation Present?
No Wetland Hydrology Present?
Yes Hydric Soils Present?

No Is this Sampling Point Within a Wetland?
No Is this Sampling Point a Waters of the US?
No Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Wetland
_____ Yes
X No

WoUS
_____ Yes
X No

5 Species Richness
3.85 Prevalence Index

Project Name: PNSC Wetlands P, Q & R Upland	Date: 06/22/2007	Time:
Sample Point Number: 3	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 39"	
No Is the site a potential Problem Area?	West: 122° 50' 31"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	LOLIUM PERENNE	Herb	FACU	15.00	No
2	ANTHOXANTHUM ODORATUM	Herb	FACU	30.00	Yes
3	CREPIS CAPILLARIS	Herb	FACU	15.00	No
4	TRIFOLIUM PRATENSE	Herb	FACU	20.00	Yes
5	HOLCUS LANATUS	Herb	FAC	20.00	Yes

Total Number of Species: 5 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 33.00 FAC(minus)- applied: 33.00

Prevalence Index: 3.80 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

__X__ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-12		2.5Y5/3	Loamy sand		
12-16		2.5Y5/2	Loamy sand	Few	2.5Y5/6

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

__No__ Hydrophytic Vegetation Present?	__No__ Is this Sampling Point Within a Wetland?
__No__ Wetland Hydrology Present?	__No__ Is this Sampling Point a Waters of the US?
__Yes__ Hydric Soils Present?	__No__ Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well E7 in the agricultural field.

Wetland	**WoUS**		
____ Yes	____ Yes	5	Species Richness
X No	X No	3.80	Prevalence Index

Project Name: PNSC Wetland S-1	Date: 06/22/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 33"	
No Is the site a potential Problem Area?	West: 122° 50' 32"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ALOPECURUS PRATENSIS	Herb	FACW	30.00	Yes
2	SCIRPUS ACUTUS	Herb	OBL	40.00	Yes
3	TYPHA LATIFOLIA	Herb	OBL	30.00	Yes

Total Number of Species: 3 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.30 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

_____ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: 3<4 (in.)

Depth to Free Water in Pit: 0<1 (in.)

Depth to Saturated Soil: 0<1 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

X Inundated

X Saturated in Upper 12 inches

X Water Marks

_____ Drift Lines

_____ Sediment Deposits

X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches

X Water-Stained Leaves

X Local Soil Survey Data

X FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-16		10YR2-2.5/1	Silt		

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
X	Sulfidic Odor	____	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ____
____
____

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

This wetland is located in the drainage ditch draining the agricultural fields.

Wetland	**WoUS**		
X Yes	____ Yes	3	Species Richness
____ No	X No	1.30	Prevalence Index

Project Name: PNSC Wetland S-2	Date: 06/21/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA & KAB	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 78"	
No Is the site a potential Problem Area?	West: 122° 50' 15"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ALOPECURUS PRATENSIS	Herb	FACW	60.00	Yes
2	HOLCUS LANATUS	Herb	FAC	20.00	Yes
3	PHLEUM PRATENSE	Herb	FAC-	20.00	Yes

Total Number of Species: 3 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 67.00

Prevalence Index: 2.40 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

__X__ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

__X__ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

__X__ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Edmonds fine sandy loam Ea Drainage Class: poorly drained
(Series and Phase): 0 to 2 percent slopes Field Observations
Taxonomy (Subgroup): mesic, ortstein Andic Duraquads Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-12		2.5Y4/1	Loamy sand		
12-16		2.5Y5/2	Loamy sand	Common	7.5YR5/6

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
__X__ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___

WETLAND DETERMINATION

Yes Hydrophytic Vegetation Present?	Yes Is this Sampling Point Within a Wetland?
Yes Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

Wetland S-2 is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well D1 in the agricultural field.

Wetland	**WoUS**		
X Yes	____ Yes	3	Species Richness
____ No	X No	2.40	Prevalence Index

Project Name: PNSC Wetland T	Date: 06/22/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 33"	
No Is the site a potential Problem Area?	West: 122° 50' 24"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	POTENTILLA ANSERINA	Herb	OBL	45.00	Yes
2	JUNCUS EFFUSUS	Herb	FACW	20.00	No
3	ALOPECURUS PRATENSIS	Herb	FACW	5.00	No
4	JUNCUS BALTICUS	Herb	FACW+	15.00	No
5	ALOPECURUS AEQUALIS	Herb	OBL	30.00	Yes

Total Number of Species: 5 Total Dominants: 2

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.35 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 10<12 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

__X__ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

__X__ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

__X__ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		2.5Y5/2	Loamy sand		
8-16		2.5Y6/2	Loamy sand	Common	7.5YR5/8

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	X	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ____
____
____

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

Wetland T is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well F1 in the agricultural field.

Wetland	**WoUS**		
X Yes	Yes	5	Species Richness
No	X No	1.35	Prevalence Index

Project Name: PNSC Wetland U	Date: 06/22/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 32"	
No Is the site a potential Problem Area?	West: 122° 50' 22"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	POTENTILLA ANSERINA	Herb	OBL	40.00	Yes
2	ALOPECURUS PRATENSIS	Herb	FACW	20.00	Yes
3	JUNCUS BALTICUS	Herb	FACW+	30.00	Yes
4	CAREX OBNUPTA	Herb	OBL	10.00	No

Total Number of Species: 4 Total Dominants: 3
Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00
Prevalence Index: 1.50 FAC Neutral: Yes

HYDROLOGY

Recorded Data:
- _____ Stream, Lake, or Tide Gauge
- _____ Aerial Photographs
- X Other
- _____ No Recorded Data Available

Field Observations:
- Depth of Surface Water: _____ (in.)
- Depth to Free Water in Pit: _____ (in.)
- Depth to Saturated Soil: 10<12 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- _____ Inundated
- X Saturated in Upper 12 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- X Local Soil Survey Data
- X FAC-Neutral Test
- _____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		2.5Y4/1	Loamy sand	Common	7.5YR5/8
8-16		2.5Y6/1	Loamy sand	Common	7.5YR6/8

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	X	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

Wetland U is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well F2 in the agricultural field.

Wetland		**WoUS**			
X	Yes	____	Yes	4	Species Richness
____	No	X	No	1.50	Prevalence Index

Project Name: PNSC Wetland V	Date: 06/22/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 31"	
No Is the site a potential Problem Area?	West: 122° 50' 22"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	POTENTILLA ANSERINA	Herb	OBL	40.00	Yes
2	CAREX OBNUPTA	Herb	OBL	20.00	Yes
3	JUNCUS BALTICUS	Herb	FACW+	20.00	Yes
4	ALOPECURUS PRATENSIS	Herb	FACW	20.00	Yes

Total Number of Species: 4 Total Dominants: 4

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.40 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

_____ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 10<12 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

X Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

X Local Soil Survey Data

X FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		2.5Y4/2	Loamy sand		
8-16		2.5Y6/2	Loamy sand	Common	7.5YR5/8

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	X Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	X Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
X Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

Yes Hydrophytic Vegetation Present?	Yes Is this Sampling Point Within a Wetland?
Yes Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

Wetland V is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Wetland	**WoUS**		
X Yes	Yes	4	Species Richness
No	X No	1.40	Prevalence Index

Project Name: PNSC Wetlands T, U & V Upland	Date: 06/22/2007	Time:
Sample Point Number: 2	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 31"	
No Is the site a potential Problem Area?	West: 122° 50' 24"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ANTHOXANTHUM ODORATUM	Herb	FACU	35.00	Yes
2	CREPIS CAPILLARIS	Herb	FACU	20.00	Yes
3	TRIFOLIUM PRATENSE	Herb	FACU	15.00	No
4	FESTUCA ARUNDINACEA	Herb	FAC-	10.00	No

Total Number of Species: 4 Total Dominants: 2

Percent of Dominants that are Wetland Species: 50/20: 0.00 FAC(minus)- applied: 0.00

Prevalence Index: 3.88 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

_____ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

_____ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

_____ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		10YR4/3	Loamy sand		
10-16		2.5Y6/2	Loamy sand		

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

__No__ Hydrophytic Vegetation Present?	__No__ Is this Sampling Point Within a Wetland?
__No__ Wetland Hydrology Present?	__No__ Is this Sampling Point a Waters of the US?
__Yes__ Hydric Soils Present?	__No__ Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Wetland	**WoUS**		
____ Yes	____ Yes	4	Species Richness
__X__ No	__X__ No	3.88	Prevalence Index

Project Name: PNSC Wetlands T, U & V Upland	Date: 06/22/2007	Time:
Sample Point Number: 3	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 30"	
No Is the site a potential Problem Area?	West: 122° 50' 24"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ANTHOXANTHUM ODORATUM	Herb	FACU	35.00	Yes
2	CREPIS CAPILLARIS	Herb	FACU	25.00	Yes
3	TRIFOLIUM PRATENSE	Herb	FACU	25.00	Yes
4	FESTUCA ARUNDINACEA	Herb	FAC-	15.00	No

Total Number of Species: 4 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 0.00 FAC(minus)- applied: 0.00

Prevalence Index: 3.85 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

__X__ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

_____ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-12		2.5Y5/3	Loamy sand		
12-16		2.5Y6/3	Loamy sand		

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	X Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

No Hydrophytic Vegetation Present?	No Is this Sampling Point Within a Wetland?
No Wetland Hydrology Present?	No Is this Sampling Point a Waters of the US?
Yes Hydric Soils Present?	No Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well F3 in the agricultural field.

Wetland	**WoUS**		
____ Yes	____ Yes	4	Species Richness
X No	X No	3.85	Prevalence Index

Project Name: PNSC Wetland W	Date: 06/22/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 35"	
No Is the site a potential Problem Area?	West: 122° 50' 27"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS BALTICUS	Herb	FACW+	40.00	Yes
2	ALOPECURUS PRATENSIS	Herb	FACW	40.00	Yes
3	POTENTILLA ANSERINA	Herb	OBL	20.00	Yes

Total Number of Species: 3 Total Dominants: 3
Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00
Prevalence Index: 1.80 FAC Neutral: Yes

HYDROLOGY

Recorded Data:
- _____ Stream, Lake, or Tide Gauge
- _____ Aerial Photographs
- X Other
- _____ No Recorded Data Available

Field Observations:
- Depth of Surface Water: _____ (in.)
- Depth to Free Water in Pit: _____ (in.)
- Depth to Saturated Soil: 10<12 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- _____ Inundated
- X Saturated in Upper 12 inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 inches
- _____ Water-Stained Leaves
- X Local Soil Survey Data
- X FAC-Neutral Test
- _____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		2.5Y5/2	Loamy sand		/
8-16		2.5Y6/2	Loamy sand	Common	7.5YR5/8

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	X	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ____
____
____

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

Wetland W is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Recorded hydrology data for this sample point included shallow groundwater monitoring well F4 in the agricultural field.

Wetland	**WoUS**		
X Yes	____ Yes	3	Species Richness
____ No	X No	1.80	Prevalence Index

Project Name: PNSC Wetland X	Date: 06/22/2007	Time:
Sample Point Number: 1	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 34"	
No Is the site a potential Problem Area?	West: 122° 50' 29"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	JUNCUS BALTICUS	Herb	FACW+	20.00	Yes
2	ALOPECURUS PRATENSIS	Herb	FACW	15.00	No
3	POTENTILLA ANSERINA	Herb	OBL	20.00	Yes
4	ALOPECURUS AEQUALIS	Herb	OBL	45.00	Yes

Total Number of Species: 4 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 100.00 FAC(minus)- applied: 100.00

Prevalence Index: 1.35 FAC Neutral: Yes

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

_____ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: 10<12 (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

X Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

X Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

X Local Soil Survey Data

X FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-8		2.5Y5/2	Loamy sand		/
8-16		2.5Y6/1	Loamy sand	Common	5YR5/8

Hydric Soil Indicators:

____	Histosol	____	Concretions
____	Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils
____	Sulfidic Odor	X	Organic Streaking in Sandy Soils
____	Aquic Moisture Regime	X	Listed on Local Hydric Soils List
____	Reducing Conditions	____	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	____	Organic Pan
		____	Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

Yes	Hydrophytic Vegetation Present?	Yes	Is this Sampling Point Within a Wetland?
Yes	Wetland Hydrology Present?	No	Is this Sampling Point a Waters of the US?
Yes	Hydric Soils Present?	No	Have the determination results been overridden by the user?

REMARKS

Wetland X is located in the agricultural field and has been historically hayed and tilled. The vegetation has been removed every year for the past 20+ years.

Wetland	**WoUS**		
X Yes	Yes	4	Species Richness
No	X No	1.35	Prevalence Index

Project Name: PNSC Wetlands W & X Upland	Date: 06/22/2007	Time:
Sample Point Number: 2	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 33"	
No Is the site a potential Problem Area?	West: 122° 50' 28"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ANTHOXANTHUM ODORATUM	Herb	FACU	30.00	No
2	CREPIS CAPILLARIS	Herb	FACU	20.00	No
3	FESTUCA ARUNDINACEA	Herb	FAC-	40.00	No
4	LOLIUM PERENNE	Herb	FACU	10.00	No

Total Number of Species: 0 Total Dominants: 0
Percent of Dominants that are Wetland Species: 50/20: 0.00 FAC(minus)- applied: 0.00
Prevalence Index: 0.00 FAC Neutral:

HYDROLOGY

Recorded Data:
_____ Stream, Lake, or Tide Gauge
_____ Aerial Photographs
_____ Other
__X__ No Recorded Data Available

Field Observations:
Depth of Surface Water: _____ (in.)
Depth to Free Water in Pit: _____ (in.)
Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
_____ Inundated
_____ Saturated in Upper 12 inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
_____ Oxidized Root Channels in Upper 12 inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ FAC-Neutral Test
_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5Y6/3	Loamy sand		
10-16		2.5Y5/3	Loamy sand		

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan
	____ Other (Explain in Remarks)

NRCS Field Indicators: ___
___
___

WETLAND DETERMINATION

__No__ Hydrophytic Vegetation Present?	__No__ Is this Sampling Point Within a Wetland?
__No__ Wetland Hydrology Present?	__No__ Is this Sampling Point a Waters of the US?
__Yes__ Hydric Soils Present?	__No__ Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

Wetland	**WoUS**		
____ Yes	____ Yes	0	Species Richness
__X__ No	__X__ No	0.00	Prevalence Index

Project Name: PNSC Wetlands W & X Upland	Date: 06/22/2007	Time:
Sample Point Number: 4	County: Mason	State: WA
Investigators: GJA	Roll No:	Photo No:
Yes Do Normal Circumstances exist on the site?	Lat./Long.:	Datum: NAD83
No Is the site significantly disturbed (Atypical Situation)?	North: 47° 26' 31"	
No Is the site a potential Problem Area?	West: 122° 50' 30"	

VEGETATION

No.	Scientific Name	Strata	Indicator Status	Percent Cover	Dominant Species
1	ANTHOXANTHUM ODORATUM	Herb	FACU	20.00	Yes
2	CREPIS CAPILLARIS	Herb	FACU	15.00	No
3	FESTUCA ARUNDINACEA	Herb	FAC-	20.00	Yes
4	LOLIUM PERENNE	Herb	FACU	10.00	No
5	AGROSTIS TENUIS	Herb	FAC	35.00	Yes

Total Number of Species: 5 Total Dominants: 3

Percent of Dominants that are Wetland Species: 50/20: 67.00 FAC(minus)- applied: 33.00

Prevalence Index: 3.45 FAC Neutral: No

HYDROLOGY

Recorded Data:

_____ Stream, Lake, or Tide Gauge

_____ Aerial Photographs

__X__ Other

_____ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:

_____ Inundated

__X__ Saturated in Upper 12 inches

_____ Water Marks

_____ Drift Lines

_____ Sediment Deposits

_____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):

_____ Oxidized Root Channels in Upper 12 inches

_____ Water-Stained Leaves

__X__ Local Soil Survey Data

_____ FAC-Neutral Test

_____ Other (Explain in Remarks)

SOILS

Map Unit Name: Tidal Marsh Tn Drainage Class: very poorly drained
(Series and Phase): Tidal Marsh Field Observations
Taxonomy (Subgroup): mesic hydraquents Confirm Mapped Type? No

Profile Description:

Depth (inches)	Hz	Matrix Color (Munsell Moist)	Texture, Concretions, Structure	Redox Feature Abundance/Contrast	Redox Color (Munsell Moist)
0-10		2.5Y6/3	Loamy sand		
10-16		2.5Y5/2	Loamy sand		

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X__ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	____ Organic Pan

NRCS Field Indicators: ____ ____ ____ ____Other (Explain in Remarks)

WETLAND DETERMINATION

__No__ Hydrophytic Vegetation Present?	__No__ Is this Sampling Point Within a Wetland?
__No__ Wetland Hydrology Present?	__No__ Is this Sampling Point a Waters of the US?
__Yes__ Hydric Soils Present?	__No__ Have the determination results been overridden by the user?

REMARKS

This sample point is located in the upland agricultural field and has been historically hayed and tilled. The vegetation has been removed
every year for the past 20+ years.

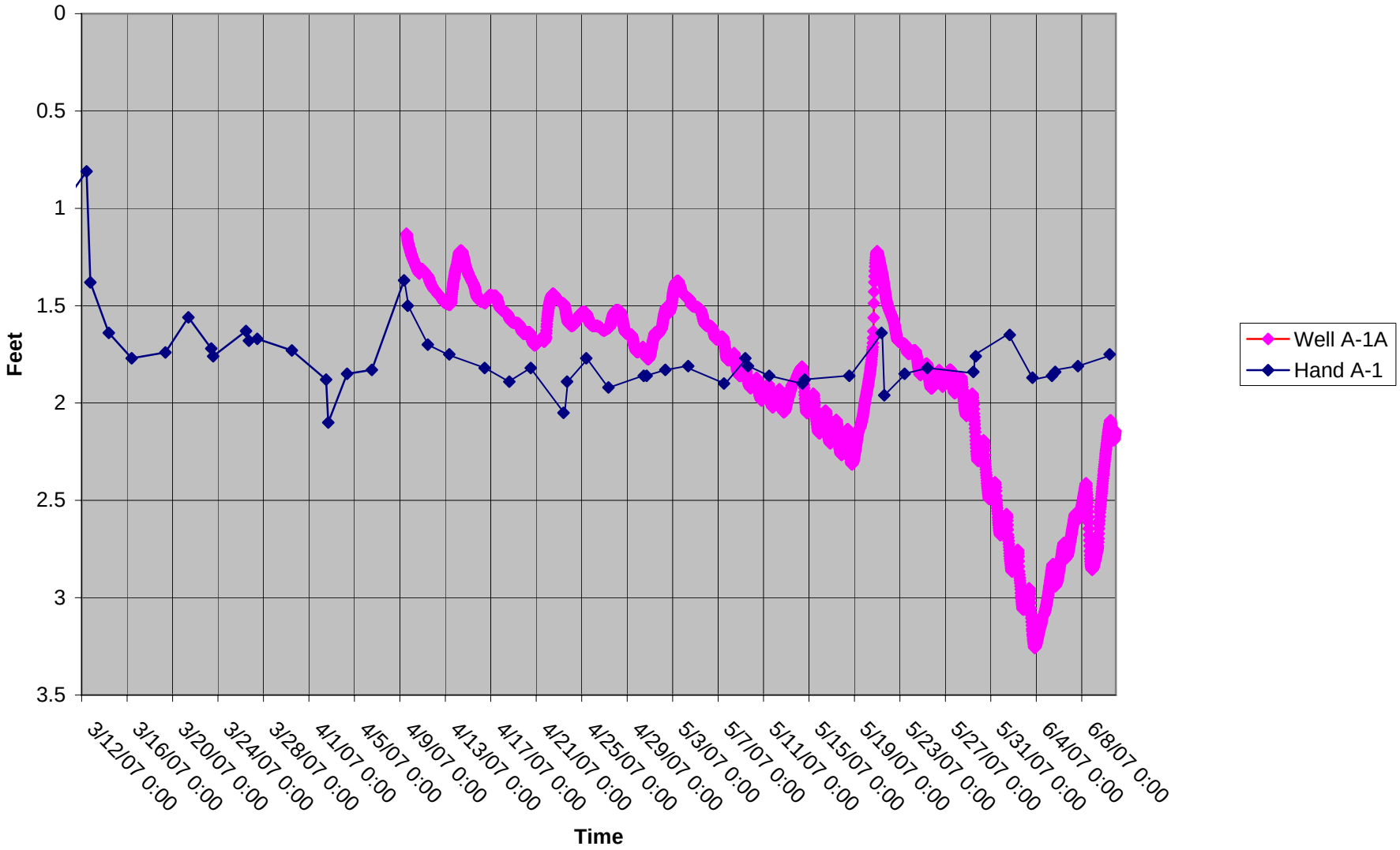
Recorded hydrology data for this sample point included shallow groundwater monitoring wells F5 and F6 in the agricultural field.

Wetland	**WoUS**		
____ Yes	____ Yes	5	Species Richness
X No	X No	3.45	Prevalence Index

GeoEngineers

APPENDIX D
SHALLOW GROUNDWATER WELL MONITORING DATA

A-1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1.5
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3.5
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4/17/07 0:00
4/21/07 0:00
4/25/07 0:00
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5/19/07 0:00
5/23/07 0:00
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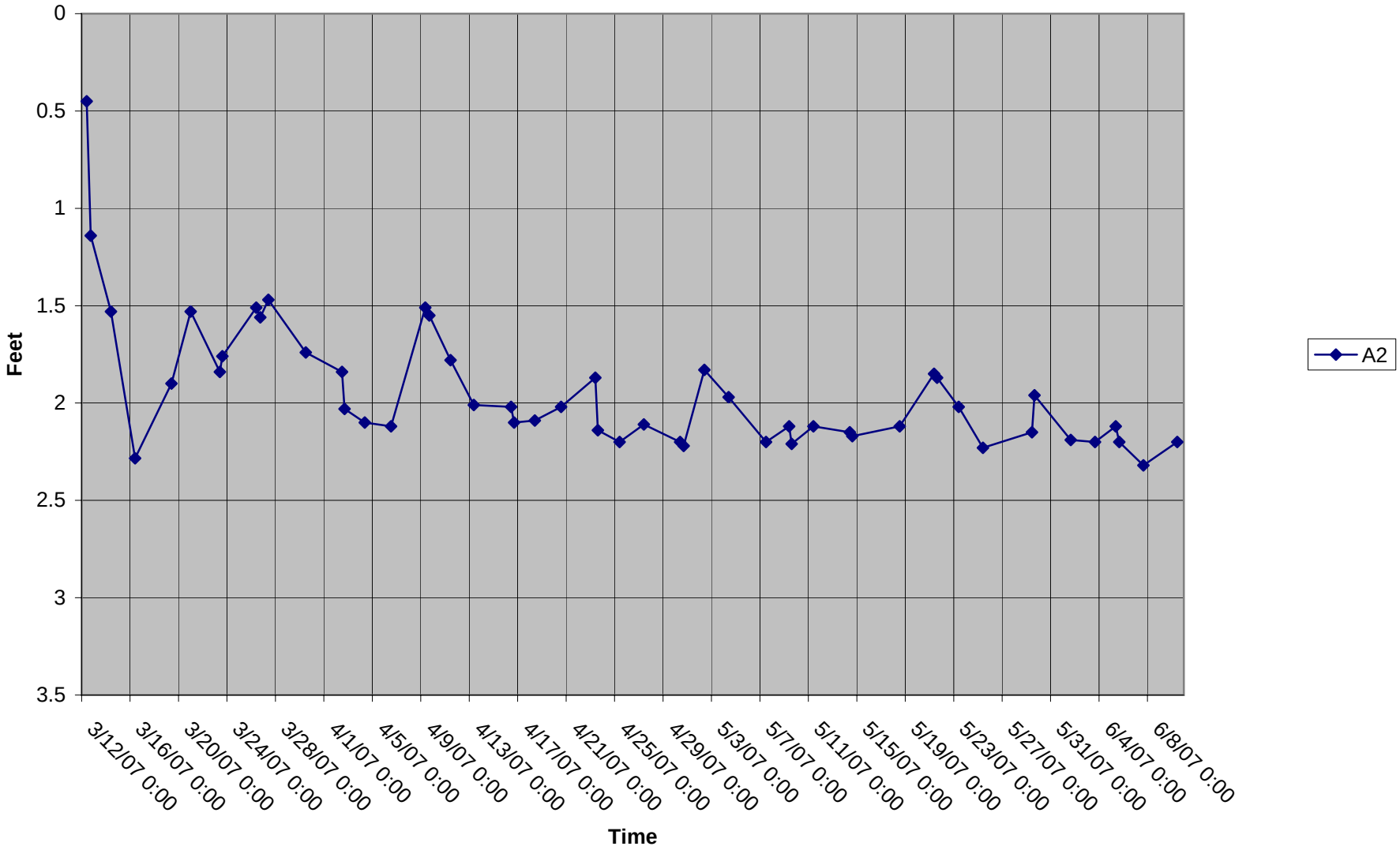
6/4/07 0:00
6/8/07 0:00
Time
Well A-1A
Hand A-1

A-2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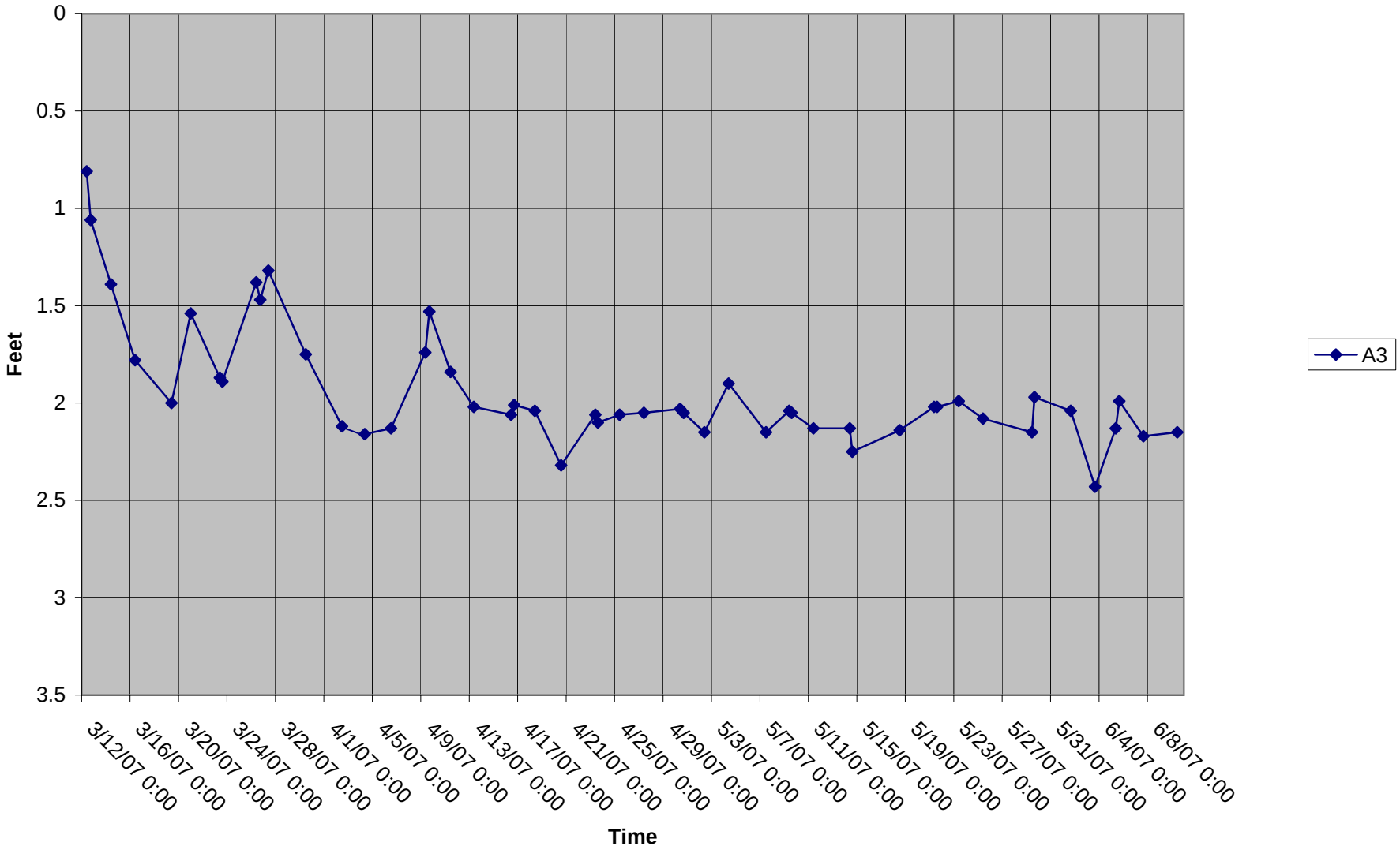
Time
A2

A-3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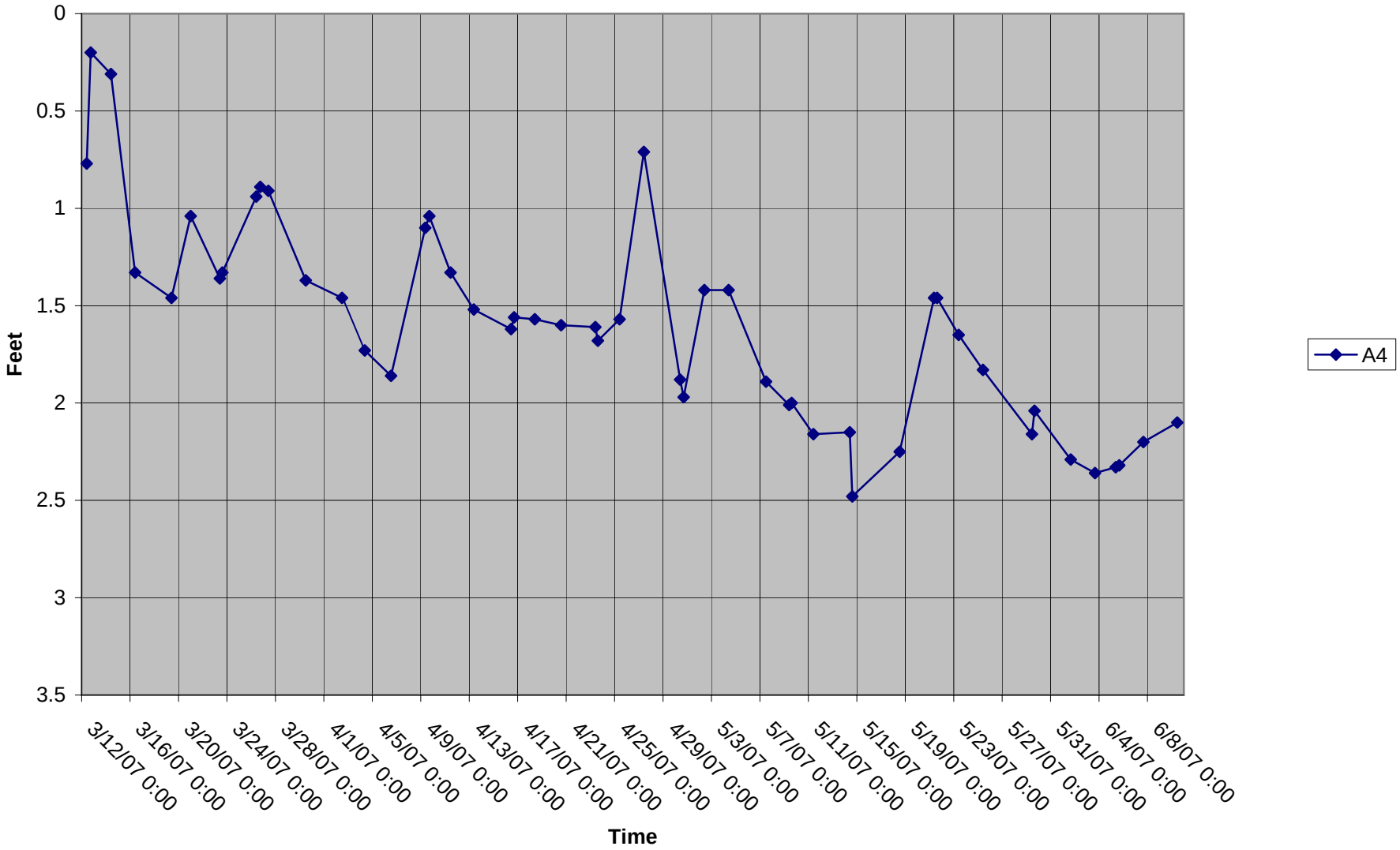
Time
A3

A-4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Time
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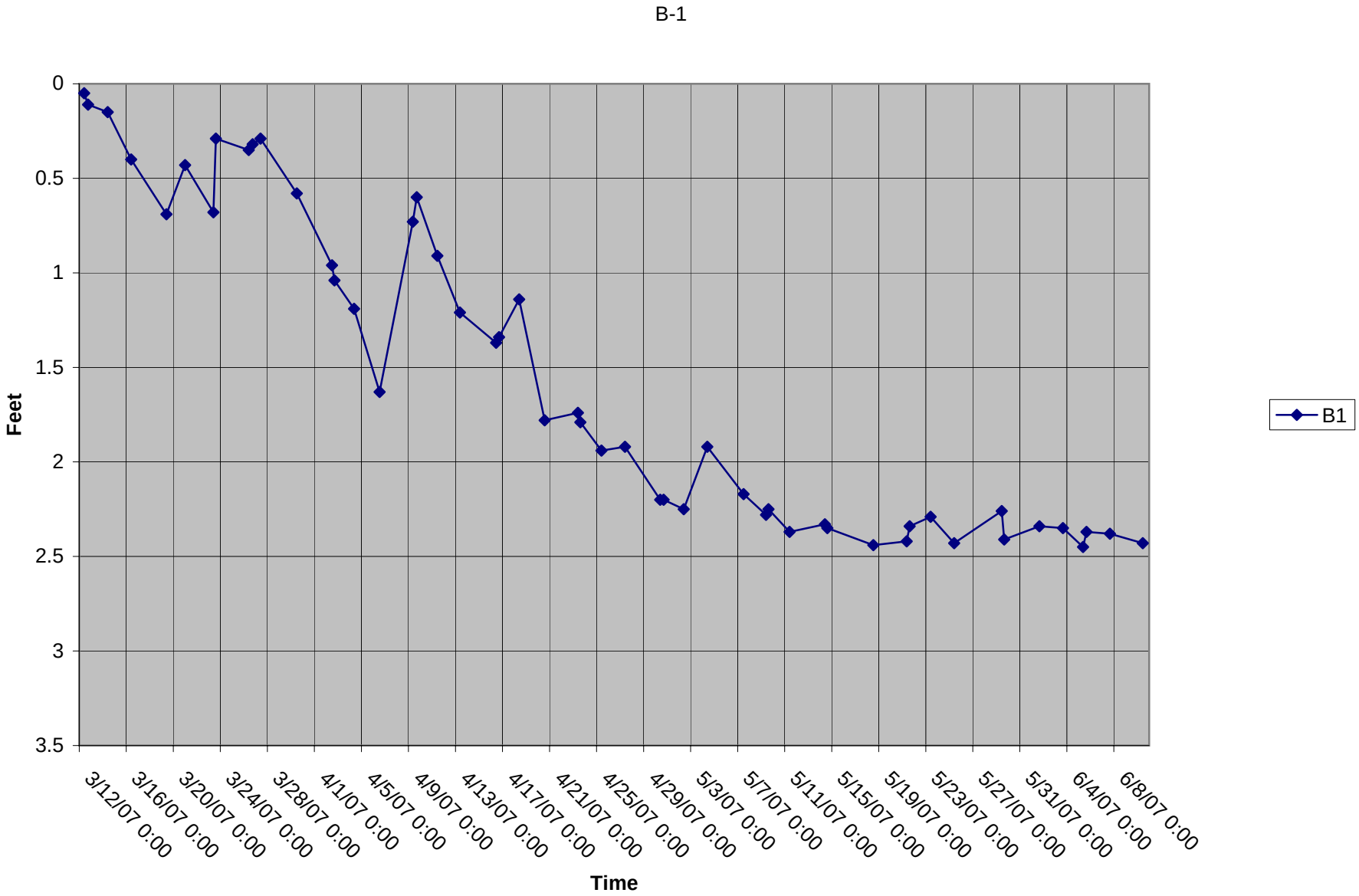
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Time
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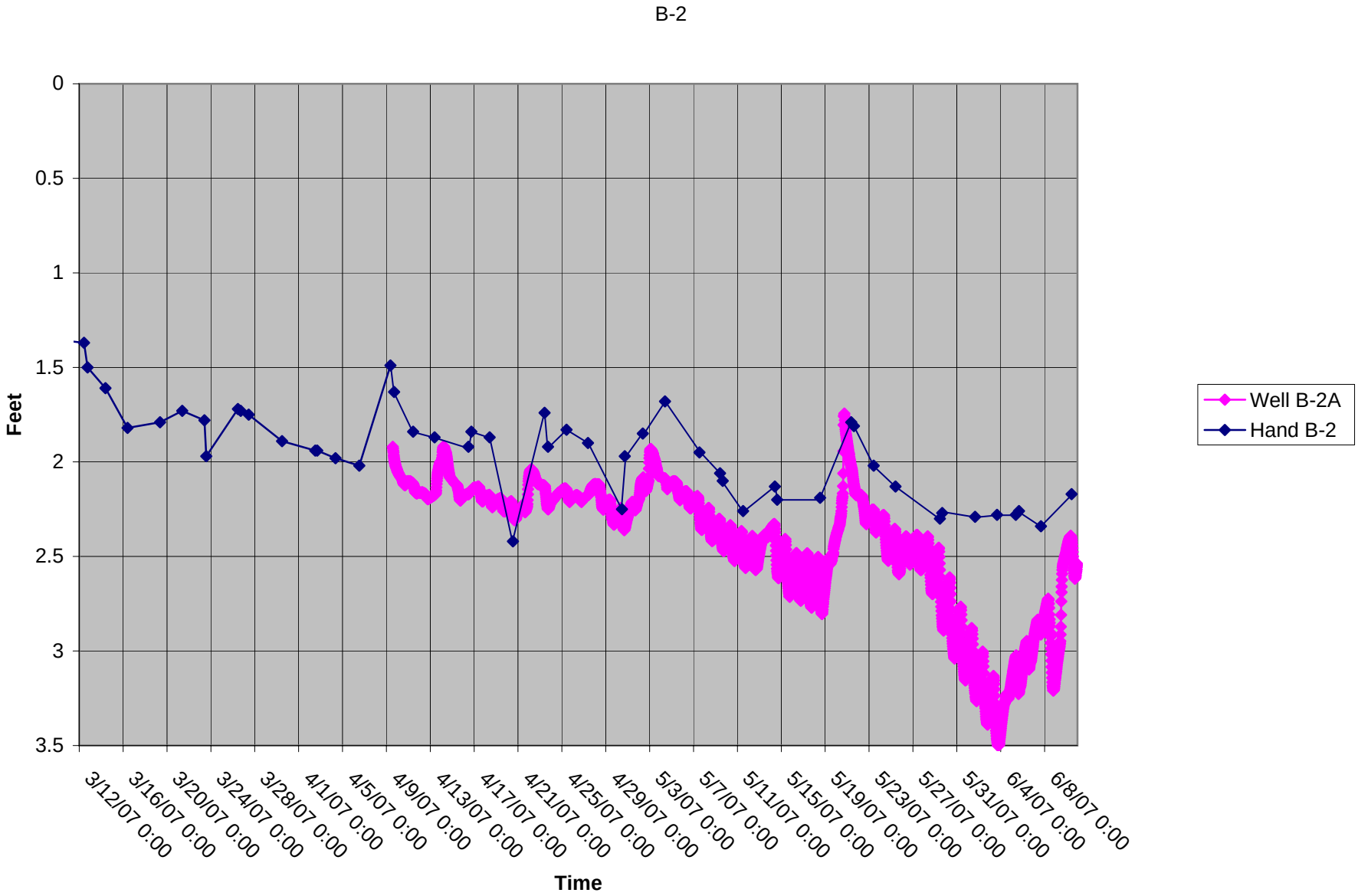
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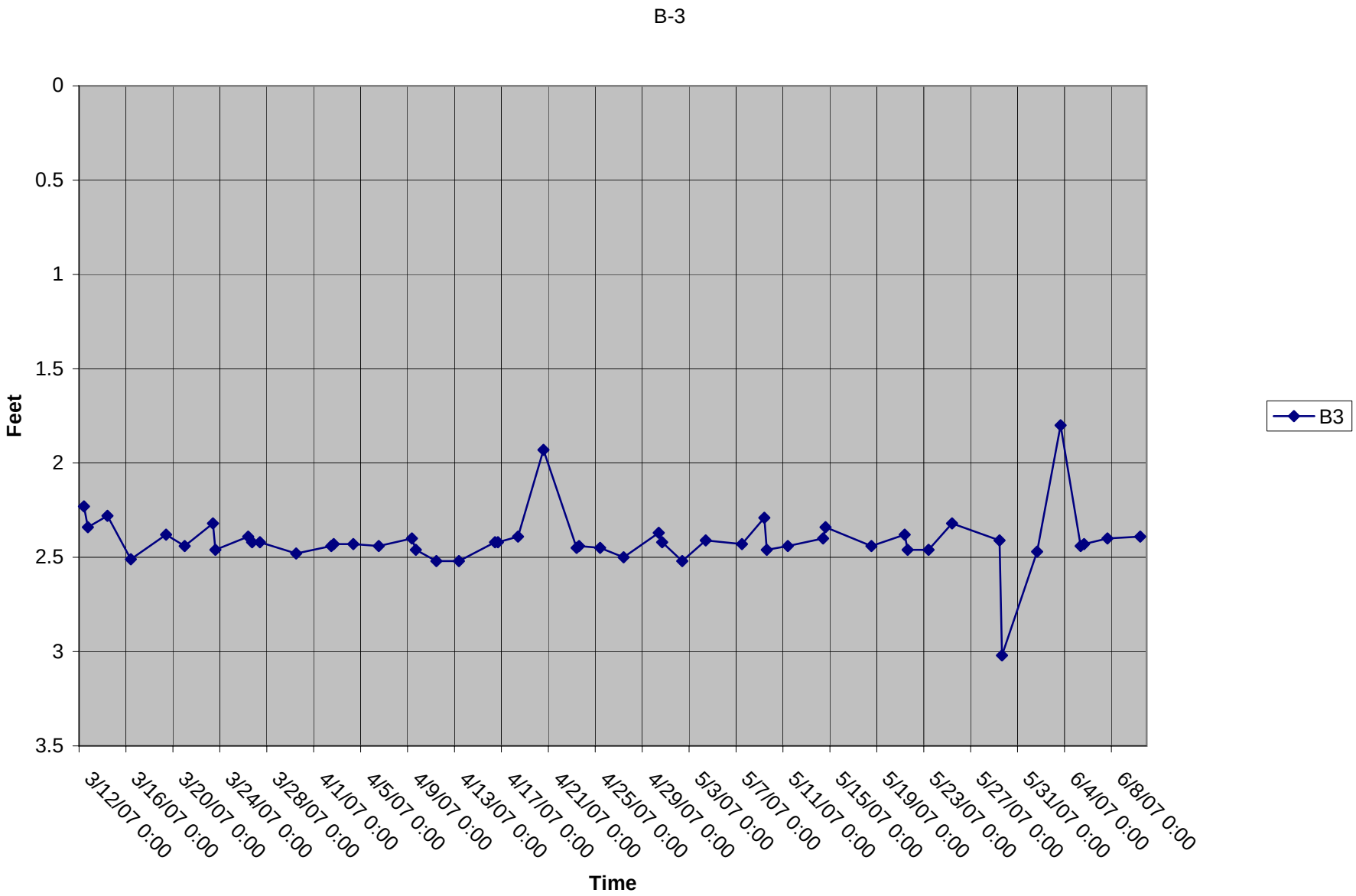
Time
Well B-2A
Hand B-2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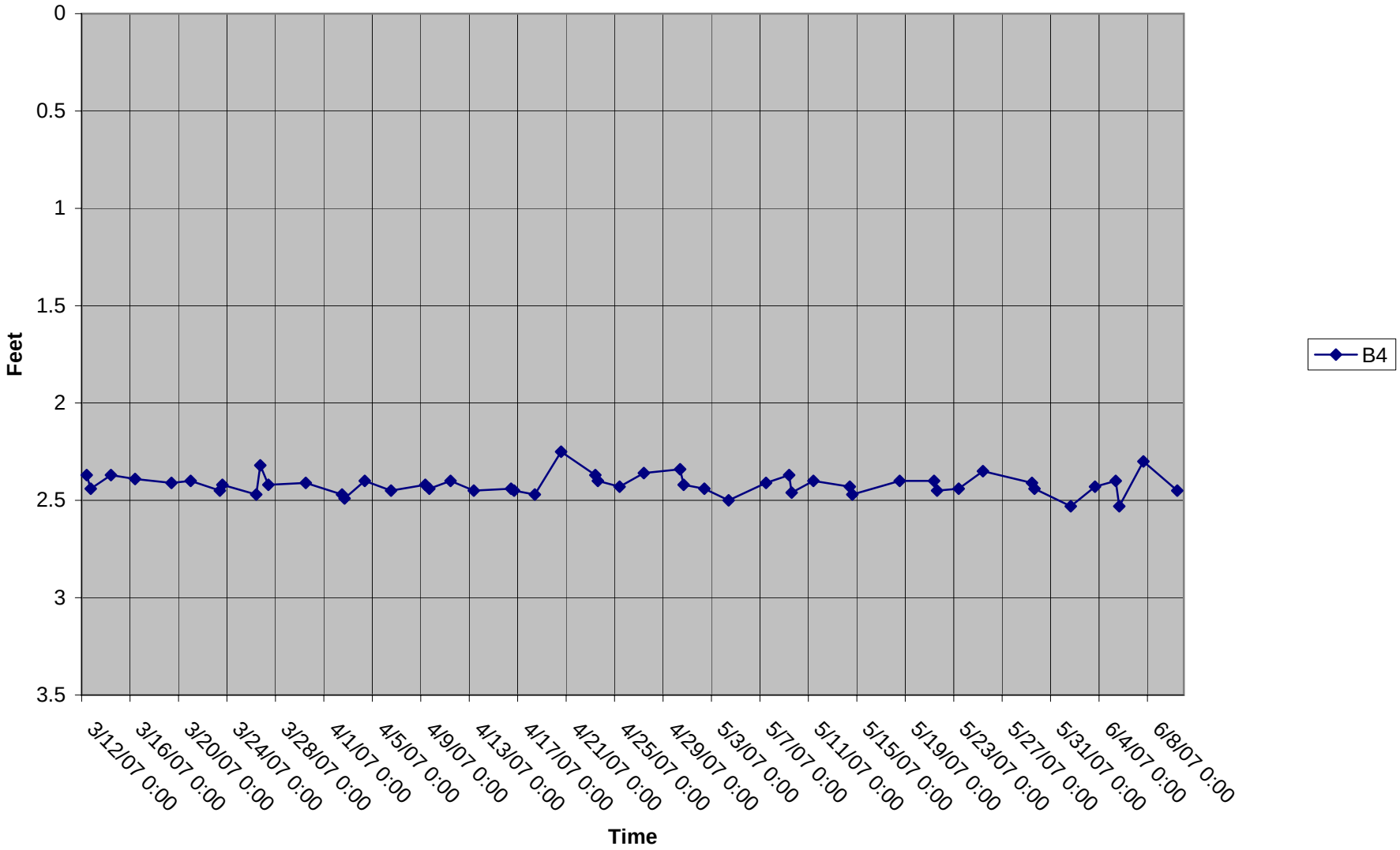
Time
B3

B-4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Time
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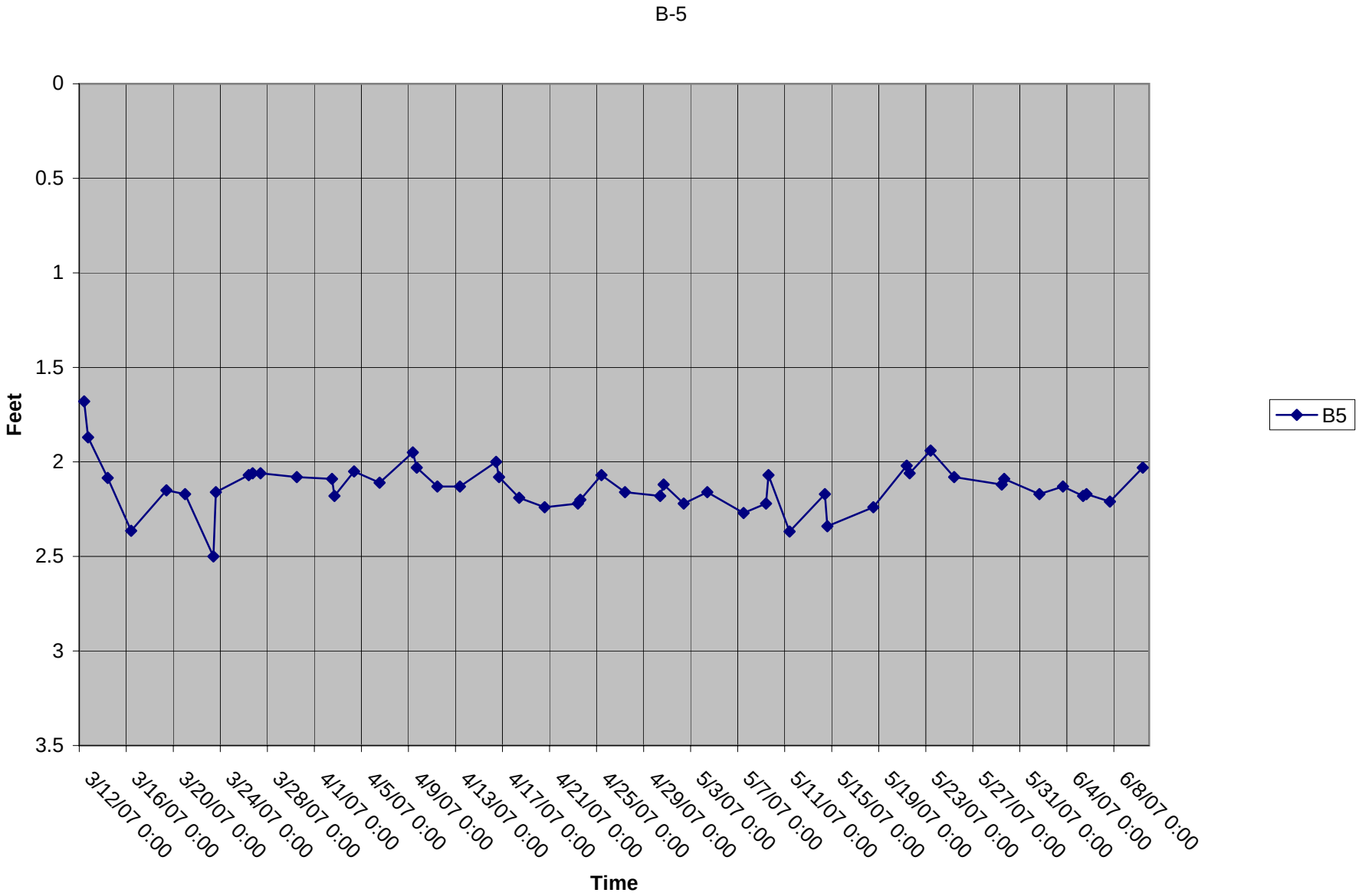
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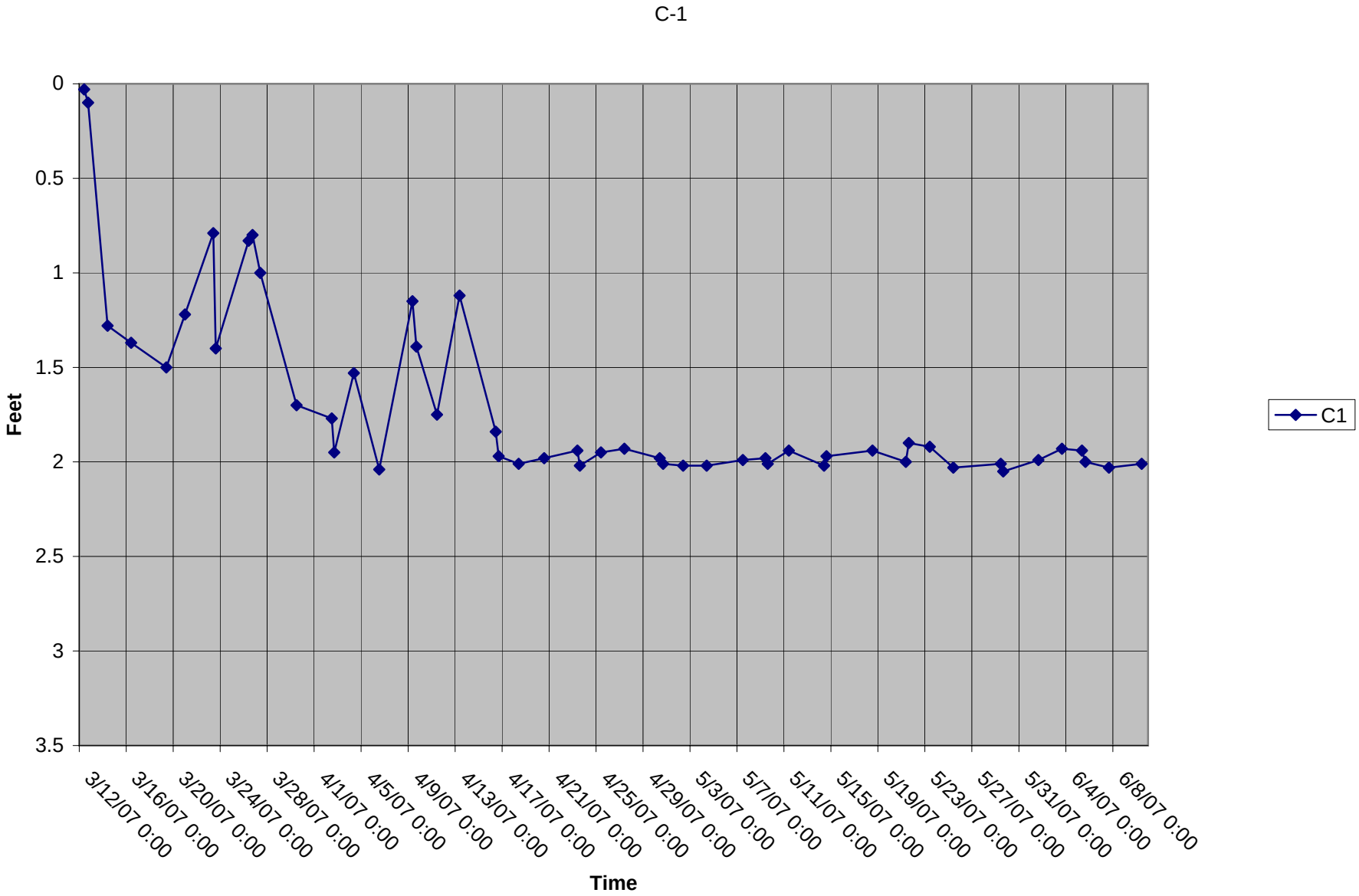
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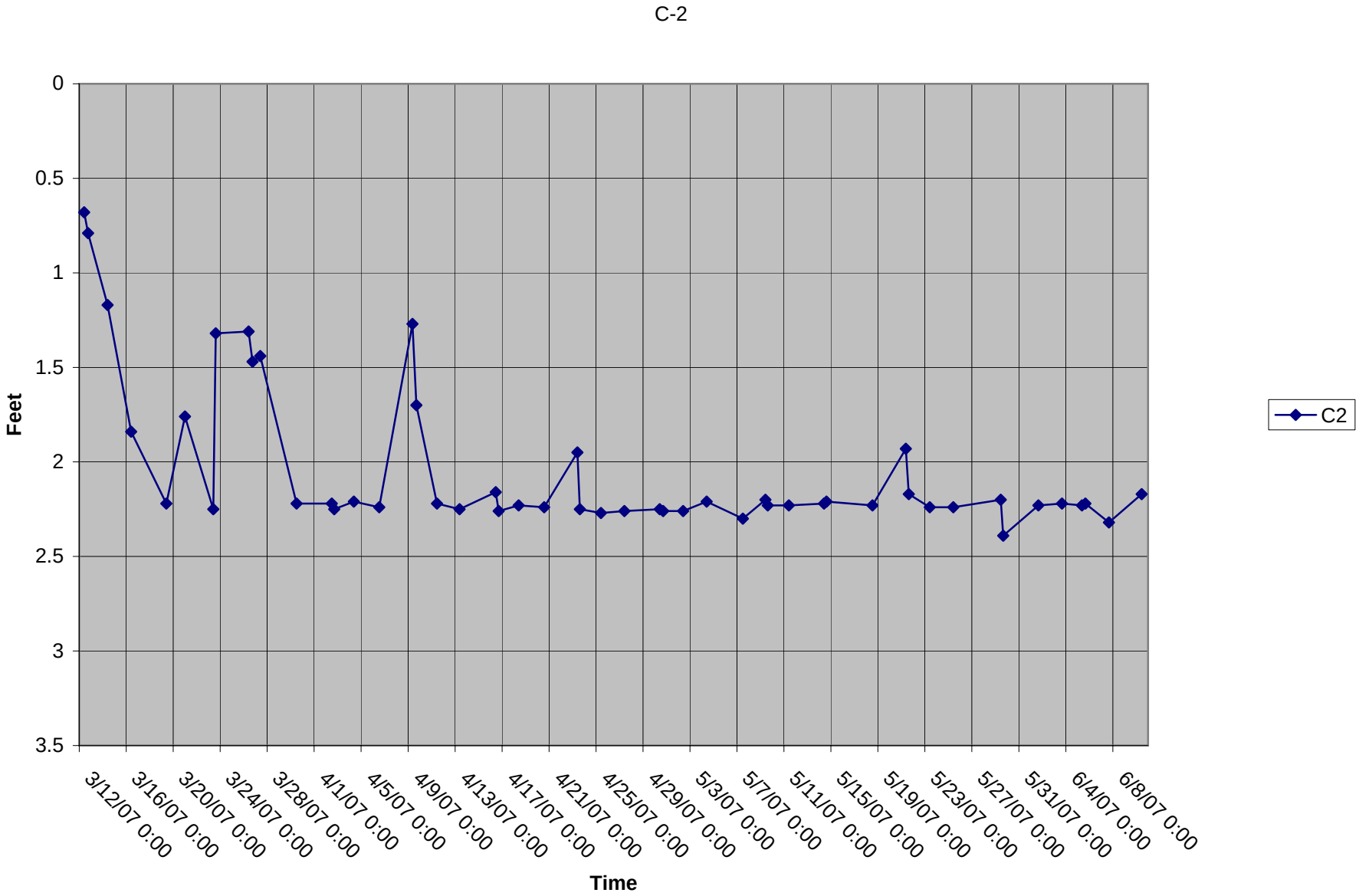
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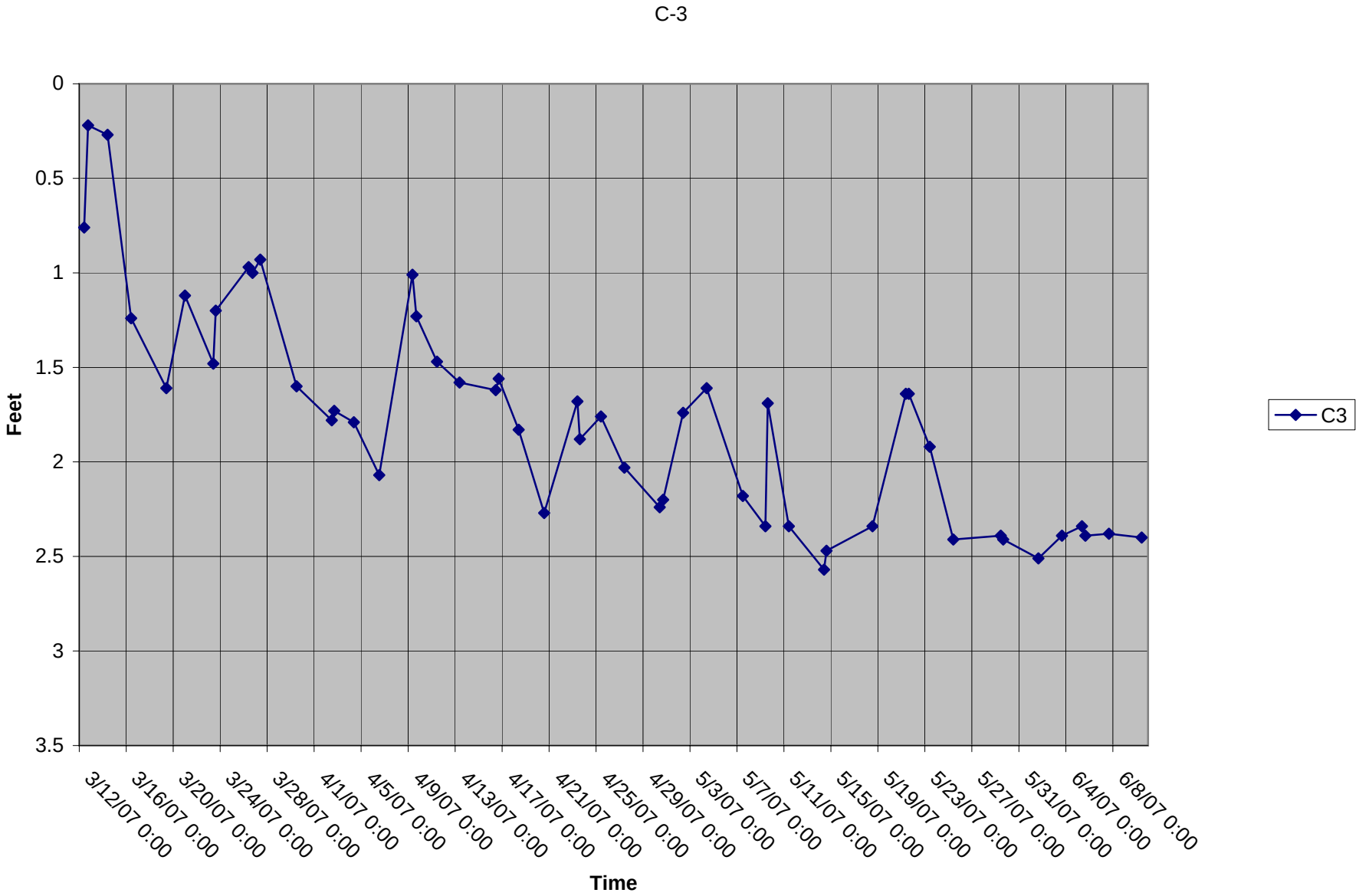
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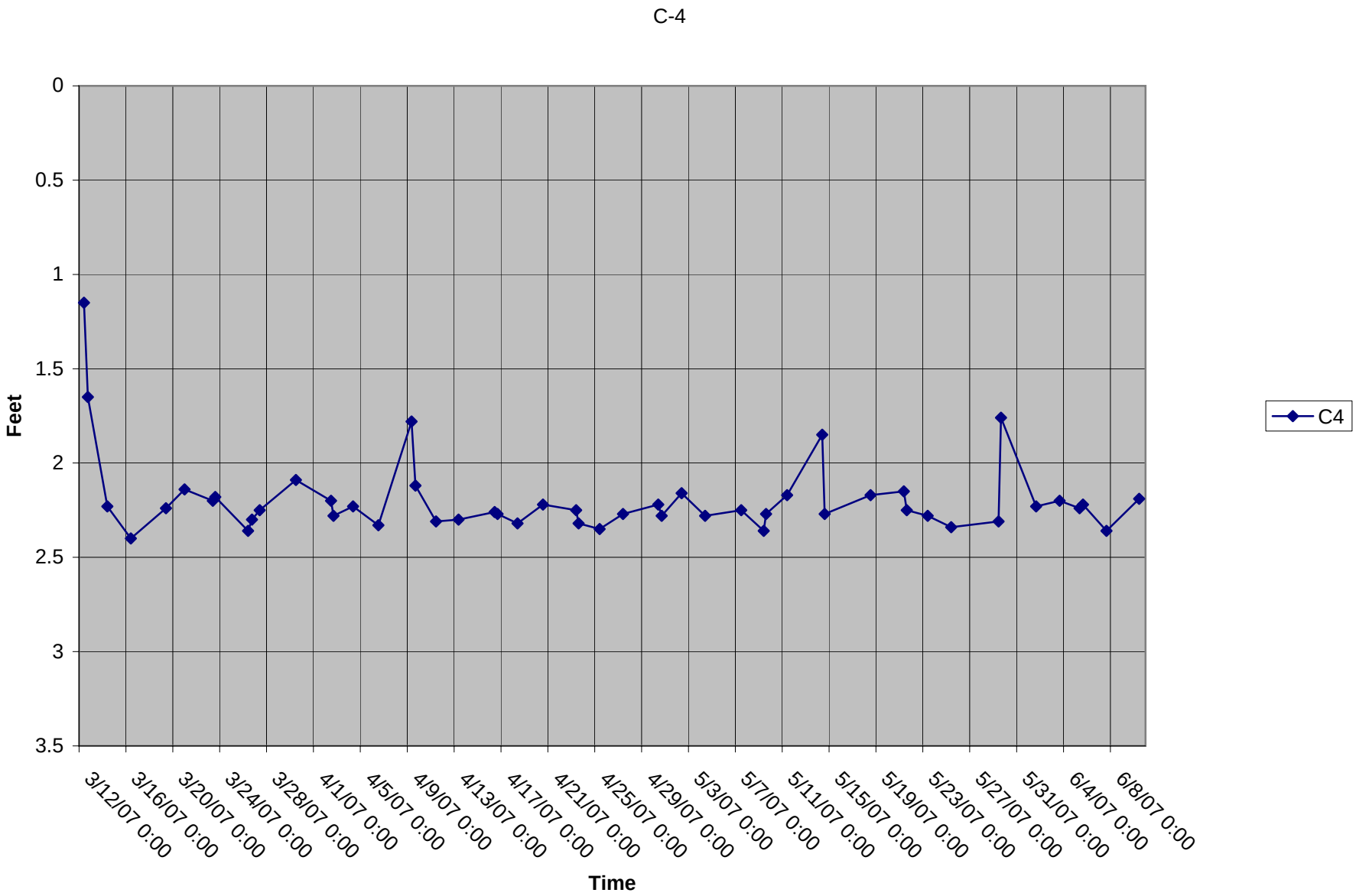
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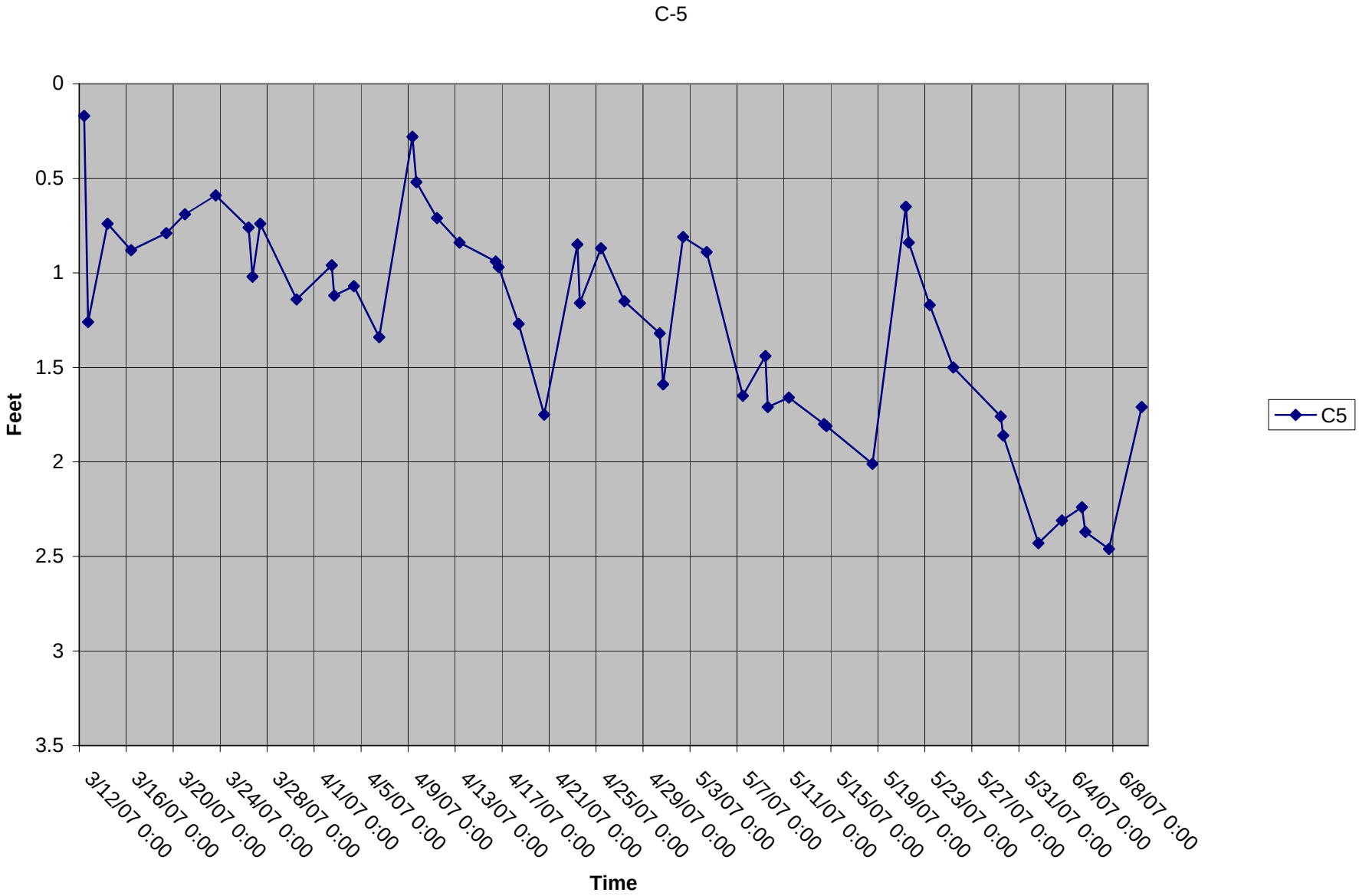
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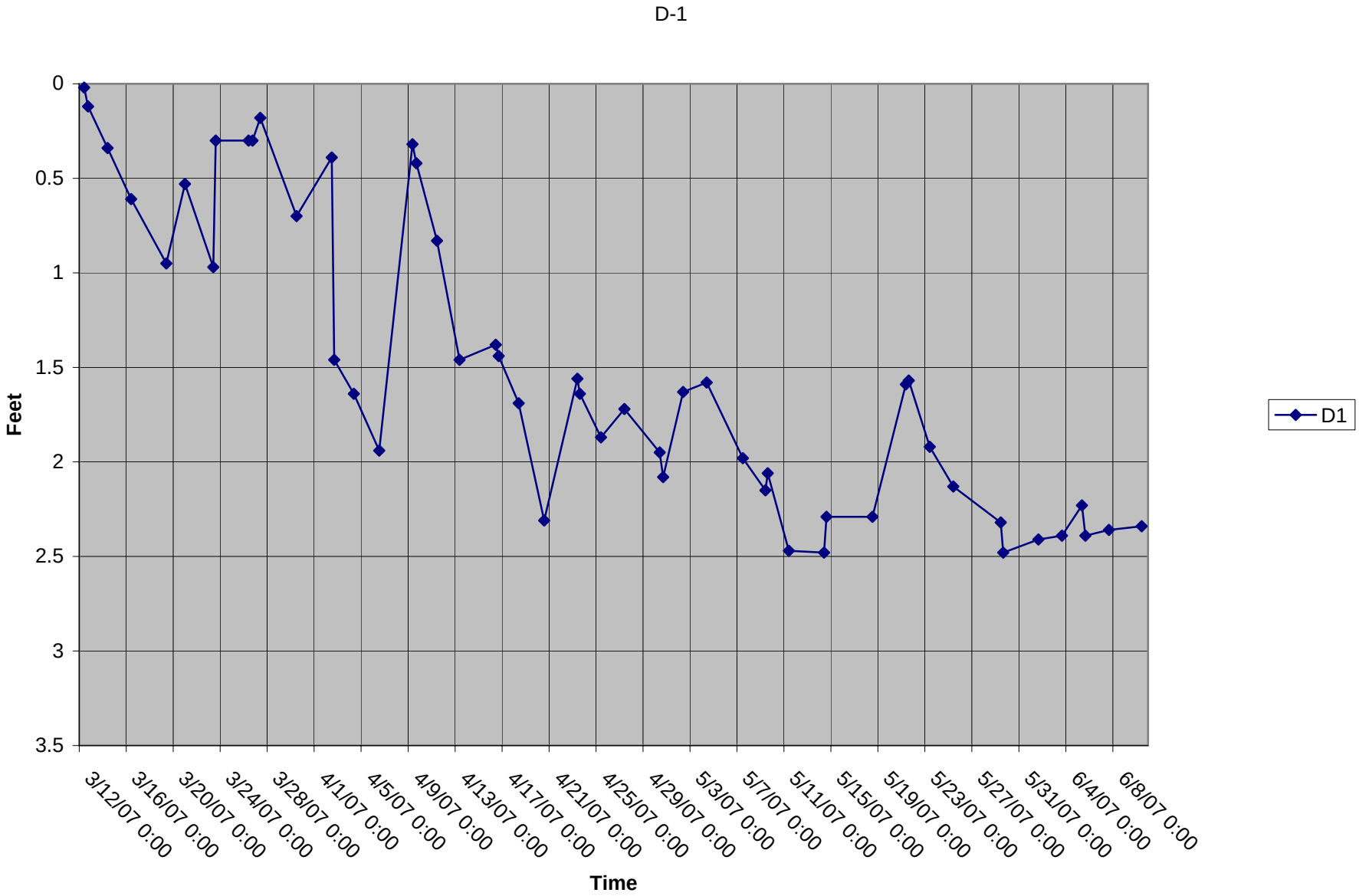
Time
C5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2.5
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3.5
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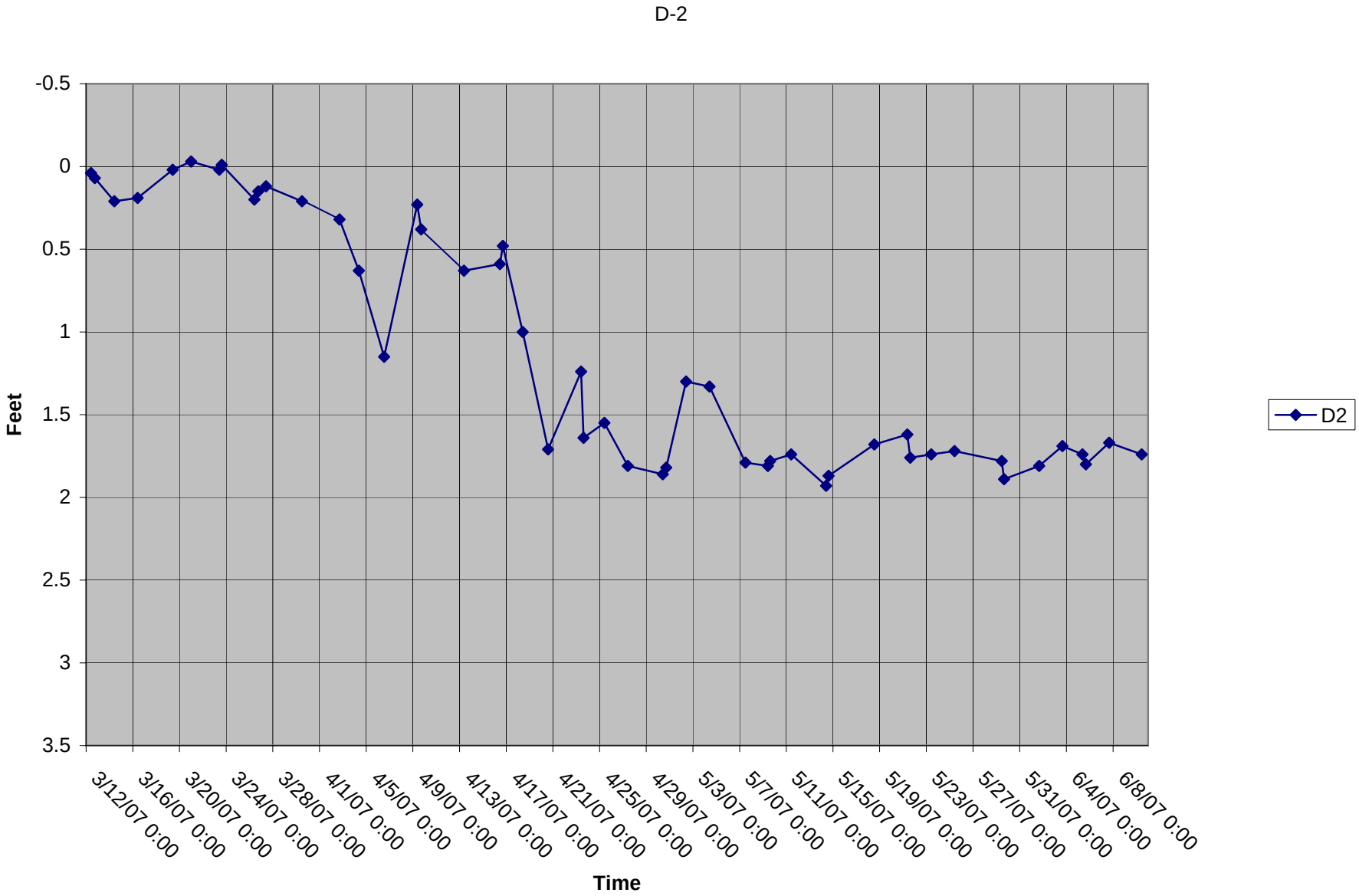
6/4/07 0:00
6/8/07 0:00
Time
D1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1.5
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2.5
3
3.5
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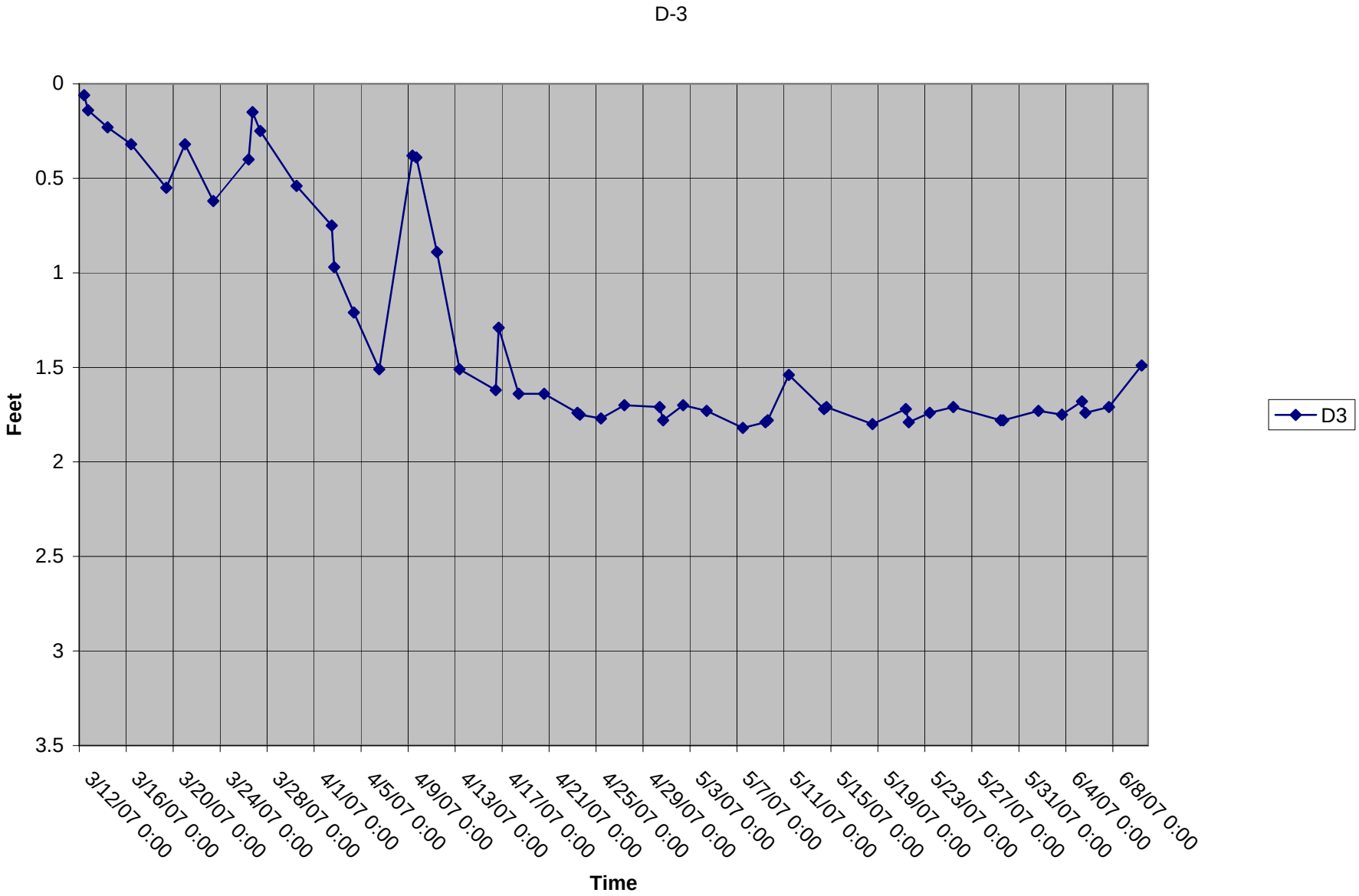
Time
D2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1.5
2
2.5
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3.5
Feet
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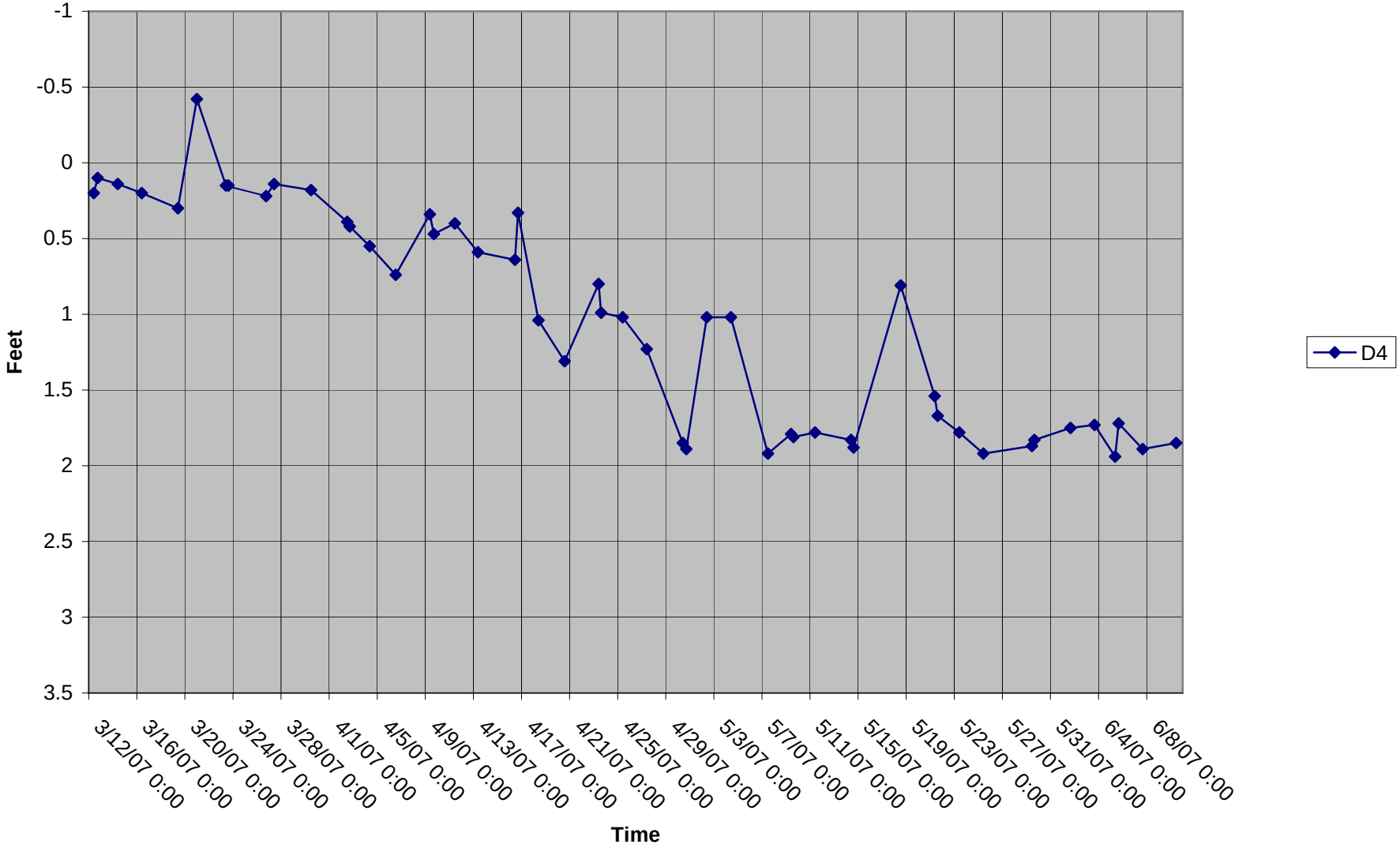
Time
D3

D-4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0.5
1
1.5
2
2.5
3
3.5
Feet
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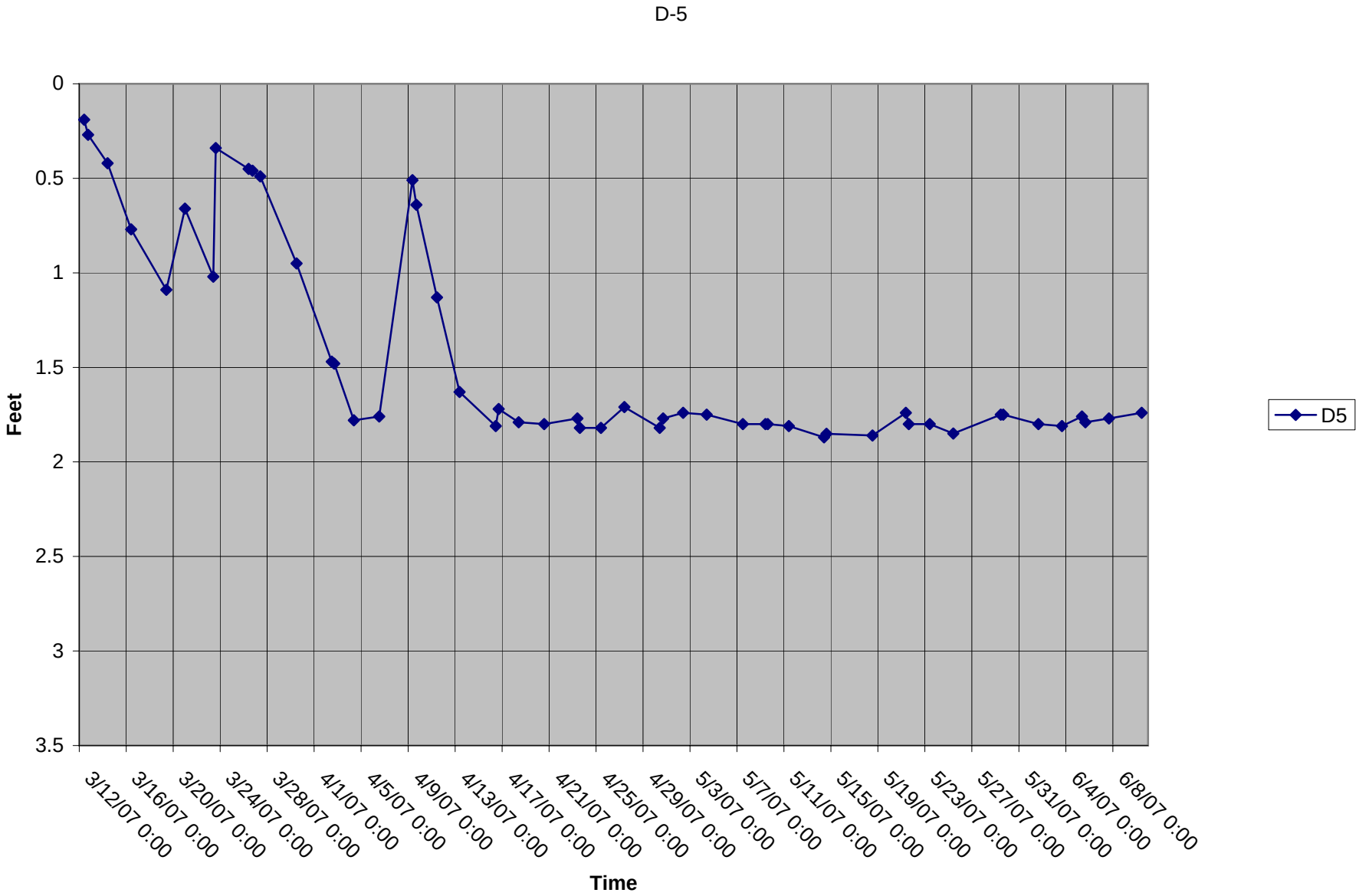
6/4/07 0:00
6/8/07 0:00
Time
D4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1.5
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3
3.5
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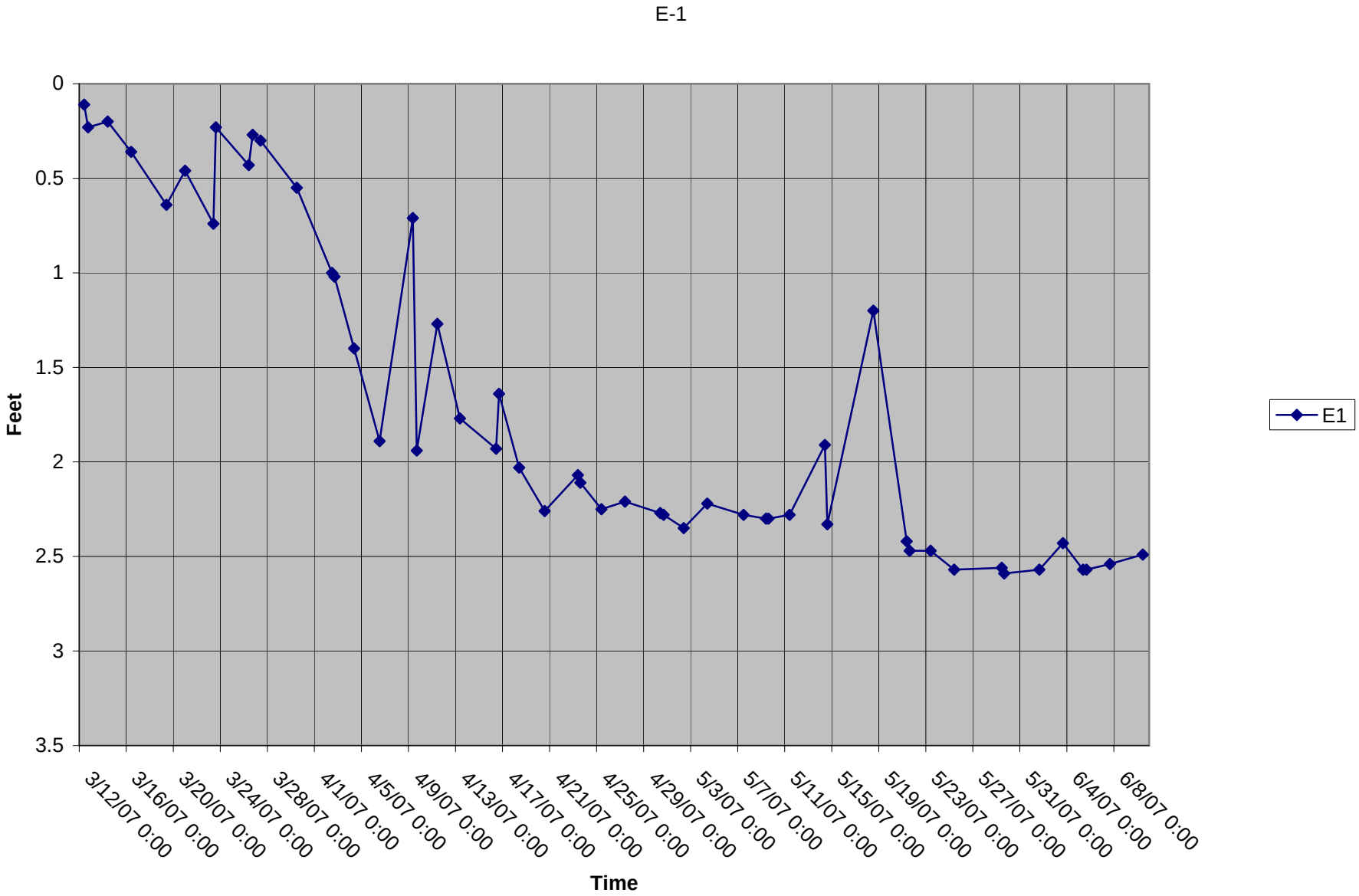
Time
D5


E-1
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1
1.5
2
2.5
3
3.5
Feet
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3/24/07 0:00
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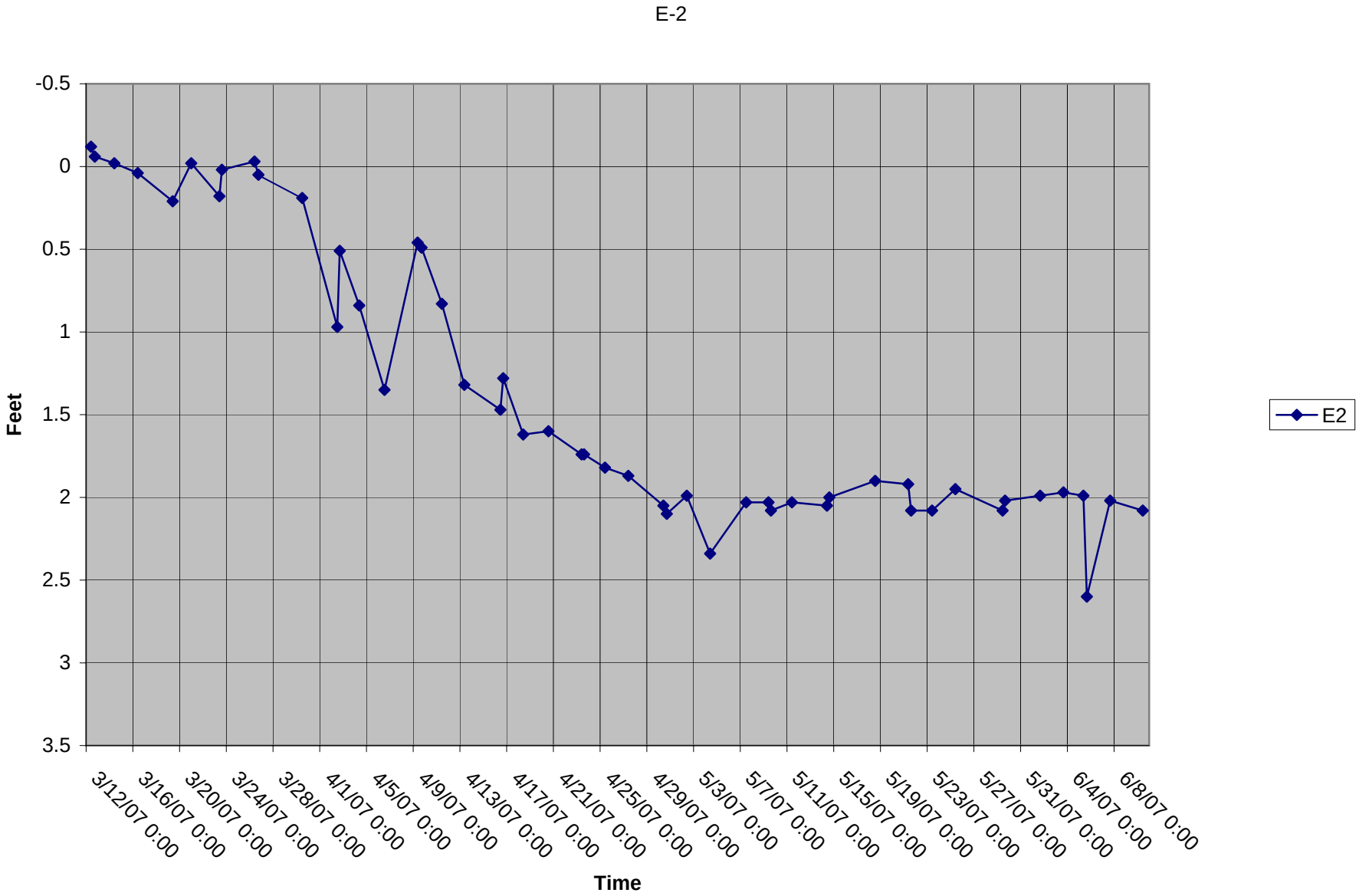
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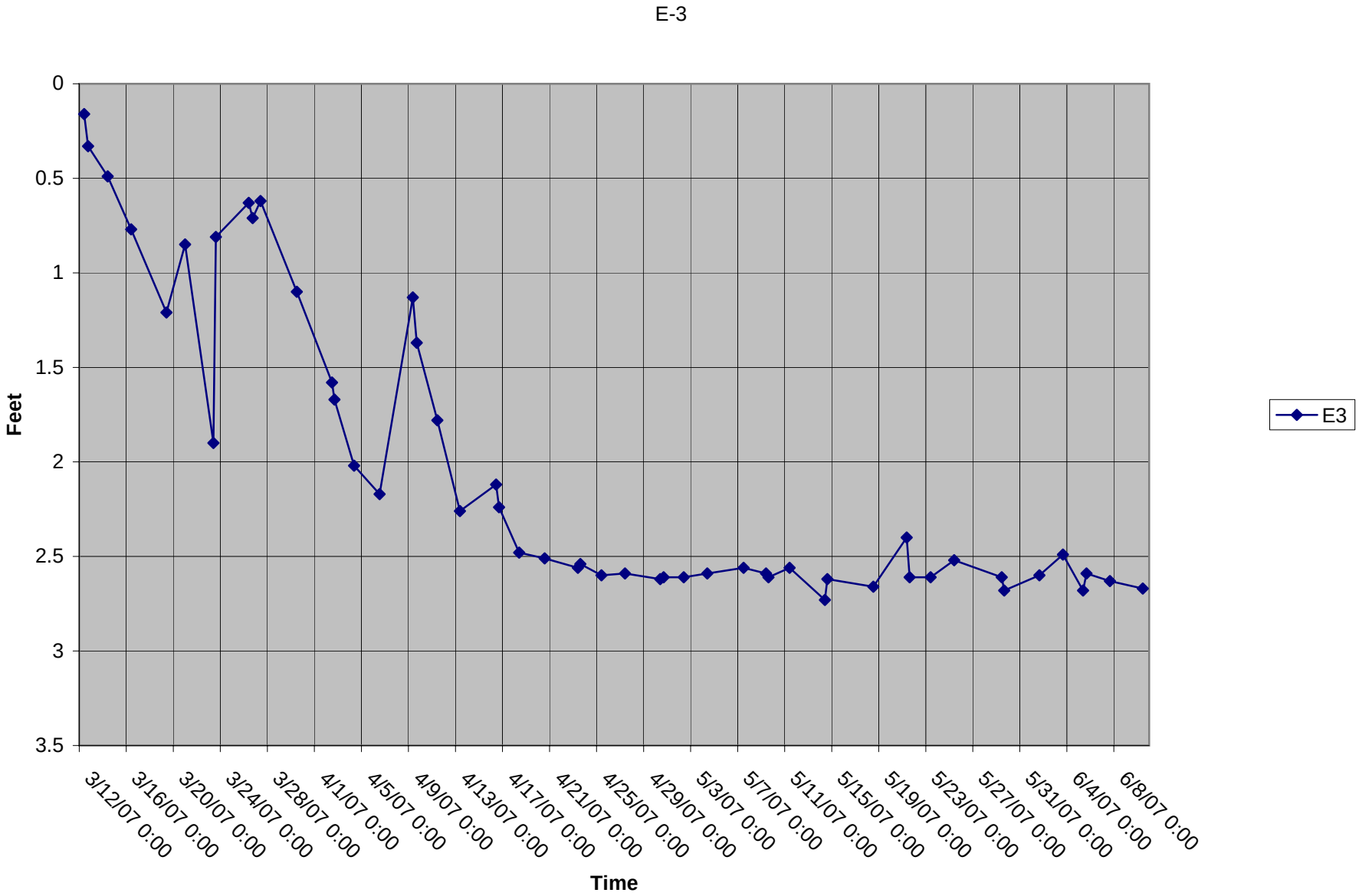
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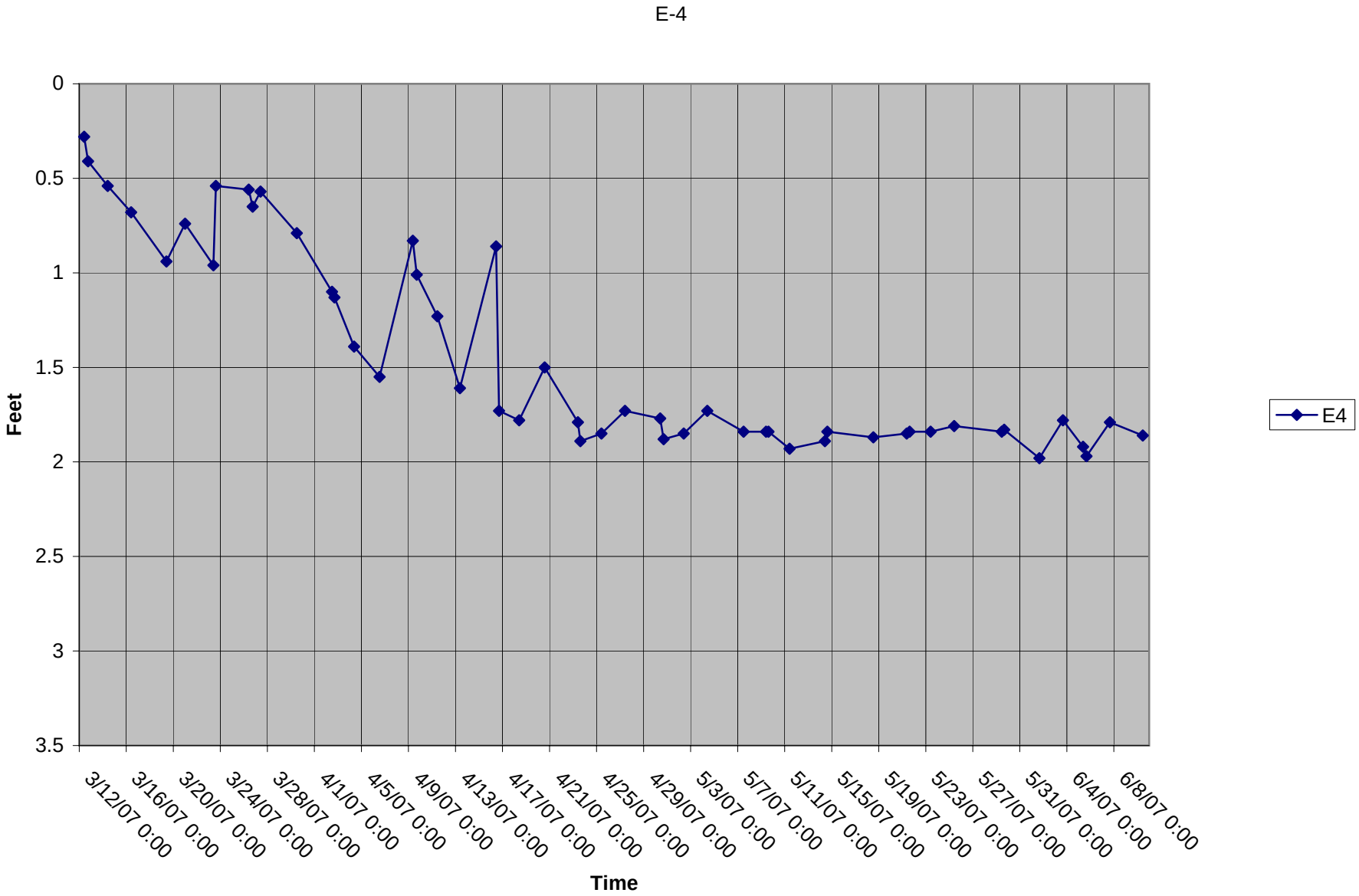
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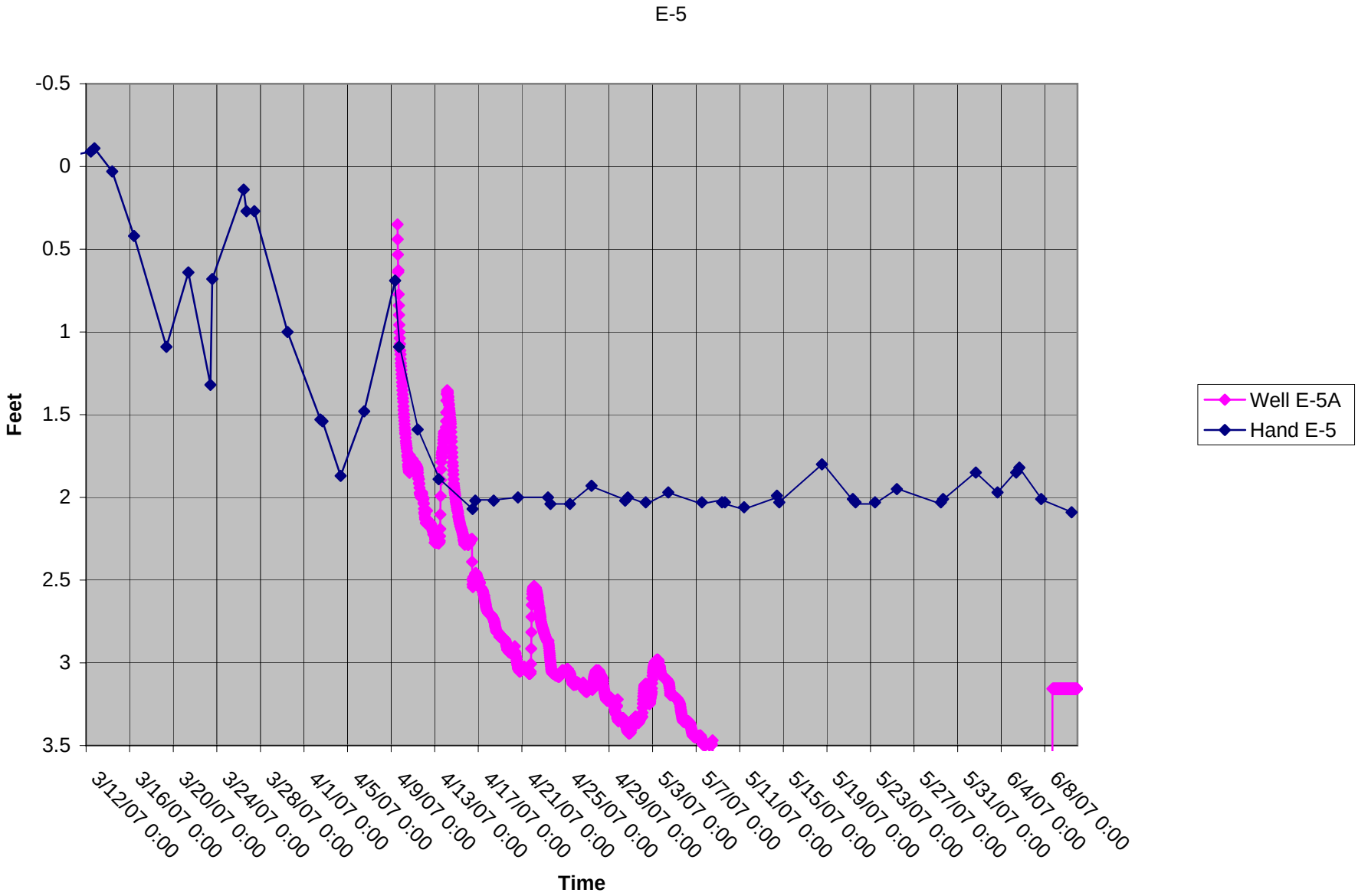
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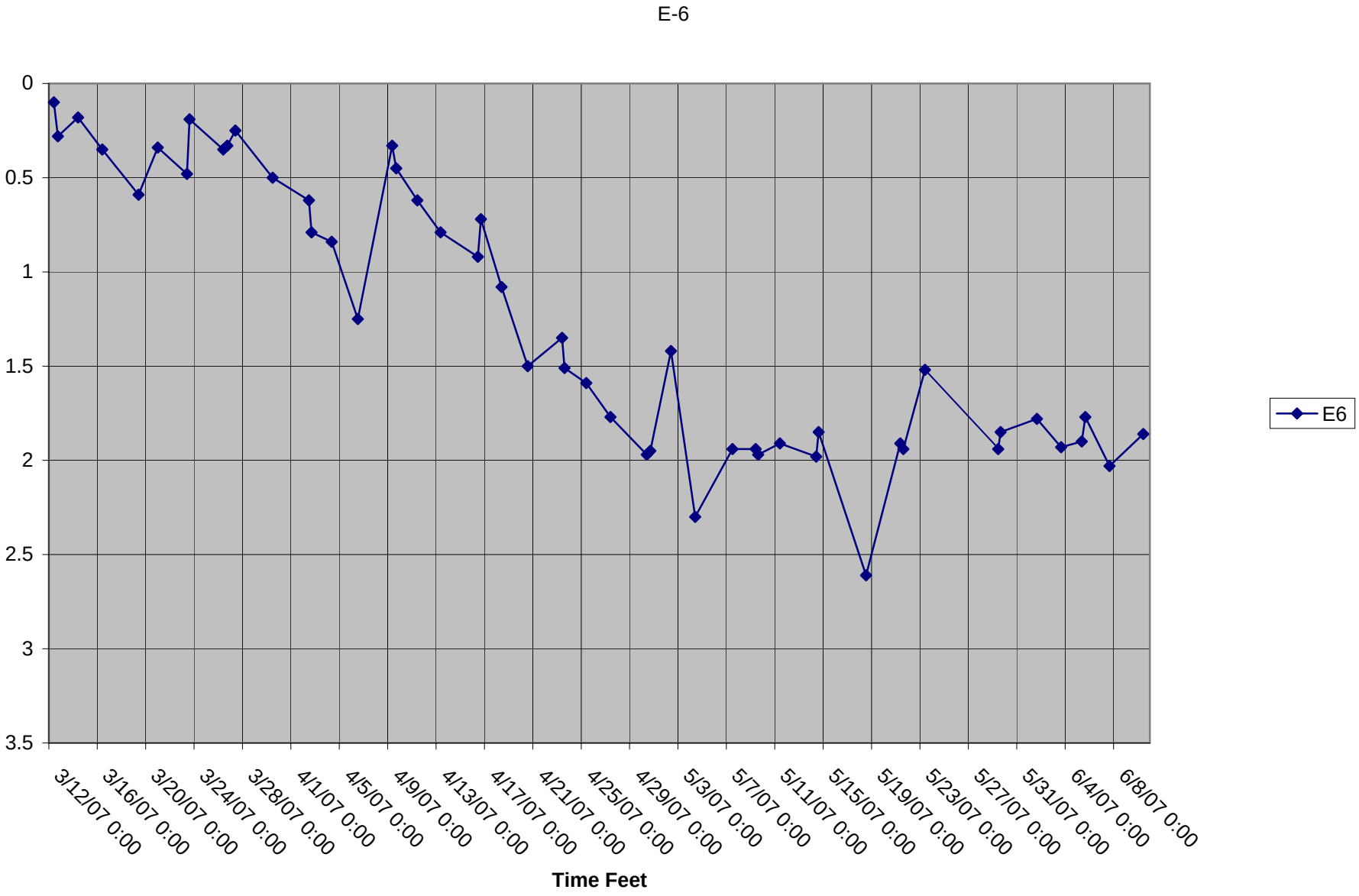
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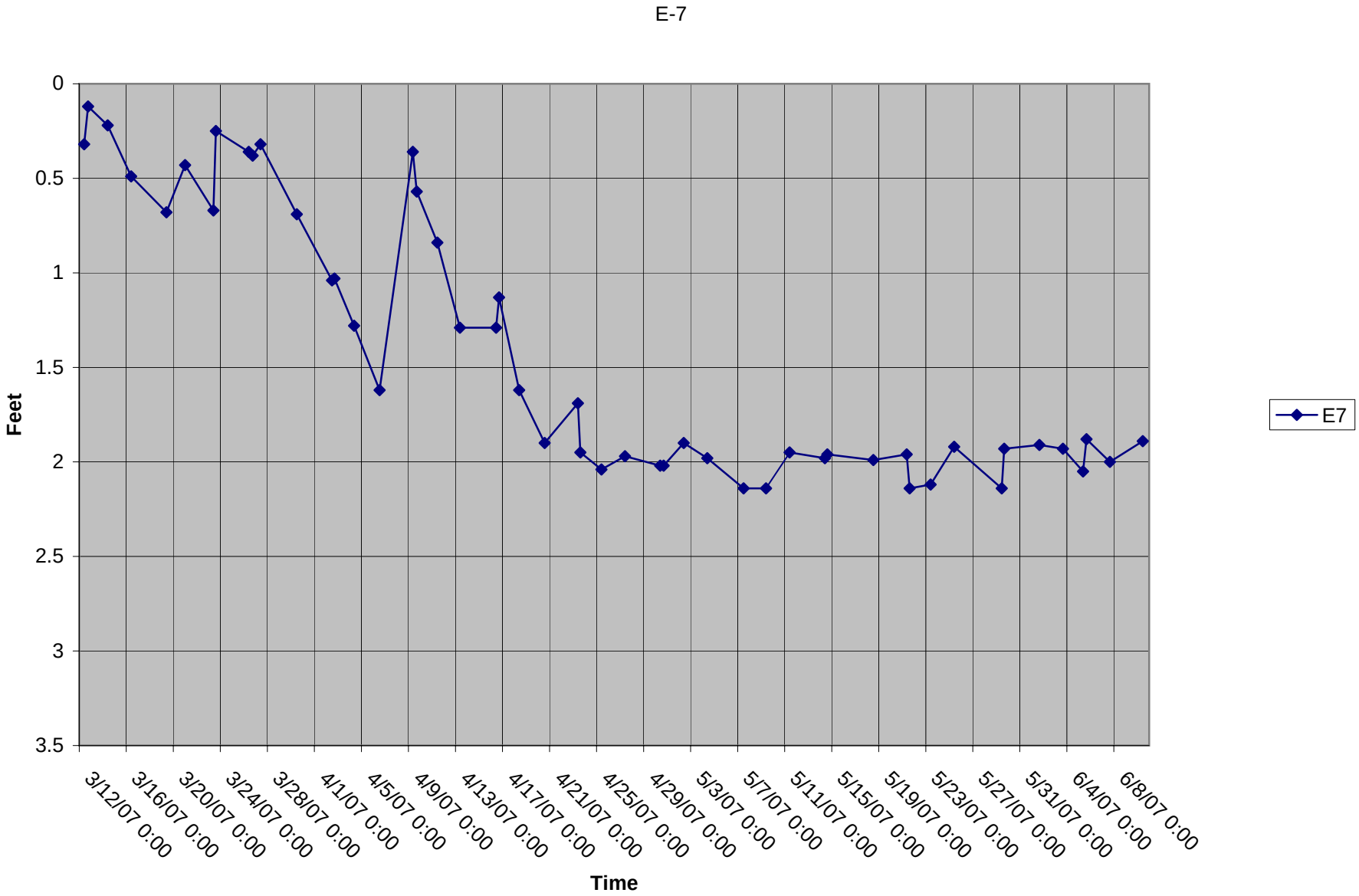
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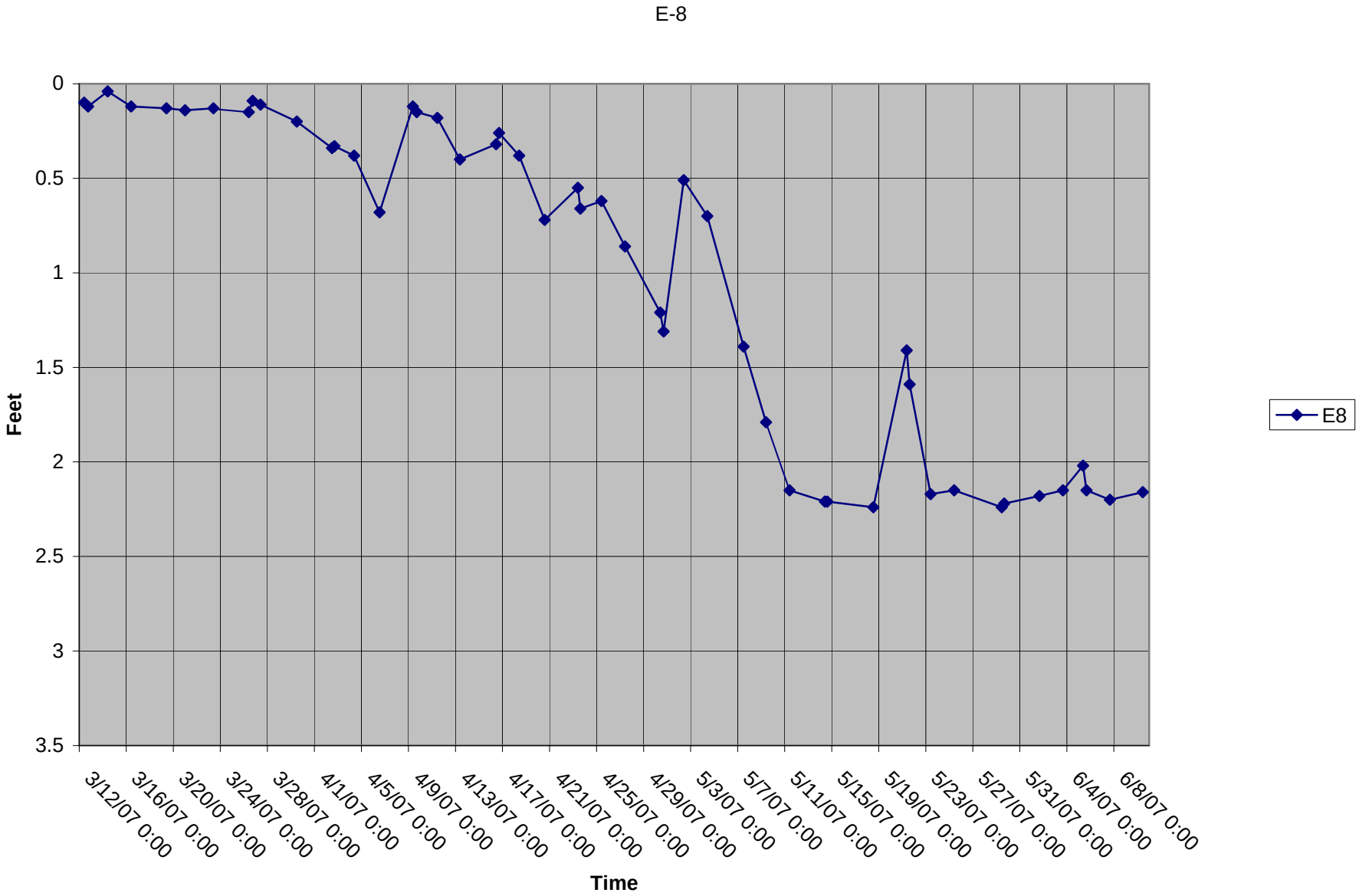
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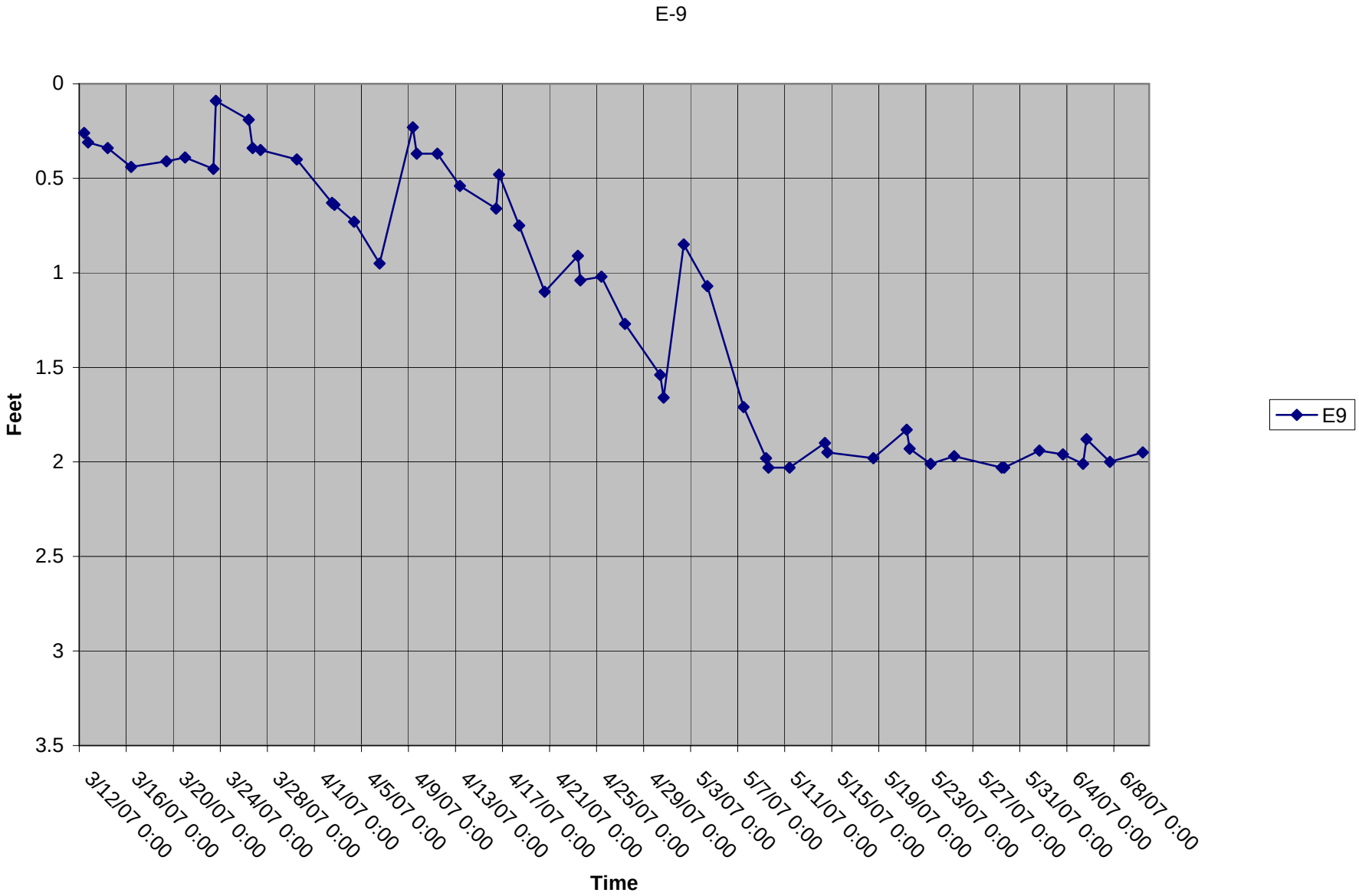
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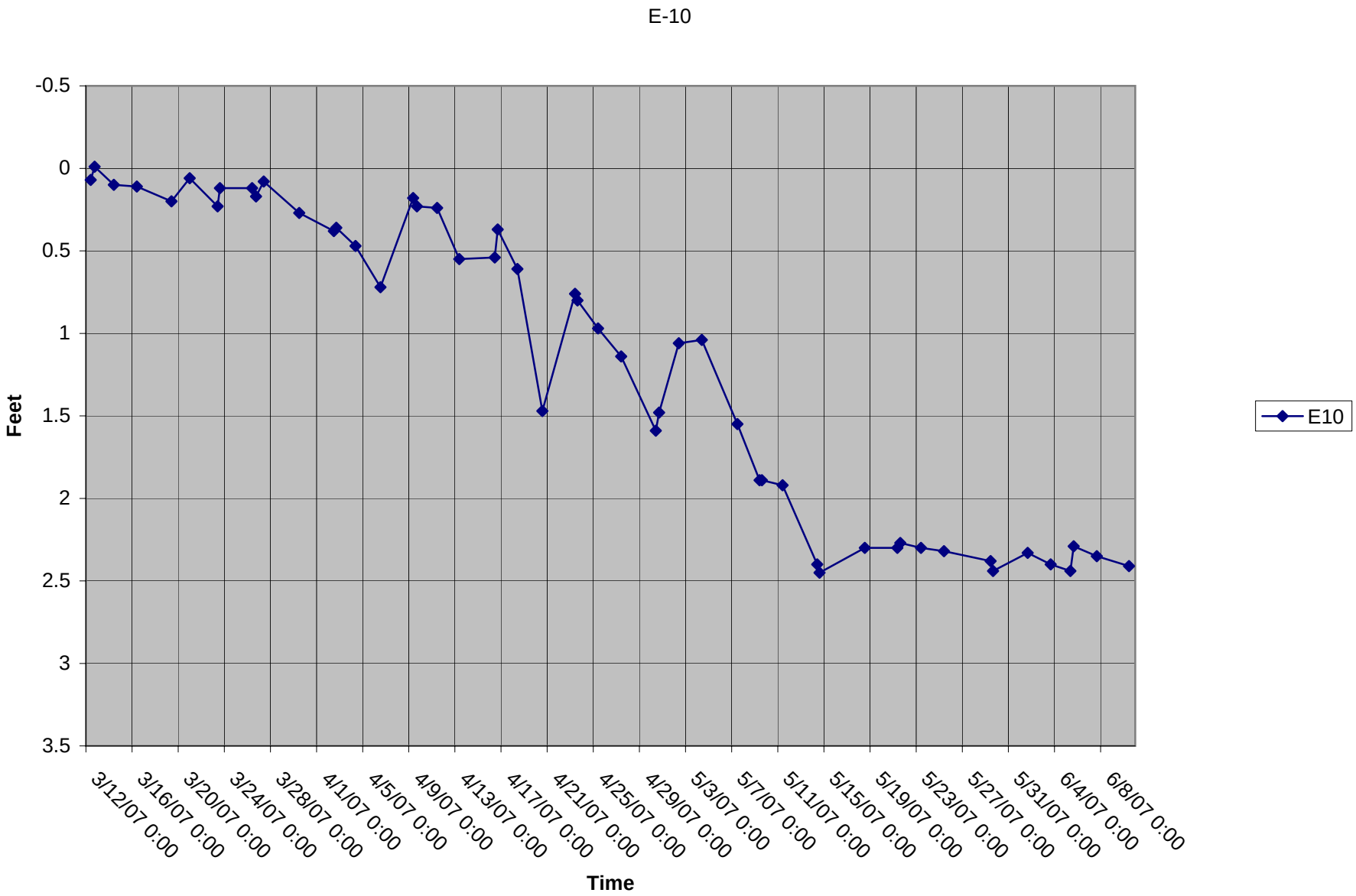
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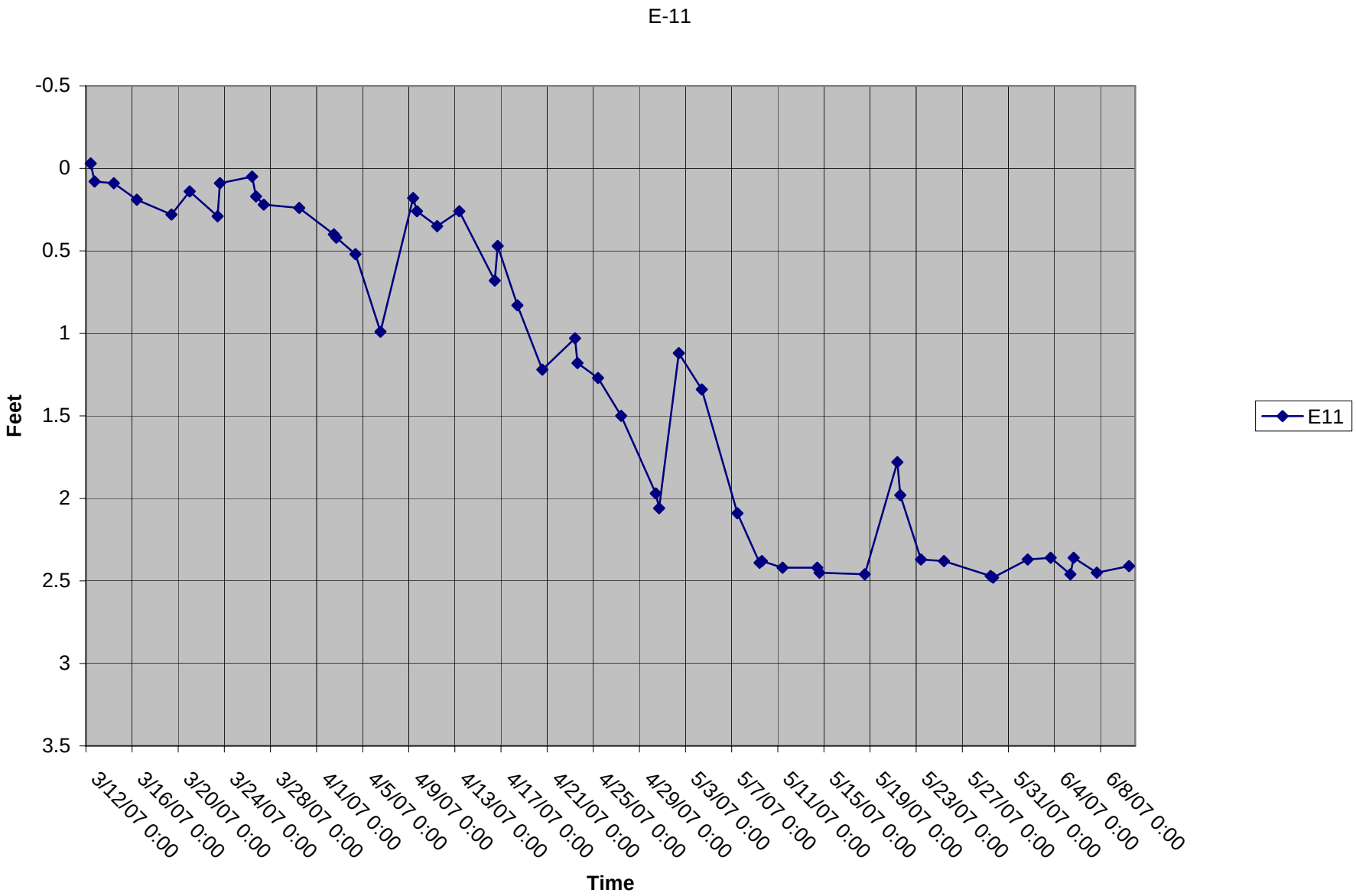
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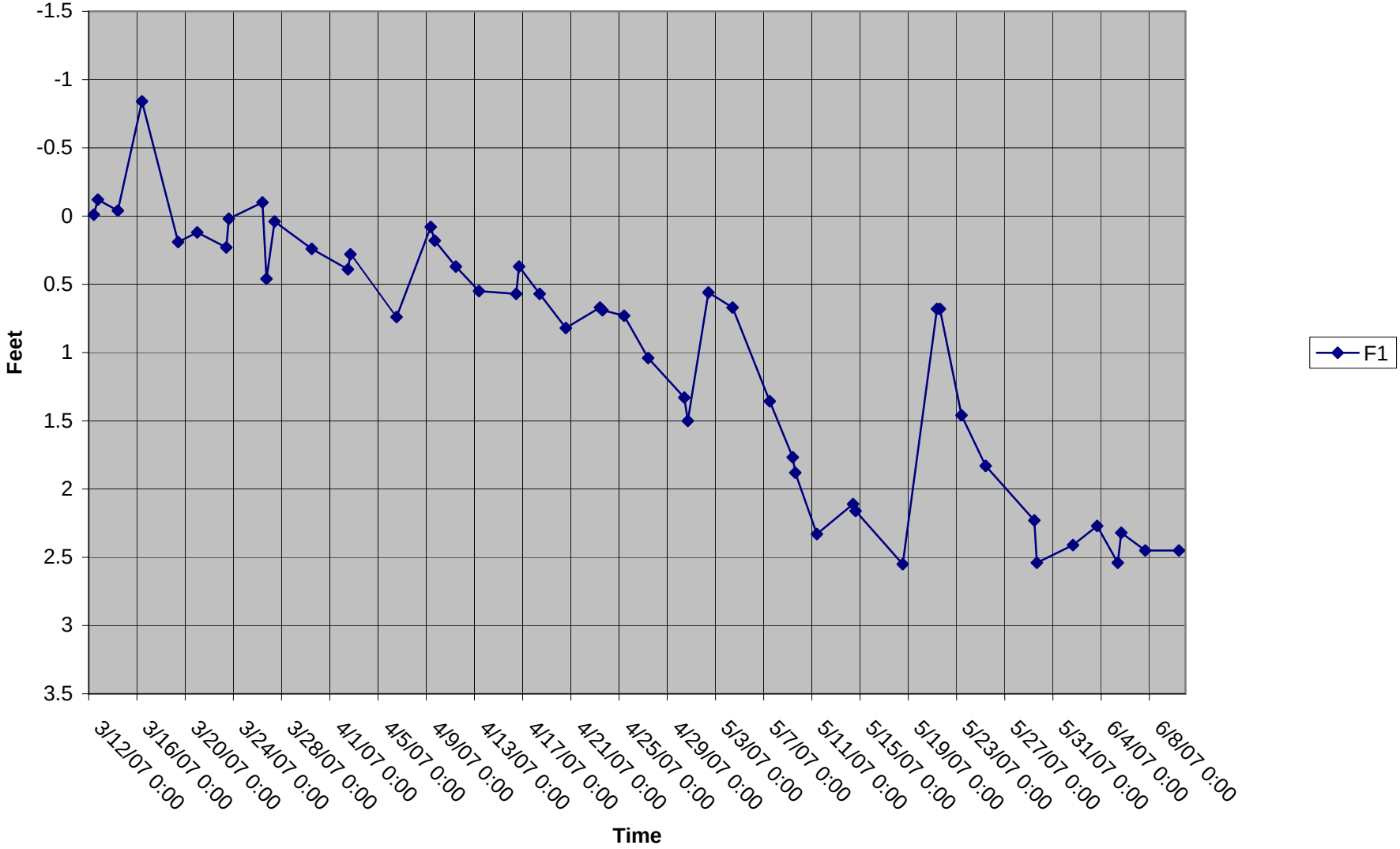
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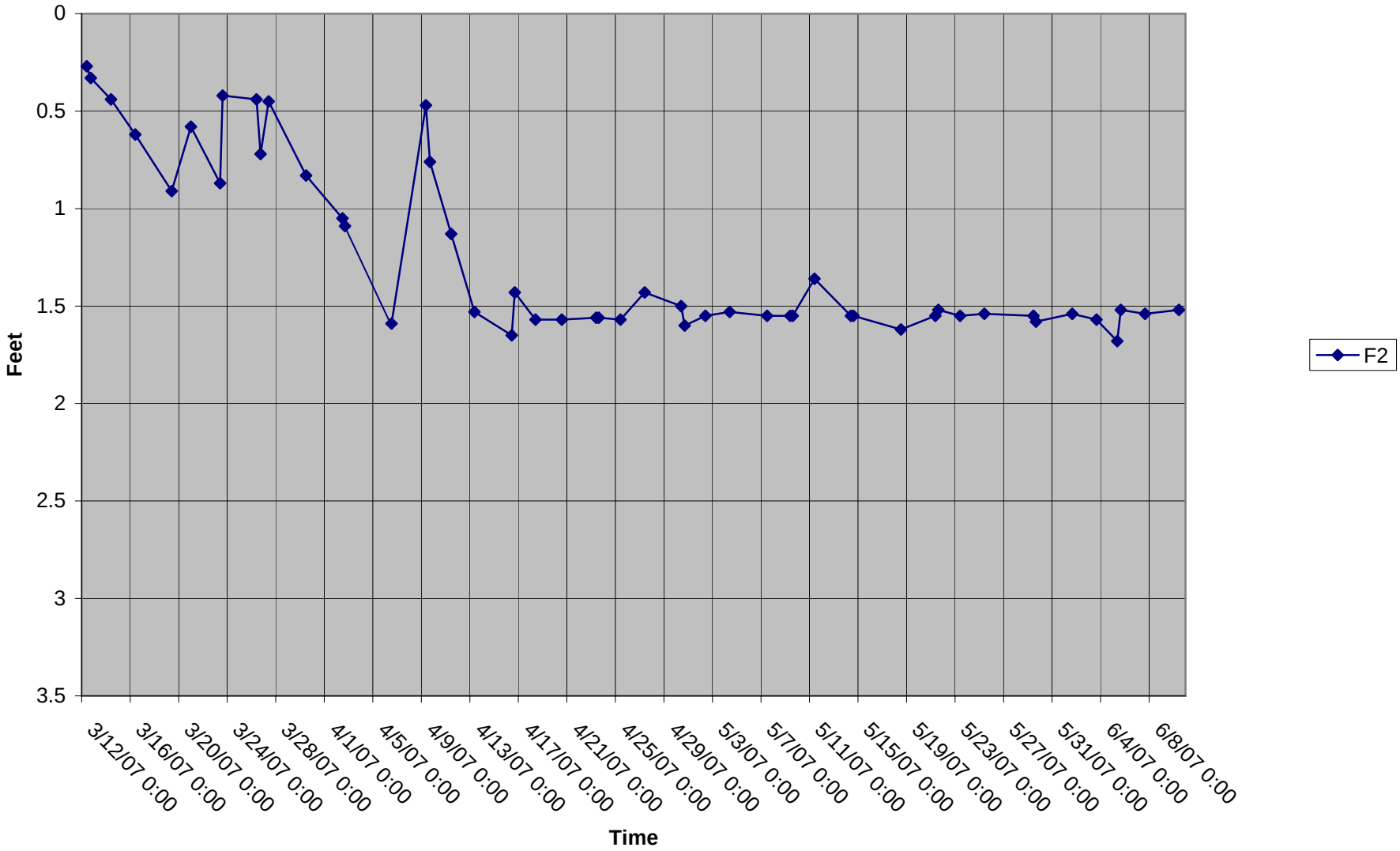
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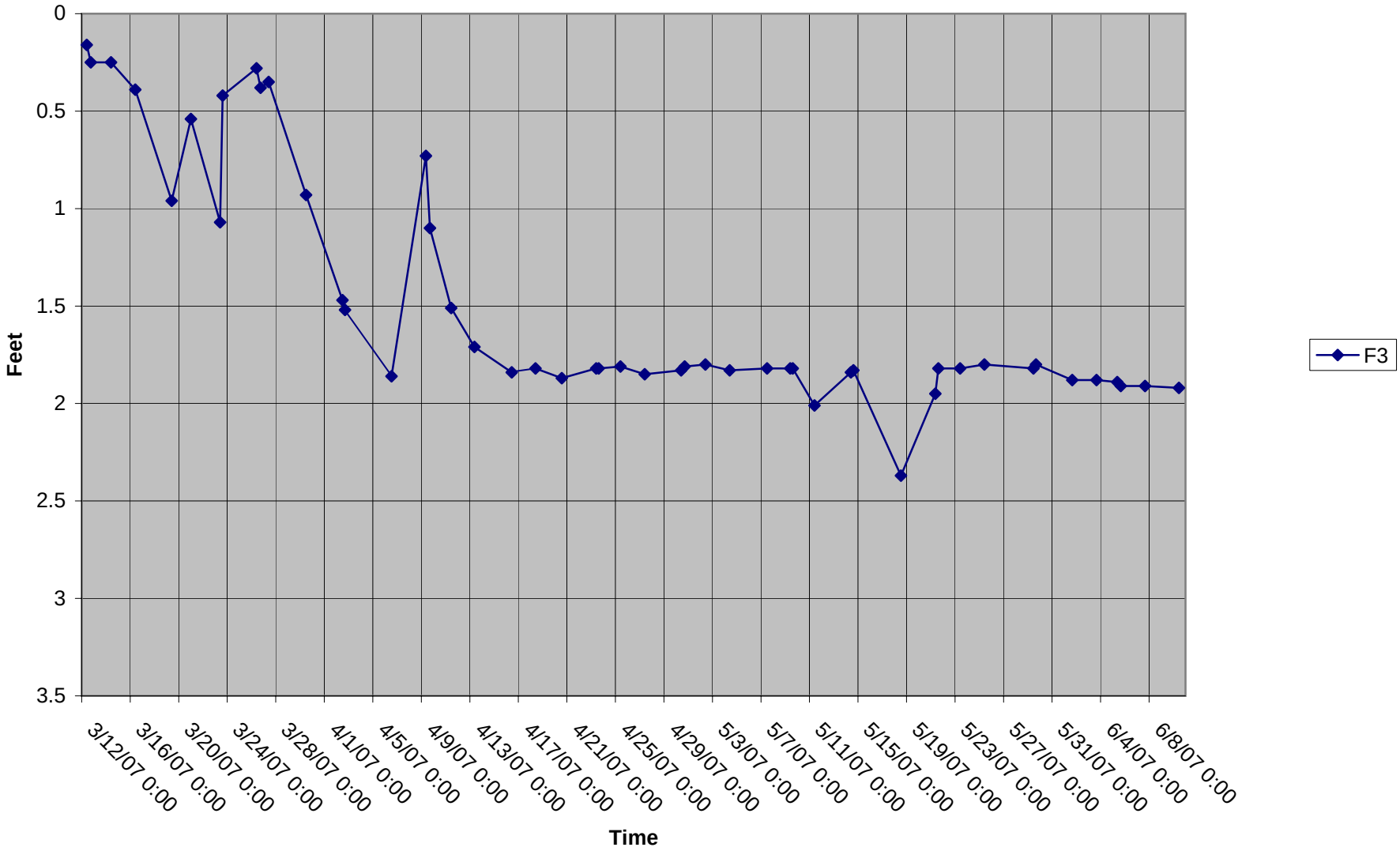
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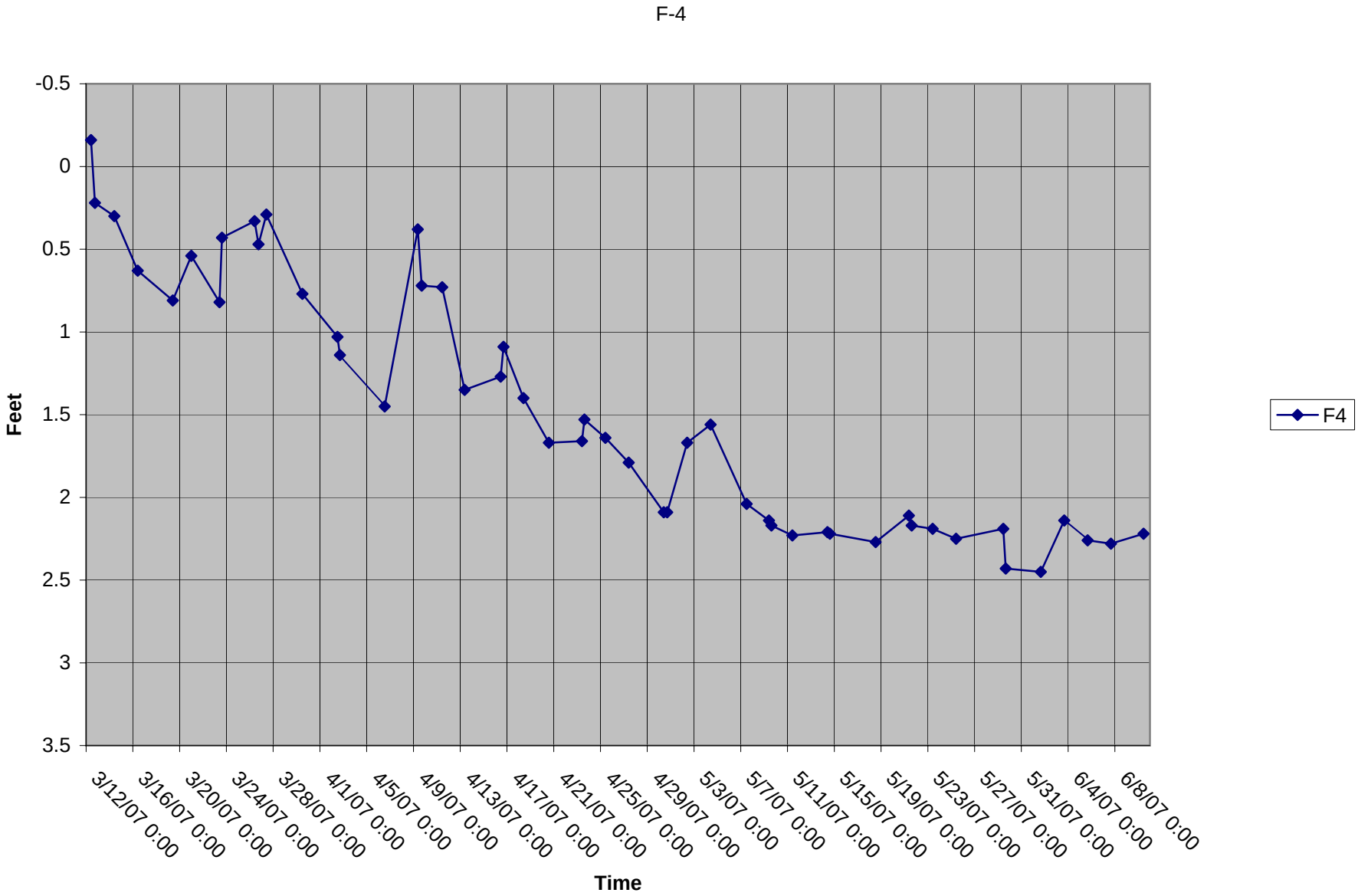
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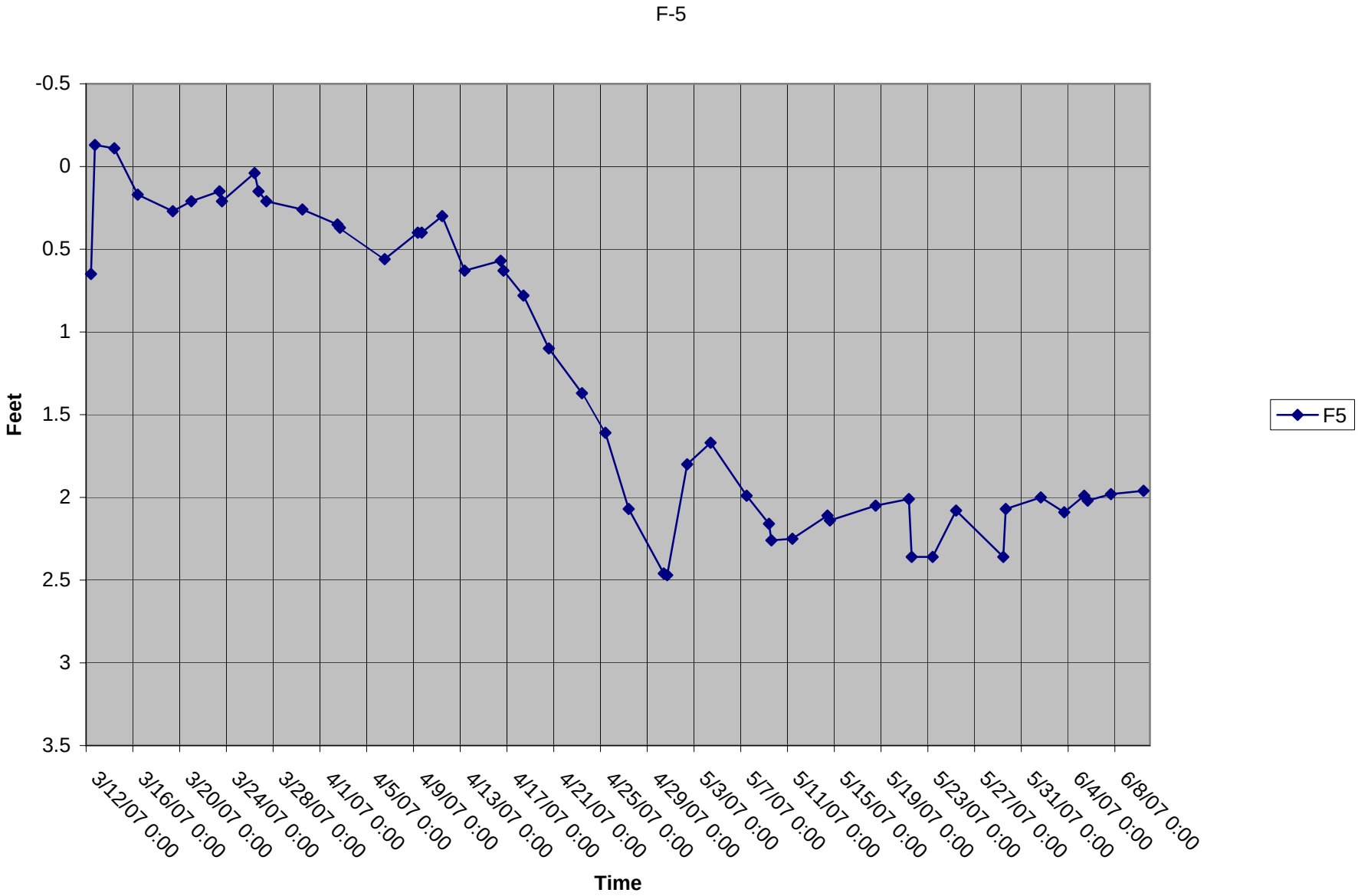
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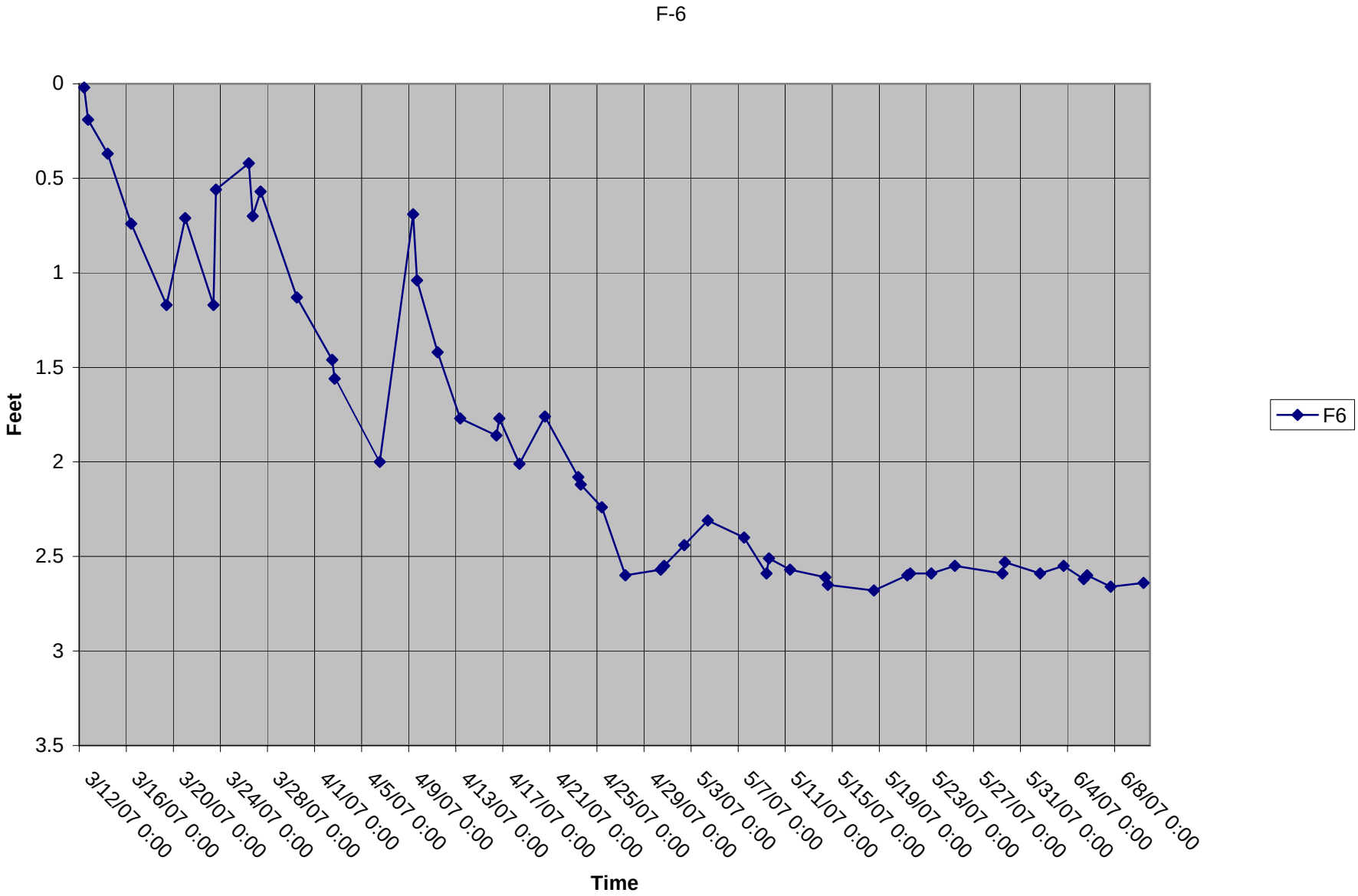
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GeoEngineers

APPENDIX E
WETLANDS RATING FORMS

Wetland name or number A-1

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland A-1 Date of site visit: 6/19/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III X IV___

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	14
Score for Hydrologic Functions	5
Score for Habitat Functions	24
TOTAL score for Functions	43

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) III

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	X
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number A-1

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number A-1

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
(NO) – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
(NO) – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
(NO) – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
X The wetland is on a slope (*slope can be very gradual*),
X The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
X The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO - go to 5 (YES) – The wetland class is **Slope**

Wetland name or number A-1

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

(NO) – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

(NO) – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

(NO) – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number A-1

S	Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
S	**S 1. Does the wetland unit have the potential to improve water quality?**	*(see p.64)*
S	S 1.1 Characteristics of average slope of unit: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 ✓ Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	2
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* ✓ YES = 3 points NO = 0 points	3
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 ✓ Dense, woody, vegetation > ½ of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure ___ 2
S	**Total for S 1** *Add the points in the boxes above*	7
S	**S 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150ft X Untreated stormwater discharges to wetland X Tilled fields, logging, or orchards within 150 feet of wetland X Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other _____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p.67)* multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	14

Comments

Wetland name or number A-1

S	**Slope Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	**Points** (only 1 score per box)
	S 3. Does the wetland unit have the potential to reduce flooding and stream erosion?	*(see p.68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. points = 6 ✓ Dense, uncut, **rigid** vegetation > 1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	3
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. ✓ YES points = 2 NO points = 0	2
S	*Add the points in the boxes above*	5
S	**S 4. Does the wetland have the opportunity to reduce flooding and erosion?** Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* — Wetland has surface runoff that drains to a river or stream that has flooding problems — Other_____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 70)* multiplier 1
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	5

Comments

Wetland name or number A-1

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ___ Aquatic bed __X__ Emergent plants __X__ Scrub/shrub (areas where shrubs have >30% cover) __X__ Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* __X__ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* ✓ 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 1 structure points = 0 Map of Cowardin vegetation classes	4
H 1.2. <u>Hydroperiods</u> ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) ___ Permanently flooded or inundated — 4 or more types present points = 3 ___ Seasonally flooded or inundated — ✓ 3 types present points = 2 __X__ Occasionally flooded or inundated — 2 types present point = 1 __X__ Saturated only — 1 type present points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland __X__ Seasonally flowing stream in, or adjacent to, the wetland ___ ***Lake-fringe wetland* = 2 points** ___ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	2
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: > 19 species points = 2 *List species below if you want to:* ✓ 5 - 19 species points = 1 < 5 species points = 0	1

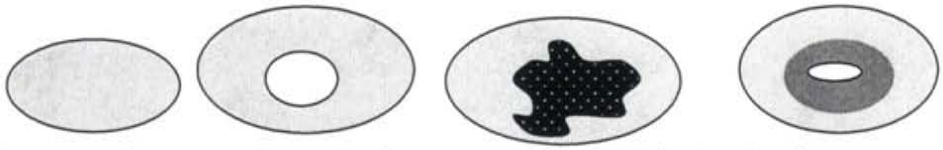
Total for page 7

Wetland name or number A-1

H 1.4. Interspersion of habitats *(see p. 76)*

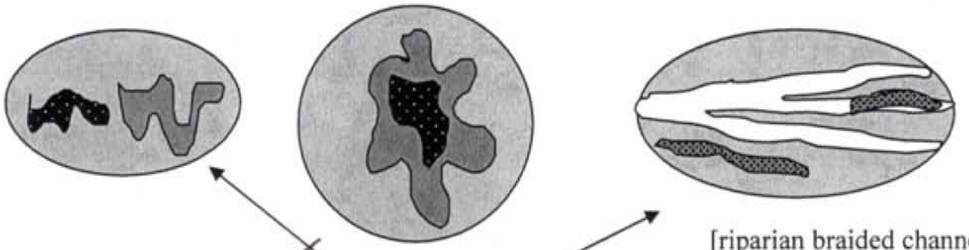
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



None = 0 points Low = 1 point Moderate = 2 points

3



[riparian braided channels]

✓ High = 3 points

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

X Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

X Standing snags (diameter at the bottom > 4 inches) in the wetland

___ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

___ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

3

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

13

Comments

Wetland name or number A-1

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers *(see p. 80)* *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** X 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** — Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 3
H 2.2 Corridors and Connections *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	4

Total for page 7

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	11
TOTAL for H 1 from page 14	13
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	24

Wetland name or number A-2

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland A-2 Date of site visit: 6/19/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	4
Score for Hydrologic Functions	2
Score for Habitat Functions	14
TOTAL score for Functions	20

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	X
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number A-2

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number A-2

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
(NO) – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
(NO) – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___ At least 30% of the open water area is deeper than 6.6 ft (2 m)?
(NO) – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
X The wetland is on a slope (*slope can be very gradual*),
X The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
X The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO - go to 5 (YES) – The wetland class is **Slope**

Wetland name or number A-2

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number A-2

S	Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
S	**S 1. Does the wetland unit have the potential to improve water quality?**	*(see p.64)*
S	S 1.1 Characteristics of average slope of unit: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 ✓ Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	2
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points ✓ NO = 0 points	0
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 ✓ Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure ___ 0
S	**Total for S 1** *Add the points in the boxes above*	2
S	**S 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150ft — Untreated stormwater discharges to wetland X Tilled fields, logging, or orchards within 150 feet of wetland — Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p.67)* multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	4

Comments

Wetland name or number A-2

S	Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	Points (only 1 score per box)
	S 3. Does the wetland unit have the potential to reduce flooding and stream erosion?	*(see p.68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. points = 6 Dense, uncut, **rigid** vegetation > 1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 area points = 1 ✓More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	0
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. ✓YES points = 2 NO points = 0	2
S	*Add the points in the boxes above*	2
S	**S 4. Does the wetland have the opportunity to reduce flooding and erosion?** Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* — Wetland has surface runoff that drains to a river or stream that has flooding problems — Other_____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 70)* multiplier 1
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	2

Comments

Wetland name or number A-2

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___Aquatic bed	
X Emergent plants	
___Scrub/shrub (areas where shrubs have >30% cover)	
___Forested (areas where trees have >30% cover)	0
If the unit has a forested class check if:	
___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	
4 structures or more points = 4	
3 structures points = 2	
2 structures points = 1	
✓ 1 structure points = 0	
Map of Cowardin vegetation classes	
H 1.2. <u>Hydroperiods</u> ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___Permanently flooded or inundated — 4 or more types present points = 3	
___Seasonally flooded or inundated — 3 types present points = 2	
X Occasionally flooded or inundated — ✓ 2 types present point = 1	1
X Saturated only — 1 type present points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: > 19 species points = 2	
List species below if you want to: ✓ 5 - 19 species points = 1	1
< 5 species points = 0	

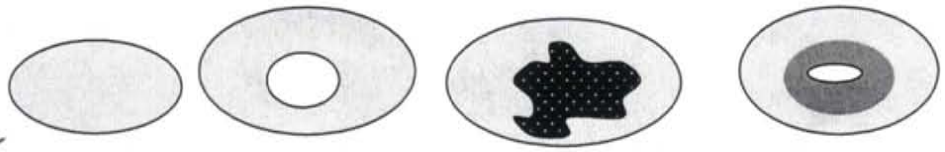
Total for page 2

Wetland name or number A-2

H 1.4. Interspersion of habitats *(see p. 76)*

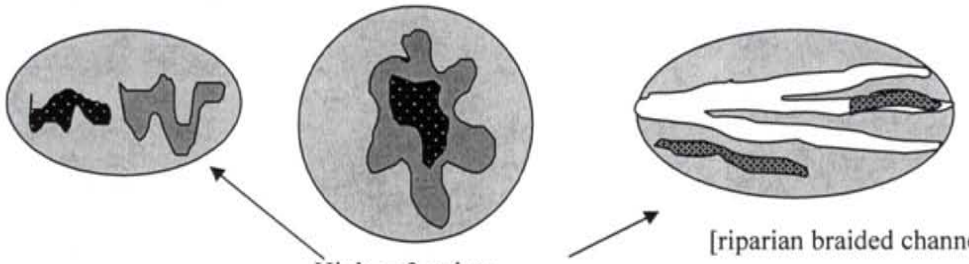
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

__X__ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number A-2

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers *(see p. 80)* *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** ✓ 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** — Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 3
H 2.2 Corridors and Connections *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	4

Total for page 7

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

_X_**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	11
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	14

Wetland name or number A-3

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland A-3 Date of site visit: 6/19/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure App B **Estimated size** _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II X III___ IV___

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	16
Score for Hydrologic Functions	22
Score for Habitat Functions	16
TOTAL score for Functions	54

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ **Does not Apply** X

Final Category (choose the "highest" category from above) II

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	X
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number A-3

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number A-3

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number A-3

5. Does the entire wetland unit **meet all** of the following criteria?

X The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

X The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number A-3

	Riverine and Freshwater Tidal Fringe Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	Points (only 1 score per box)
R	**R 1. Does the wetland unit have the potential to improve water quality?**	*(see p.52)*
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >3/4 area of wetland — points = 8 Depressions cover > 1/2 area of wetland — points = 4 If depressions > ½ of area of unit draw polygons on aerial photo or map ✓ Depressions present but cover < 1/2 area of wetland — points = 2 No depressions present — points = 0	Figure ___ 2
R	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): Trees or shrubs > 2/3 the area of the unit — points = 8 Trees or shrubs > 1/3 area of the unit — points = 6 ✓ Ungrazed, herbaceous plants > 2/3 area of unit — points = 6 Ungrazed herbaceous plants > 1/3 area of unit — points = 3 Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit — points = 0 Aerial photo or map showing polygons of different vegetation types	Figure ___ 6
R	*Add the points in the boxes above*	8
R	**R 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 feet of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality — Other_____ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p.53)* multiplier 2
R	**TOTAL - Water Quality Functions** Multiply the score from R 1 by R 2 ***Add score to table on p. 1***	16

Comments

Wetland name or number A-3

R	**Riverine and Freshwater Tidal Fringe Wetlands** HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	**Points** (only 1 score per box)
	R 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.54)*
R	R 3.1 Characteristics of the overbank storage the unit provides: *Estimate the average width of the wetland unit perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit)/(average width of stream between banks).* If the ratio is more than 20 points = 9 If the ratio is between 10 – 20 points = 6 ✓ If the ratio is 5 - <10 points = 4 If the ratio is 1 - <5 points = 2 If the ratio is < 1 points = 1 Aerial photo or map showing average widths	Figure ___ 4
R	R 3.2 Characteristics of vegetation that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description.* (polygons need to have >90% cover at person height NOT Cowardin classes): ✓ Forest or shrub for >1/3 area OR herbaceous plants > 2/3 area points = 7 Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area points = 4 Vegetation does not meet above criteria points = 0 Aerial photo or map showing polygons of different vegetation types	Figure ___ 7
R	*Add the points in the boxes above*	11
R	**R 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* — There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. X There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding — Other_____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)* ✓ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p.57)* multiplier 2
R	**TOTAL - Hydrologic Functions** Multiply the score from R 3 by R 4 ***Add score to table on p. 1***	22

Comments

Wetland name or number A-3

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___Aquatic bed	
_X_Emergent plants	
_X_Scrub/shrub (areas where shrubs have >30% cover)	
___Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	
___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	
4 structures or more points = 4	
3 structures points = 2	
✓2 structures points = 1	1
1 structure points = 0	
Map of Cowardin vegetation classes	
H 1.2. <u>Hydroperiods</u> ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___Permanently flooded or inundated — 4 or more types present points = 3	
_X_Seasonally flooded or inundated — ✓3 types present points = 2	
___Occasionally flooded or inundated — 2 types present point = 1	2
_X_Saturated only — 1 type present points = 0	
_X_Permanently flowing stream or river in, or adjacent to, the wetland	
___Seasonally flowing stream in, or adjacent to, the wetland	
___***Lake-fringe wetland* = 2 points**	
___***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: > 19 species points = 2	
List species below if you want to: ✓5 - 19 species points = 1	1
< 5 species points = 0	

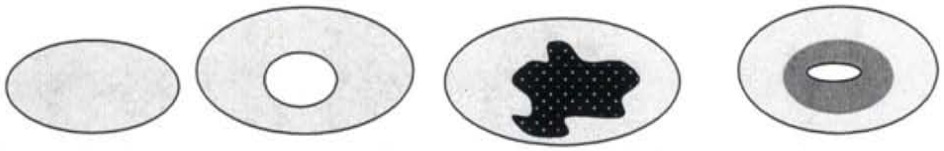
Total for page 4

Wetland name or number A-3

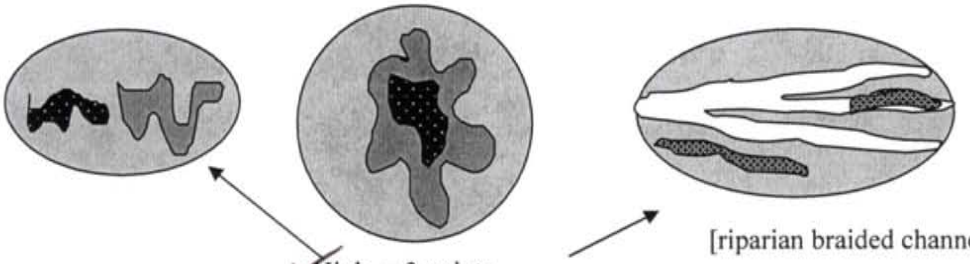
H 1.4. Interspersion of habitats *(see p. 76)*

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



None = 0 points Low = 1 point Moderate = 2 points



✓High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

3

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

____ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

0

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

7

Comments

Wetland name or number A-3

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). ✓ YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	4

Total for page 5

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

__X__**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	9
TOTAL for H 1 from page 14	7
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	16

Wetland name or number A-4

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland A-4 Date of site visit: 6/20/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23W RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure App B Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	4
Score for Hydrologic Functions	2
Score for Habitat Functions	11
TOTAL score for Functions	17

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	X
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number A-4

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number A-4

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
X The wetland is on a slope (*slope can be very gradual*),
X The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
X The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO - go to 5 **YES** – The wetland class is **Slope**

Wetland name or number A-4

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number A-4

S	Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
S	**S 1. Does the wetland unit have the potential to improve water quality?**	*(see p.64)*
S	S 1.1 Characteristics of average slope of unit: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 ✓ Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	2
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points ✓ NO = 0 points	0
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 ✓ Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure ___ 0
S	**Total for S 1** *Add the points in the boxes above*	2
S	**S 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150ft — Untreated stormwater discharges to wetland X Tilled fields, logging, or orchards within 150 feet of wetland — Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other ___ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p.67)* multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	4

Comments

Wetland name or number A-4

	Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	Points (only 1 score per box)
	S 3. Does the wetland unit have the potential to reduce flooding and stream erosion?	*(see p.68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. points = 6 Dense, uncut, **rigid** vegetation > 1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 area points = 1 ✓More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	0
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. ✓YES points = 2 NO points = 0	2
S	*Add the points in the boxes above*	2
S	**S 4. Does the wetland have the opportunity to reduce flooding and erosion?** Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* — Wetland has surface runoff that drains to a river or stream that has flooding problems — Other_____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 70)* multiplier 1
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	2

Comments

Wetland name or number A-4

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___Aquatic bed	
_X_ Emergent plants	
_X_ Scrub/shrub (areas where shrubs have >30% cover)	
___Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	
___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	
4 structures or more points = 4	
3 structures points = 2	
✓ 2 structures points = 1	1
1 structure points = 0	
Map of Cowardin vegetation classes	
H 1.2. <u>Hydroperiods</u> ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___Permanently flooded or inundated — 4 or more types present points = 3	
_X_ Seasonally flooded or inundated — 3 types present points = 2	
___Occasionally flooded or inundated — ✓ 2 types present point = 1	1
_X_ Saturated only — 1 type present points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: > 19 species points = 2	
List species below if you want to: ✓ 5 - 19 species points = 1	1
< 5 species points = 0	

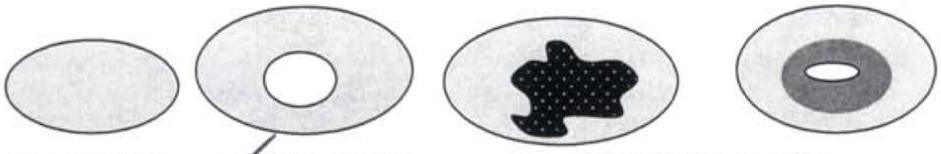
Total for page 3

Wetland name or number A-4

H 1.4. Interspersion of habitats *(see p. 76)*

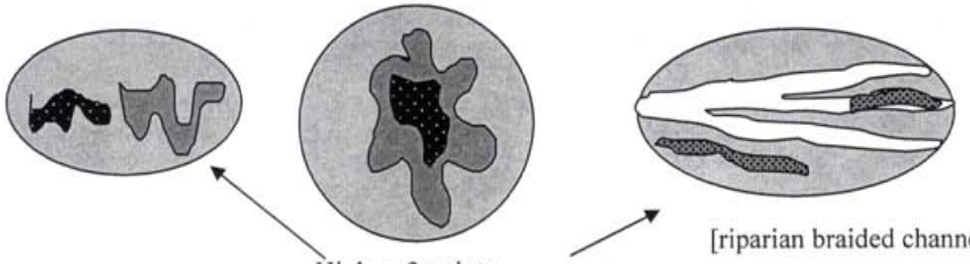
Figure ___

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points ✓Low = 1 point Moderate = 2 points

1



[riparian braided channels]

High = 3 points

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

1

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

_X_ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

5

Comments

Wetland name or number A-4

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

Wetland name or number A-4

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

__X__**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number A-4

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	5
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	11

Wetland name or number A-5

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland A-5 Date of site visit: 6/20/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure App B **Estimated size** _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III X IV___

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	20
Score for Hydrologic Functions	7
Score for Habitat Functions	12
TOTAL score for Functions	39

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) III

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	X
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number A-5

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number A-5

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
___The wetland is on a slope (*slope can be very gradual*),
___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
___The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number A-5

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number A-5

	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 ✓ Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 3
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* ✓ Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 4
D	**Total for D 1** *Add the points in the boxes above*	
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	20

Wetland name or number A-5

	Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 ✓ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	3
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	7
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	7

Wetland name or number A-5

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
X Aquatic bed	
X Emergent plants	
X Scrub/shrub (areas where shrubs have >30% cover)	
___ Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	
4 structures or more points = 4	
✓ 3 structures points = 2	2
2 structures points = 1	
1 structure points = 0	
Map of Cowardin vegetation classes	
H 1.2. <u>Hydroperiods</u> ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
X Permanently flooded or inundated — 4 or more types present points = 3	
___ Seasonally flooded or inundated — 3 types present points = 2	
___ Occasionally flooded or inundated — ✓ 2 types present point = 1	1
X Saturated only — 1 type present points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft². (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: > 19 species points = 2	
List species below if you want to: ✓ 5 - 19 species points = 1	1
< 5 species points = 0	

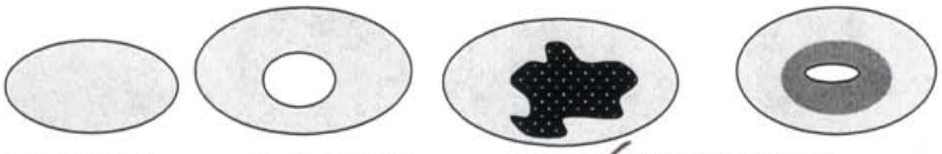
Total for page 4

Wetland name or number A-5

H 1.4. Interspersion of habitats *(see p. 76)*

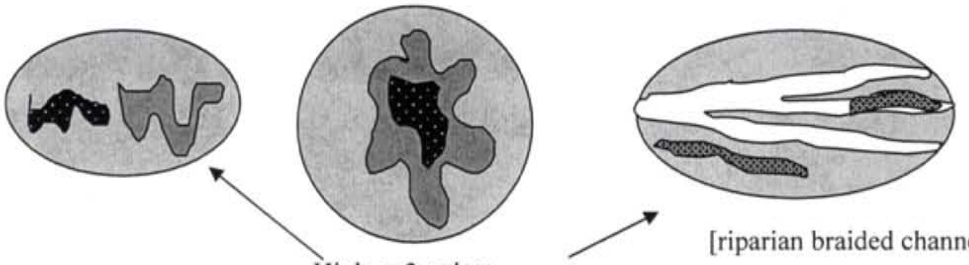
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



None = 0 points Low = 1 point ✓Moderate = 2 points

2



[riparian braided channels]

High = 3 points

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

____ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

0

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

6

Comments

Wetland name or number A-5

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

Wetland name or number A-5

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

__X__**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number A-5

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	6
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	12

Wetland name or number B

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland B Date of site visit: 6/19/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure App B Estimated size 0.46 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III X IV___

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	8
Score for Hydrologic Functions	10
Score for Habitat Functions	18
TOTAL score for Functions	36

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) III

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	X
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number B

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number B

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
X The wetland is on a slope (*slope can be very gradual*),
X The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
X The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO - go to 5 **YES** – The wetland class is **Slope**

Wetland name or number B

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number B

S	Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
S	**S 1. Does the wetland unit have the potential to improve water quality?**	*(see p.64)*
S	S 1.1 Characteristics of average slope of unit: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 ✓ Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	2
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points ✓ NO = 0 points	0
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 ✓ Dense, woody, vegetation > ½ of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure ___ 2
S	**Total for S 1** *Add the points in the boxes above*	4
S	**S 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150ft — Untreated stormwater discharges to wetland X Tilled fields, logging, or orchards within 150 feet of wetland — Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other _____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p.67)* multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	8

Comments

Wetland name or number B

S	Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	Points (only 1 score per box)
	S 3. Does the wetland unit have the potential to reduce flooding and stream erosion?	*(see p.68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. points = 6 ✓ Dense, uncut, **rigid** vegetation > 1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	3
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. ✓ YES points = 2 NO points = 0	2
S	*Add the points in the boxes above*	5
S	**S 4. Does the wetland have the opportunity to reduce flooding and erosion?** Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* — Wetland has surface runoff that drains to a river or stream that has flooding problems X Other tilled hay fields nearby *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 70)* multiplier 2
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	10

Comments

Wetland name or number B

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___ Aquatic bed	
X Emergent plants	
X Scrub/shrub (areas where shrubs have >30% cover)	
X Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	
4 structures or more points = 4	
✓ 3 structures points = 2	2
2 structures points = 1	
1 structure points = 0	
Map of Cowardin vegetation classes	
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___ Permanently flooded or inundated — 4 or more types present points = 3	
___ Seasonally flooded or inundated — 3 types present points = 2	
X Occasionally flooded or inundated — ✓ 2 types present point = 1	1
X Saturated only — 1 type present points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___ ***Freshwater tidal wetland* = 2 points**	
Map of hydroperiods	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: > 19 species points = 2	
List species below if you want to: ✓ 5 - 19 species points = 1	1
< 5 species points = 0	

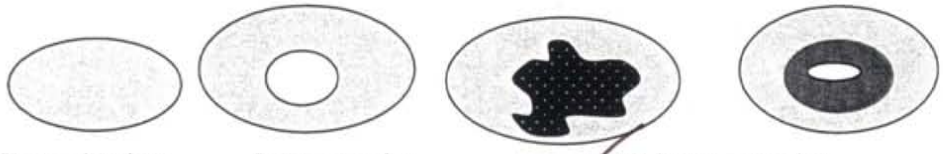
Total for page 4

Wetland name or number B

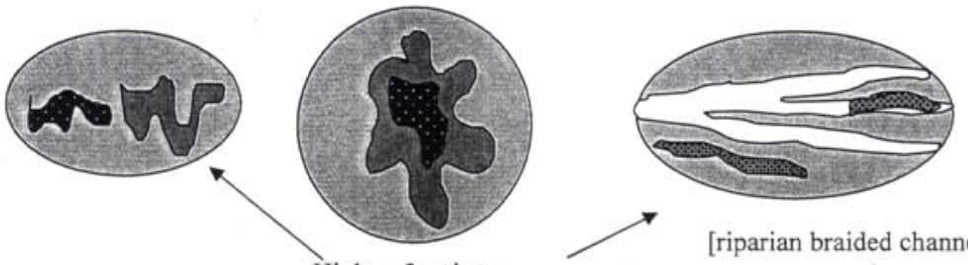
H 1.4. Interspersion of habitats *(see p. 76)*

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



None = 0 points Low = 1 point ✓ Moderate = 2 points



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

2

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

X Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

X Standing snags (diameter at the bottom > 4 inches) in the wetland

___ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

___ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)*

___ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

8

Comments

Wetland name or number B

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** X 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** — Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 3
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). ✓ YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	4

Total for page 7

Wetland name or number B

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

____**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats **= 4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

0

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	10
TOTAL for H 1 from page 14	8
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	18

Wetland name or number C

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland C Date of site visit: 6/19/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure App B **Estimated size** _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	2
Score for Hydrologic Functions	0
Score for Habitat Functions	7
TOTAL score for Functions	9

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	X
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number C

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number C

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
(NO) – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
(NO) – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
(NO) – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
X The wetland is on a slope (*slope can be very gradual*),
X The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
X The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO - go to 5 (YES) – The wetland class is **Slope**

Wetland name or number C

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number C

S	Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
S	**S 1. Does the wetland unit have the potential to improve water quality?**	*(see p.64)*
S	S 1.1 Characteristics of average slope of unit: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 Slope is 1% - 2% points = 2 ✓ Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	1
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points ✓ NO = 0 points	0
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 ✓ Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure ___ 0
S	**Total for S 1** *Add the points in the boxes above*	1
S	**S 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150ft — Untreated stormwater discharges to wetland X Tilled fields, logging, or orchards within 150 feet of wetland — Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other ___ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p.67)* multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	2

Comments

Wetland name or number C

S	Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	Points (only 1 score per box)
	S 3. Does the wetland unit have the potential to reduce flooding and stream erosion?	*(see p.68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. points = 6 Dense, uncut, **rigid** vegetation > 1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 area points = 1 ✓More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	0
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 ✓NO points = 0	0
S	*Add the points in the boxes above*	0
S	**S 4. Does the wetland have the opportunity to reduce flooding and erosion?** Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* — Wetland has surface runoff that drains to a river or stream that has flooding problems — Other_____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 70)* multiplier 1
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	0

Comments

Wetland name or number C

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___ Aquatic bed	
X Emergent plants	
___ Scrub/shrub (areas where shrubs have >30% cover)	
___ Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	
4 structures or more — points = 4	0
3 structures — points = 2	
2 structures — points = 1	
✓ 1 structure — points = 0	
Map of Cowardin vegetation classes	
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___ Permanently flooded or inundated — 4 or more types present — points = 3	0
___ Seasonally flooded or inundated — 3 types present — points = 2	
___ Occasionally flooded or inundated — 2 types present — point = 1	
X Saturated only — ✓ 1 type present — points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___ ***Freshwater tidal wetland* = 2 points**	
Map of hydroperiods	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: ≥ 19 species — points = 2	1
List species below if you want to: ✓ 5 - 19 species — points = 1	
< 5 species — points = 0	

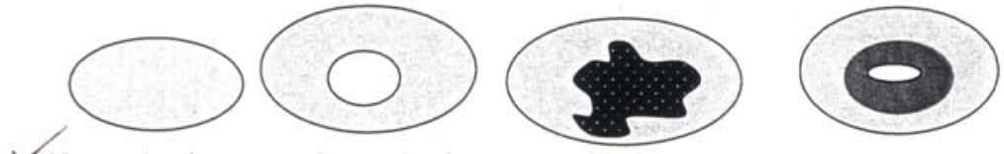
Total for page 1

Wetland name or number C

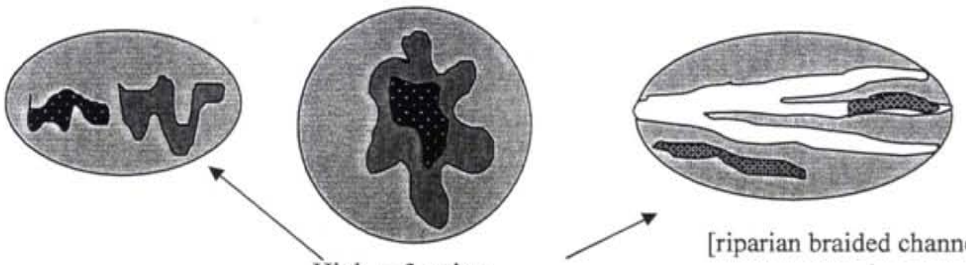
H 1.4. Interspersion of habitats *(see p. 76)*

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓ None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

0

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

2

Comments

Wetland name or number C

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see p. 82)***

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

____**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats **= 4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

0

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	5
TOTAL for H 1 from page 14	2
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	7

Wetland name or number D

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland D Date of site visit: 6/20/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** 0.4 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	14
Score for Hydrologic Functions	5
Score for Habitat Functions	9
TOTAL score for Functions	28

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number D

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number D

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
___The wetland is on a slope (*slope can be very gradual*),
X The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
___The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number D

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

(NO) – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 (**YES**) – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

(NO) – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number D

	D Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 ✓ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 ✓ Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 3
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	7
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland X A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other ___ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	14

Wetland name or number D

	Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 ✓ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	2
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 ✓ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	3
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	5
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	5

Wetland name or number D

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ___Aquatic bed X Emergent plants X Scrub/shrub (areas where shrubs have >30% cover) ___Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 ✓ 2 structures points = 1 1 structure points = 0 Map of Cowardin vegetation classes	1
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) X Permanently flooded or inundated ___Seasonally flooded or inundated ___Occasionally flooded or inundated X Saturated only ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ ***Lake-fringe wetland* = 2 points** ___***Freshwater tidal wetland* = 2 points** 4 or more types present points = 3 3 types present points = 2 ✓ 2 types present point = 1 1 type present points = 0 Map of hydroperiods	1
H 1.3. Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: *List species below if you want to:* > 19 species points = 2 ✓ 5 - 19 species points = 1 < 5 species points = 0	1

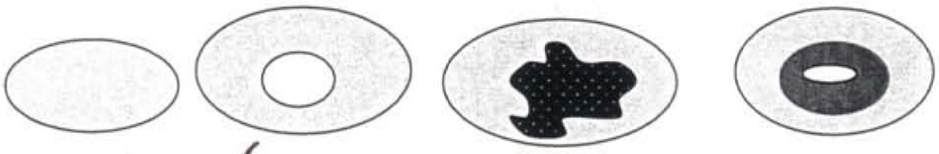
Total for page 3

Wetland name or number D

H 1.4. Interspersion of habitats *(see p. 76)*

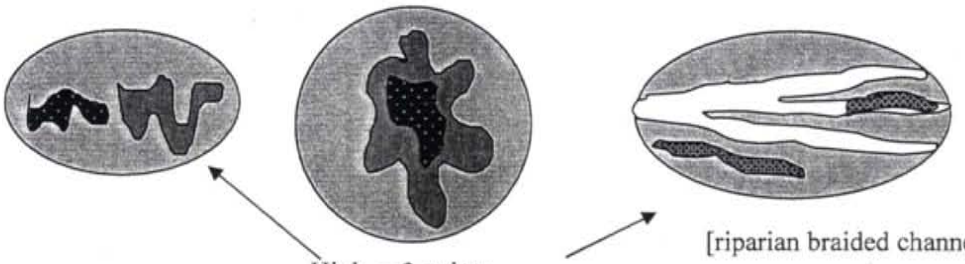
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



None = 0 points ✓Low = 1 point Moderate = 2 points

1



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

____ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

0

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

4

Comments

Wetland name or number D

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

____**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

0

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	5
TOTAL for H 1 from page 14	4
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number E

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland E Date of site visit: 6/21/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** .4 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	8
Score for Hydrologic Functions	2
Score for Habitat Functions	9
TOTAL score for Functions	19

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number E

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number E

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number E

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number E

		Points (only 1 score per box)
D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 ✓ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	4
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other ___ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	8

Wetland name or number E

	D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 ✓ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	2
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	2
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	2

Wetland name or number E

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ___ Aquatic bed X Emergent plants ___ Scrub/shrub (areas where shrubs have >30% cover) ___ Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 ✓ 1 structure points = 0 Map of Cowardin vegetation classes	0
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) ___ Permanently flooded or inundated ___ Seasonally flooded or inundated X Occasionally flooded or inundated X Saturated only ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ ***Lake-fringe wetland* = 2 points** ___ ***Freshwater tidal wetland* = 2 points** 4 or more types present points = 3 ✓ 3 types present points = 2 2 types present point = 1 1 type present points = 0 Map of hydroperiods	1
H 1.3. Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: *List species below if you want to:* ≥ 19 species points = 2 ✓ 5 - 19 species points = 1 < 5 species points = 0	1

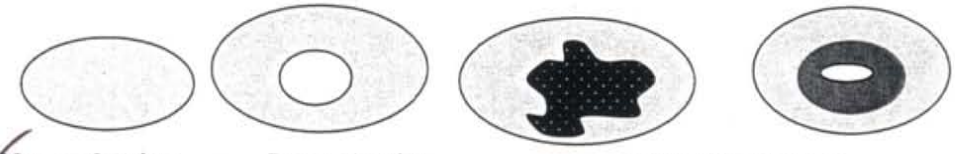
Total for page 2

Wetland name or number E

H 1.4. Interspersion of habitats *(see p. 76)*

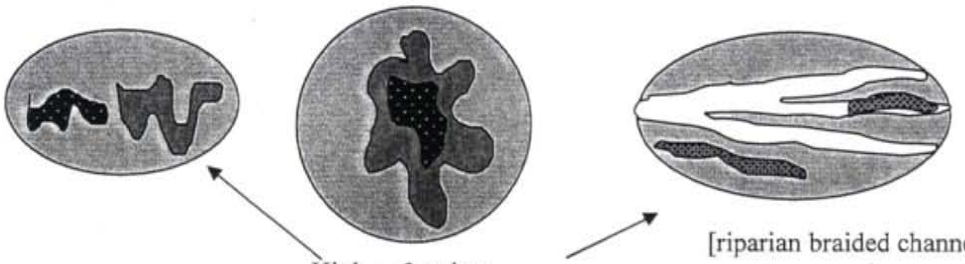
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number E

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats **= 4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number F

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland F Date of site visit: 6/21/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure App B **Estimated size** 0.05 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number F

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number F

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number F

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number F

D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other ___ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number F

	Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number F

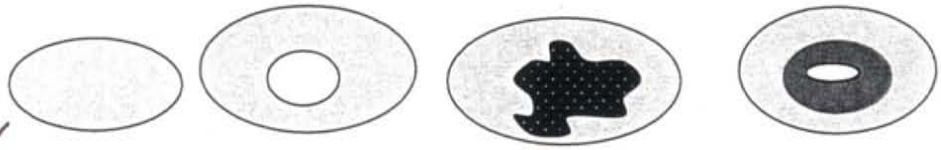
These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ___Aquatic bed X Emergent plants ___Scrub/shrub (areas where shrubs have >30% cover) ___Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 ✓ 1 structure points = 0 Map of Cowardin vegetation classes	0
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) ___Permanently flooded or inundated — 4 or more types present points = 3 ___Seasonally flooded or inundated — 3 types present points = 2 X Occasionally flooded or inundated — ✓ 2 types present point = 1 X Saturated only — 1 type present points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ ***Lake-fringe wetland* = 2 points** ___ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	1
H 1.3. Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: ≥ 19 species points = 2 *List species below if you want to:* ✓ 5 - 19 species points = 1 < 5 species points = 0	1

Total for page 2

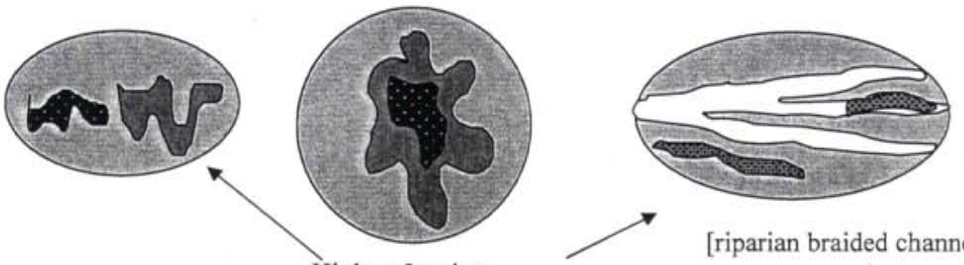
H 1.4. Interspersion of habitats *(see p. 76)*

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓ None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

0

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number F

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled X fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** — Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	**Figure ___** |
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	|

Total for page_____

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number G

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland G Date of site visit: 6/21/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** 0.09 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	X
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number G

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number G

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number G

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

(NO) – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 (YES) – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

(NO) – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number _____

D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number G

	Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number G

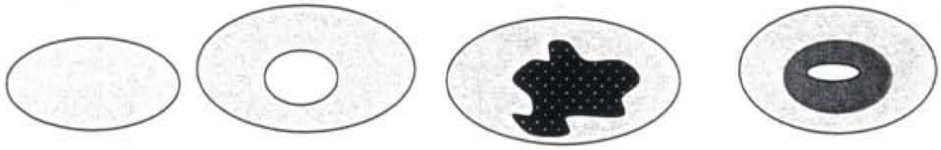
These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___ Aquatic bed	
X Emergent plants	
___ Scrub/shrub (areas where shrubs have >30% cover)	
___ Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	0
Add the number of vegetation structures that qualify. If you have:	
4 structures or more points = 4	
Map of Cowardin vegetation classes — 3 structures points = 2	
2 structures points = 1	
✓ 1 structure points = 0	
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___ Permanently flooded or inundated — 4 or more types present points = 3	
___ Seasonally flooded or inundated — ✓ 3 types present points = 2	1
X Occasionally flooded or inundated — 2 types present point = 1	
X Saturated only — 1 type present points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: > 19 species points = 2	
List species below if you want to: ✓ 5 - 19 species points = 1	1
< 5 species points = 0	

Total for page 2

H 1.4. Interspersion of habitats *(see p. 76)*

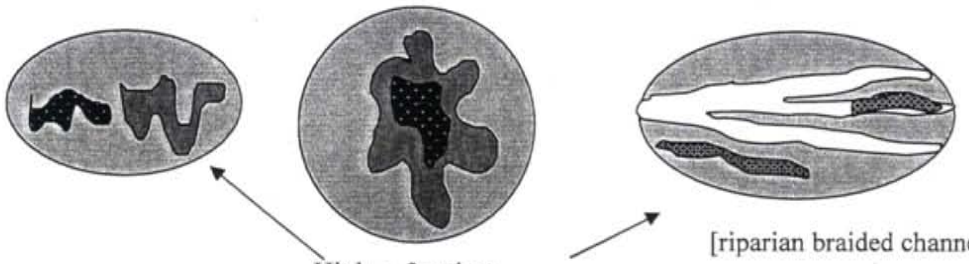
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓ None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number _____

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see p. 82)***

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

_X_**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats **= 4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number H

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland H Date of site visit: 6/21/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** 0.02 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	X
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number H

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number H

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number H

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number H

	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number H

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number H

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___ Aquatic bed	
X Emergent plants	
___ Scrub/shrub (areas where shrubs have >30% cover)	
___ Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	0
Add the number of vegetation structures that qualify. If you have:	
4 structures or more points = 4	
3 structures points = 2	
✓ 2 structures points = 1	
1 structure points = 0	
Map of Cowardin vegetation classes	
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___ Permanently flooded or inundated — 4 or more types present points = 3	
___ Seasonally flooded or inundated — 3 types present points = 2	
X Occasionally flooded or inundated — ✓ 2 types present point = 1	1
X Saturated only — 1 type present points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. *(different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: > 19 species points = 2	
List species below if you want to: ✓ 5 - 19 species points = 1	1
< 5 species points = 0	

Total for page 2

Wetland name or number H

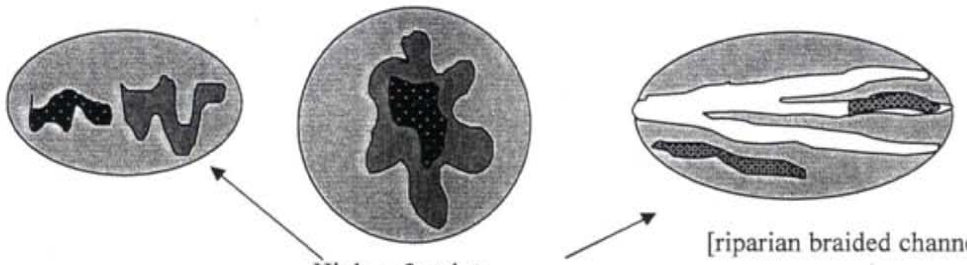
H 1.4. Interspersion of habitats *(see p. 76)*

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___

✓None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number H

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see p. 82)***

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats **= 4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number I

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland I Date of site visit: 6/21/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure App B **Estimated size** 0.04 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number I

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number I

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number I

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number I

	D Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number I

	D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number I

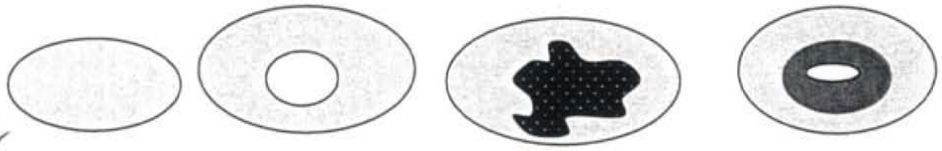
These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ___Aquatic bed X Emergent plants ___Scrub/shrub (areas where shrubs have >30% cover) ___Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 ✓ 1 structure points = 0 Map of Cowardin vegetation classes	0
H 1.2. <u>Hydroperiods</u> ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) ___Permanently flooded or inundated — 4 or more types present points = 3 ___Seasonally flooded or inundated — 3 types present points = 2 X Occasionally flooded or inundated — ✓ 2 types present point = 1 X Saturated only — 1 type present points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ ***Lake-fringe wetland* = 2 points** ___ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	1
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: ✓ >19 species points = 2 *List species below if you want to:* 5 - 19 species points = 1 < 5 species points = 0	1

Total for page 2

H 1.4. Interspersion of habitats *(see p. 76)*

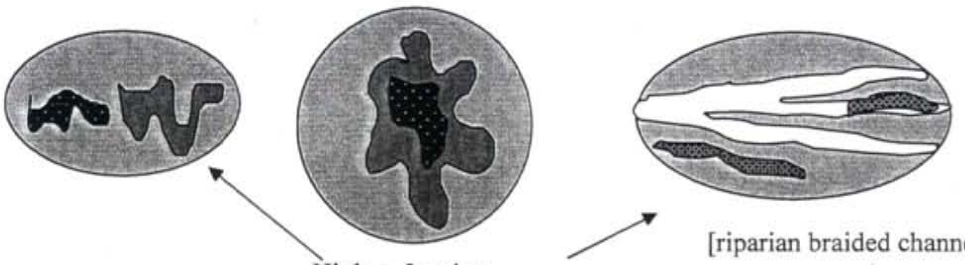
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number _____

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number J

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland J Date of site visit: 6/21/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** 0.05 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	X
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number 1

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number 1

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number J

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number J

	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number J

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number 1

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ___Aquatic bed _X_Emergent plants ___Scrub/shrub (areas where shrubs have >30% cover) ___Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 ✓ 1 structure points = 0 Map of Cowardin vegetation classes	0
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) ___Permanently flooded or inundated ___Seasonally flooded or inundated _X_Occasionally flooded or inundated _X_Saturated only ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ ***Lake-fringe wetland* = 2 points** ___***Freshwater tidal wetland* = 2 points** 4 or more types present points = 3 ✓ 3 types present points = 2 2 types present point = 1 1 type present points = 0 Map of hydroperiods	1
H 1.3. Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: *List species below if you want to:* > 19 species points = 2 ✓ 5 - 19 species points = 1 < 5 species points = 0	1

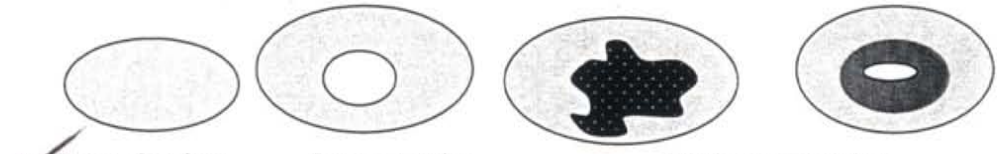
Total for page 2

Wetland name or number J

H 1.4. Interspersion of habitats *(see p. 76)*

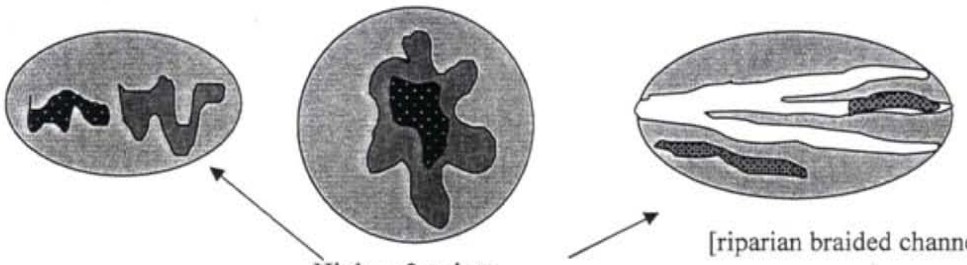
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

_X_ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number J

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers *(see p. 80)* *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see p. 82)***

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number K

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland K Date of site visit: 6/21/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** 0.01 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	X
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number K

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number K

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number K

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

(NO) - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 (**YES**) – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

(NO) – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number K

	D Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number K

	Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number K

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ___Aquatic bed X Emergent plants ___Scrub/shrub (areas where shrubs have >30% cover) ___Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 ✓1 structure points = 0 Map of Cowardin vegetation classes	0
H 1.2. <u>Hydroperiods</u> ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) ___Permanently flooded or inundated — 4 or more types present points = 3 ___Seasonally flooded or inundated — 3 types present points = 2 X Occasionally flooded or inundated — ✓2 types present point = 1 X Saturated only — 1 type present points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ ***Lake-fringe wetland* = 2 points** ___ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	1
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: ✓≥19 species points = 2 *List species below if you want to:* 5 - 19 species points = 1 < 5 species points = 0	1

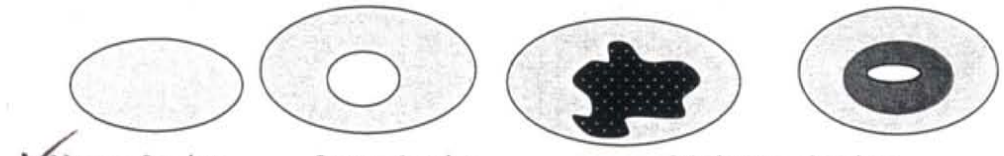
Total for page 2

Wetland name or number K

H 1.4. Interspersion of habitats *(see p. 76)*

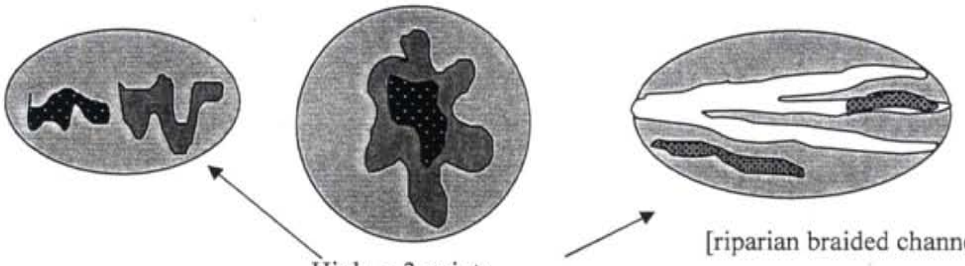
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number K

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

Wetland name or number K

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number K

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number L

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland L Date of site visit: 6/22/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** 0.32 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	8
Score for Hydrologic Functions	2
Score for Habitat Functions	9
TOTAL score for Functions	20

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number L

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number L

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number L

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number L

	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 ✓ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	4
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	8

Wetland name or number L

	D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	Points (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 ✓ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	2
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	2
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	2

Wetland name or number L

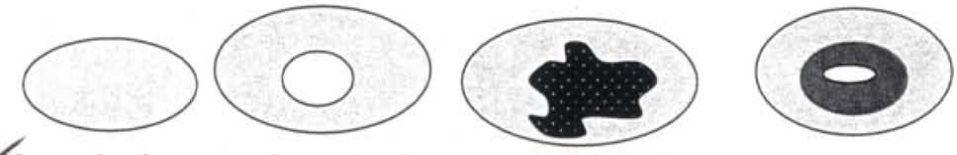
These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___ Aquatic bed	
X Emergent plants	
___ Scrub/shrub (areas where shrubs have >30% cover)	
___ Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	
4 structures or more points = 4	
3 structures points = 2	
2 structures points = 1	
✓ 1 structure points = 0	0
Map of Cowardin vegetation classes	
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___ Permanently flooded or inundated — 4 or more types present points = 3	
___ Seasonally flooded or inundated — 3 types present points = 2	
X Occasionally flooded or inundated — ✓ 2 types present point = 1	1
X Saturated only — 1 type present points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: ✓ > 19 species points = 2	
List species below if you want to: 5 - 19 species points = 1	
< 5 species points = 0	1

Total for page 2

H 1.4. Interspersion of habitats *(see p. 76)*

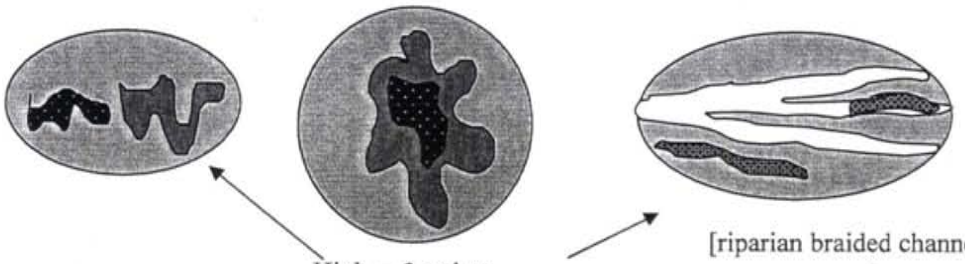
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

__X__Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number 1

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

__X__**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number M

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland M Date of site visit: 6/22/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure App B **Estimated size** 0.03 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number M

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number M

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number M

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number M

D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other ___ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number M

	D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** **(NO)** multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number M

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___ Aquatic bed	
X Emergent plants	
___ Scrub/shrub (areas where shrubs have >30% cover)	
___ Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	0
Add the number of vegetation structures that qualify. If you have:	
4 structures or more — points = 4	
Map of Cowardin vegetation classes — 3 structures — points = 2	
2 structures — points = 1	
✓ 1 structure — points = 0	
H 1.2. <u>Hydroperiods</u> ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___ Permanently flooded or inundated — 4 or more types present — points = 3	
___ Seasonally flooded or inundated — 3 types present — points = 2	
X Occasionally flooded or inundated — ✓ 2 types present — point = 1	1
X Saturated only — 1 type present — points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___ ***Freshwater tidal wetland* = 2 points** — Map of hydroperiods	
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: ≥19 species — points = 2	
List species below if you want to: ✓ 5 - 19 species — points = 1	1
< 5 species — points = 0	

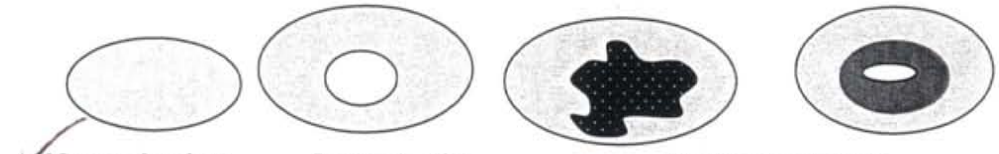
Total for page 2

Wetland name or number M

H 1.4. Interspersion of habitats *(see p. 76)*

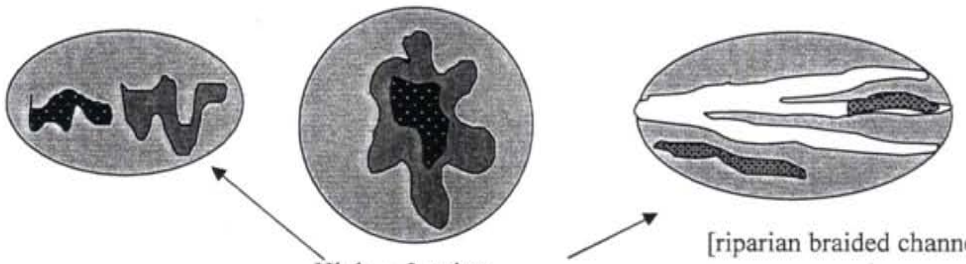
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number M

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? (YES) = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

_X_ **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats **= 4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number N

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland N Date of site visit: 6/22/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 37 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure App B **Estimated size** 0.09 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number N

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number N

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number N

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number N

D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft X Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number N

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number N

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___Aquatic bed	
X Emergent plants	
___Scrub/shrub (areas where shrubs have >30% cover)	
___Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	
___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	0
Add the number of vegetation structures that qualify. If you have:	
4 structures or more points = 4	
Map of Cowardin vegetation classes — 3 structures points = 2	
2 structures points = 1	
✓ 1 structure points = 0	
H 1.2. <u>Hydroperiods</u> ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___Permanently flooded or inundated — 4 or more types present points = 3	
___Seasonally flooded or inundated — 3 types present points = 2	
X Occasionally flooded or inundated — ✓ 2 types present point = 1	1
X Saturated only — 1 type present points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: ≥ 19 species points = 2	
List species below if you want to: ✓ 5 - 19 species points = 1	1
< 5 species points = 0	

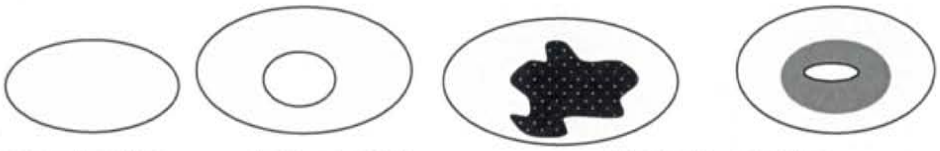
Total for page 2

Wetland name or number N

H 1.4. Interspersion of habitats *(see p. 76)*

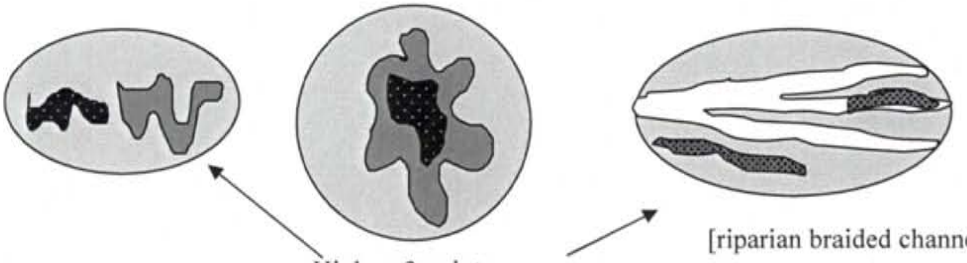
Figure ___

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



✓ None = 0 points Low = 1 point Moderate = 2 points

0



[riparian braided channels]

High = 3 points

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number N

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see p. 82)***

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats **= 4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number O

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland O Date of site visit: 6/22/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** 0.18 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number O

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number O

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

___At least 30% of the open water area is deeper than 6.6 ft (2 m)?

NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

____The wetland is on a slope (*slope can be very gradual*),

____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

____The water leaves the wetland **without being impounded**?

NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*

NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number O

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number 0

	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen Other_____ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number O

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number O

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___ Aquatic bed	
X Emergent plants	
___ Scrub/shrub (areas where shrubs have >30% cover)	
___ Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	6
4 structures or more points = 4	
Map of Cowardin vegetation classes — 3 structures points = 2	
2 structures points = 1	
✓ 1 structure points = 0	
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___ Permanently flooded or inundated — 4 or more types present points = 3	
___ Seasonally flooded or inundated — 3 types present points = 2	
X Occasionally flooded or inundated — ✓ 2 types present point = 1	1
X Saturated only — 1 type present points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: > 19 species points = 2	
List species below if you want to: ✓ 5 - 19 species points = 1	1
< 5 species points = 0	

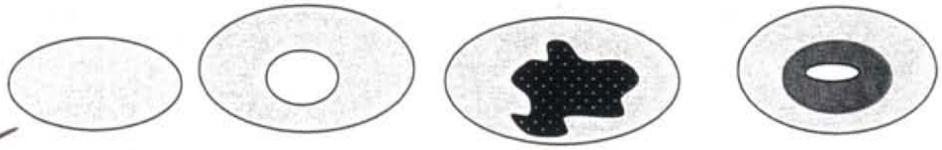
Total for page 2

Wetland name or number O

H 1.4. Interspersion of habitats *(see p. 76)*

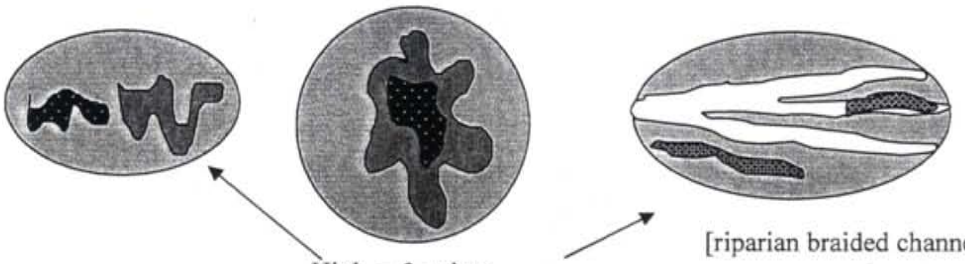
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓ None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number O

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

_X_**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats **= 4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number P

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland P Date of site visit: 6/22/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure App B **Estimated size** 0.03 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number P

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number P

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES –** The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO - go to 5 **YES –** The wetland class is **Slope**

Wetland name or number P

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number P

D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number P

	D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number P

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ___ Aquatic bed __X__ Emergent plants ___ Scrub/shrub (areas where shrubs have >30% cover) ___ Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 ✓ 1 structure points = 0 Map of Cowardin vegetation classes	0
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) ___ Permanently flooded or inundated ___ Seasonally flooded or inundated __X__ Occasionally flooded or inundated __X__ Saturated only ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ ***Lake-fringe wetland* = 2 points** ___ ***Freshwater tidal wetland* = 2 points** 4 or more types present points = 3 ✓ 3 types present points = 2 2 types present point = 1 1 type present points = 0 Map of hydroperiods	1
H 1.3. Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: *List species below if you want to:* ✓ > 19 species points = 2 5 - 19 species points = 1 < 5 species points = 0	1

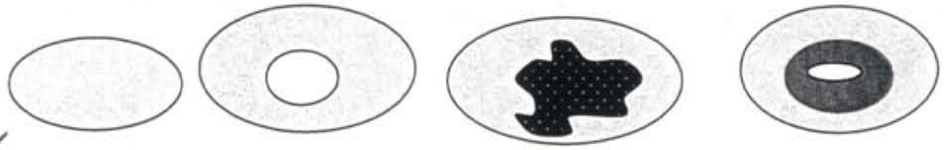
Total for page 2

Wetland name or number P

H 1.4. Interspersion of habitats *(see p. 76)*

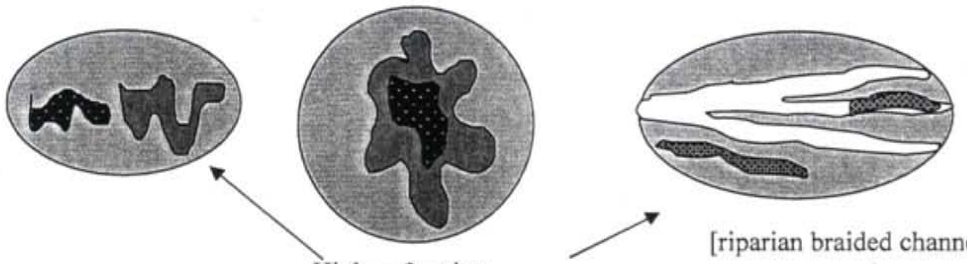
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number P

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see p. 82)***

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats **= 4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number Q

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland Q Date of site visit: 6/27/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure App B **Estimated size** 0.161 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number Q

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number Q

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number Q

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number Q

D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number Q

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number Q

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ___Aquatic bed _X_Emergent plants ___Scrub/shrub (areas where shrubs have >30% cover) ___Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 ✓1 structure points = 0 Map of Cowardin vegetation classes	6
H 1.2. <u>Hydroperiods</u> ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) ___Permanently flooded or inundated — 4 or more types present points = 3 ___Seasonally flooded or inundated — 3 types present points = 2 _X_Occasionally flooded or inundated — ✓2 types present point = 1 _X_Saturated only — 1 type present points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ ***Lake-fringe wetland* = 2 points** ___***Freshwater tidal wetland* = 2 points** Map of hydroperiods	1
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: ✓> 19 species points = 2 *List species below if you want to:* ✓5 - 19 species points = 1 < 5 species points = 0	1

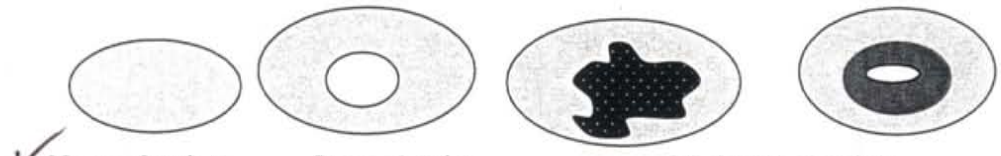
Total for page 2

Wetland name or number Q

H 1.4. Interspersion of habitats *(see p. 76)*

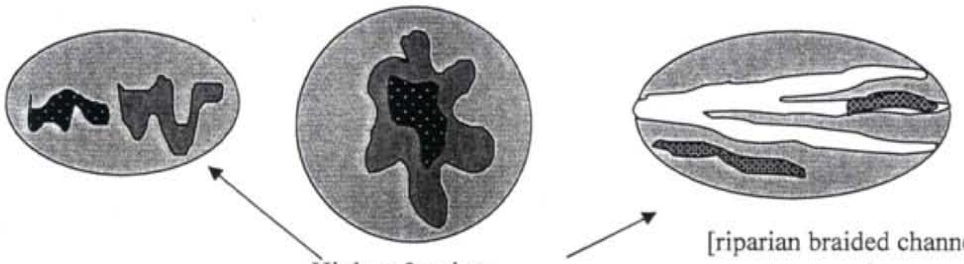
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓ None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

1

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number Q

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

Wetland name or number Q

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

_X_**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats **= 4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)***	
There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5	
The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5	3
✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3	
The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3	
There is at least 1 wetland within ½ mile. points = 2	
There are no wetlands within ½ mile. points = 0	
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number R

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland R Date of site visit: 6/22/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** 0.07 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	X
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number R

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number R

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number R

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number R

	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft X Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number R

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number R

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___ Aquatic bed	
X Emergent plants	
___ Scrub/shrub (areas where shrubs have >30% cover)	
___ Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	
4 structures or more — points = 4	
3 structures — points = 2	
2 structures — points = 1	
✓ 1 structure — points = 0	0
Map of Cowardin vegetation classes	
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___ Permanently flooded or inundated — 4 or more types present — points = 3	
___ Seasonally flooded or inundated — ✓ 3 types present — points = 2	
X Occasionally flooded or inundated — 2 types present — point = 1	1
X Saturated only — 1 type present — points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___ ***Freshwater tidal wetland* = 2 points** — Map of hydroperiods	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: ✓ >19 species — points = 2	
List species below if you want to: 5 - 19 species — points = 1	1
< 5 species — points = 0	

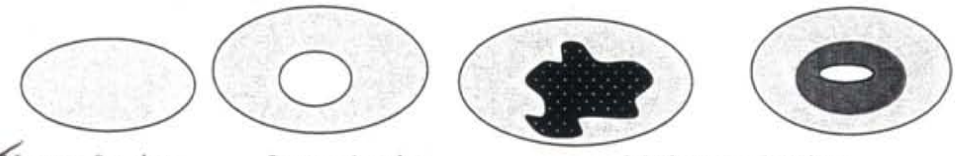
Total for page 2

Wetland name or number R

H 1.4. Interspersion of habitats *(see p. 76)*

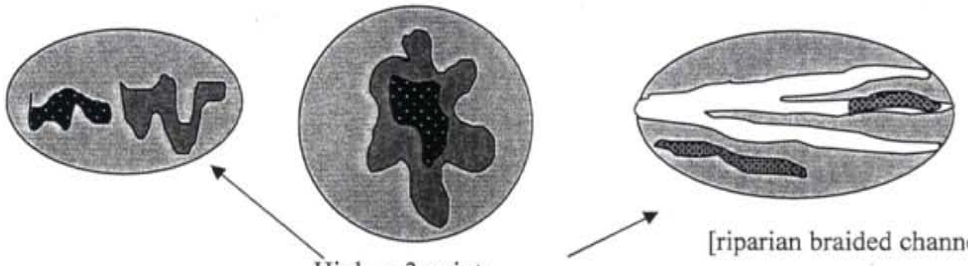
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number R

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

Wetland name or number R

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

_X_**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number S-1

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland S-1 Date of site visit: 6/22/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** 3.64 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III X IV___

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	18
Score for Hydrologic Functions	7
Score for Habitat Functions	12
TOTAL score for Functions	37

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) III

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number S-1

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number S-1

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number S-1

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

(NO) go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 (**YES**) – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

(NO) – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number S-1

	D Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 ✓ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 ✓ Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 3
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* ✓ Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 4
D	**Total for D 1** *Add the points in the boxes above*	9
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland X A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	18

Wetland name or number S-1

	D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 ✓ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	2
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 ✓ Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	5
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	7
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	7

Wetland name or number S-1

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___Aquatic bed	
_X_Emergent plants	
_X_Scrub/shrub (areas where shrubs have >30% cover)	
___Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	1
___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	
4 structures or more points = 4	
Map of Cowardin vegetation classes — 3 structures points = 2	
✓2 structures points = 1	
1 structure points = 0	
H 1.2. <u>Hydroperiods</u> ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
_X_Permanently flooded or inundated — 4 or more types present points = 3	1
___Seasonally flooded or inundated — ✓3 types present points = 2	
___Occasionally flooded or inundated — ✓2 types present point = 1	
_X_Saturated only — 1 type present points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: ✓> 19 species points = 2	1
List species below if you want to: — 5 - 19 species points = 1	
< 5 species points = 0	

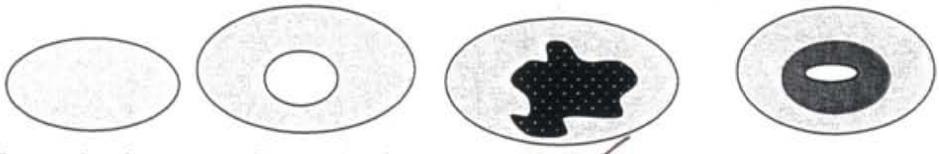
Total for page 3

Wetland name or number S-1

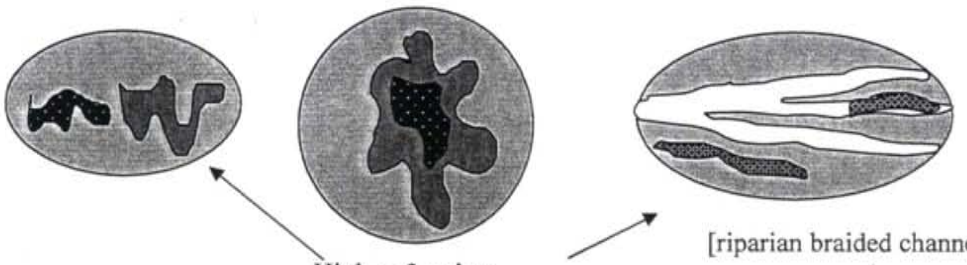
H 1.4. Interspersion of habitats *(see p. 76)*

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



None = 0 points Low = 1 point ✓ Moderate = 2 points



[riparian braided channels]

High = 3 points

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

2

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

X Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

___ Standing snags (diameter at the bottom > 4 inches) in the wetland

___ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

___ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

___ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

6

Comments

Wetland name or number S-1

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

Wetland name or number S-1

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

__X__**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number S-1

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)***	
There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5	
The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5	
✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3	3
The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3	
There is at least 1 wetland within ½ mile. points = 2	
There are no wetlands within ½ mile. points = 0	
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	6
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	12

Wetland name or number S-2

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland S-2 Date of site visit: 6/21/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	4
Score for Hydrologic Functions	2
Score for Habitat Functions	9
TOTAL score for Functions	15

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	X
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number S-2

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number S-2

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

(NO) – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

(NO) – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

___ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

___ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

(NO) – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

X The wetland is on a slope (*slope can be very gradual*),

X The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

X The water leaves the wetland **without being impounded**?

NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*

NO - go to 5 (YES) – The wetland class is **Slope**

Wetland name or number S-2

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

(NO) – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

(NO) – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

(NO) – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number S-2

S	Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
S	**S 1. Does the wetland unit have the potential to improve water quality?**	*(see p.64)*
S	S 1.1 Characteristics of average slope of unit: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 ✓ Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	2
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points ✓ NO = 0 points	0
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 ✓ Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure ___ 0
S	**Total for S 1** *Add the points in the boxes above*	2
S	**S 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150ft — Untreated stormwater discharges to wetland X Tilled fields, logging, or orchards within 150 feet of wetland — Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p.67)* multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	4

Comments

Wetland name or number S-2

S	Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	Points (only 1 score per box)
	S 3. Does the wetland unit have the potential to reduce flooding and stream erosion?	*(see p.68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. points = 6 Dense, uncut, **rigid** vegetation > 1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 area points = 1 ✓More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	0
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. ✓YES points = 2 NO points = 0	2
S	*Add the points in the boxes above*	2
S	**S 4. Does the wetland have the opportunity to reduce flooding and erosion?** Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* — Wetland has surface runoff that drains to a river or stream that has flooding problems — Other_____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 70)* multiplier 1
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	2

Comments

Wetland name or number S-2

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___ Aquatic bed	
X Emergent plants	
___ Scrub/shrub (areas where shrubs have >30% cover)	
___ Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	0
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	
4 structures or more — points = 4	
3 structures — points = 2	
2 structures — points = 1	
✓ 1 structure — points = 0	
Map of Cowardin vegetation classes	
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___ Permanently flooded or inundated — 4 or more types present — points = 3	
___ Seasonally flooded or inundated — 3 types present — points = 2	1
X Occasionally flooded or inundated — ✓ 2 types present — point = 1	
X Saturated only — 1 type present — points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___ ***Freshwater tidal wetland* = 2 points**	
Map of hydroperiods	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft². (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: >19 species — points = 2	1
List species below if you want to: ✓ 5 - 19 species — points = 1	
< 5 species — points = 0	

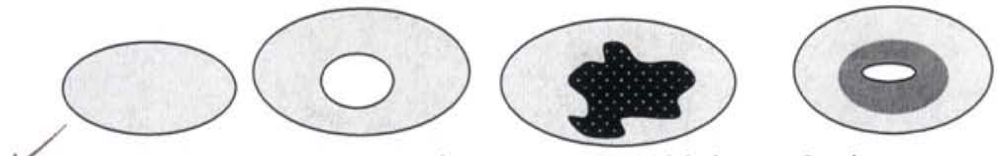
Total for page 2

Wetland name or number S-2

H 1.4. Interspersion of habitats *(see p. 76)*

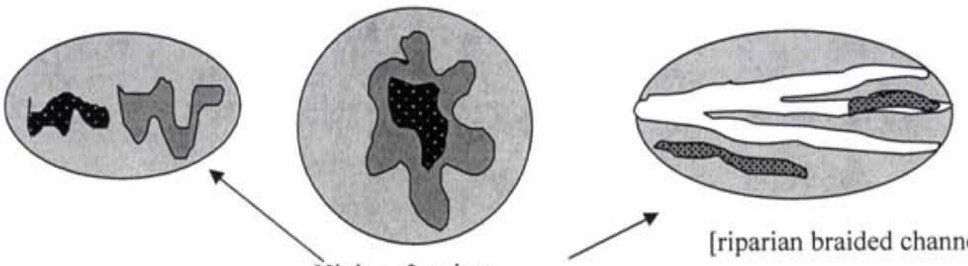
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓ None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

__X__ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number S-2

H 2. Does the wetland unit have the opportunity to provide habitat for many species?

H 2.1 Buffers *(see p. 80)*

Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."

— 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5**

— 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4**

— 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4**

— 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3**

— 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3**

If buffer does not meet any of the criteria above

— No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2**

— No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2**

— Heavy grazing in buffer. **Points = 1**

— Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.**

X Buffer does not meet any of the criteria above. **Points = 1**

Aerial photo showing buffers

Figure ___

1

H 2.2 Corridors and Connections *(see p. 81)*

H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*).

YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2

H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above?

YES = **2 points** (*go to H 2.3*) NO = H 2.2.3

H 2.2.3 Is the wetland:

within 5 mi (8km) of a brackish or salt water estuary OR
within 3 mi of a large field or pasture (>40 acres) OR
within 1 mi of a lake greater than 20 acres?

(YES) = **1 point** NO = **0 points**

1

Total for page 2

Wetland name or number S-2

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number S-2

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number T

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland T Date of site visit: 6/22/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** 0.23 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number T

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number I

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number T

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number I

	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft X Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number T

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number 1

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ___Aquatic bed X Emergent plants ___Scrub/shrub (areas where shrubs have >30% cover) ___Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 ✓ 1 structure points = 0 Map of Cowardin vegetation classes	0
H 1.2. <u>Hydroperiods</u> ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) ___Permanently flooded or inundated ___Seasonally flooded or inundated X Occasionally flooded or inundated X Saturated only ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ ***Lake-fringe wetland* = 2 points** ___***Freshwater tidal wetland* = 2 points** 4 or more types present points = 3 3 types present points = 2 ✓ 2 types present point = 1 1 type present points = 0 Map of hydroperiods	1
H 1.3. <u>Richness of Plant Species</u> ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: > 19 species points = 2 *List species below if you want to:* ✓ 5 - 19 species points = 1 < 5 species points = 0	1

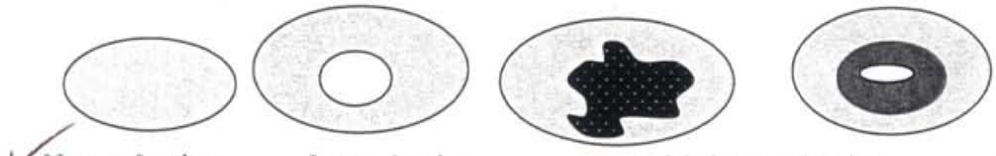
Total for page 2

Wetland name or number 1

H 1.4. Interspersion of habitats *(see p. 76)*

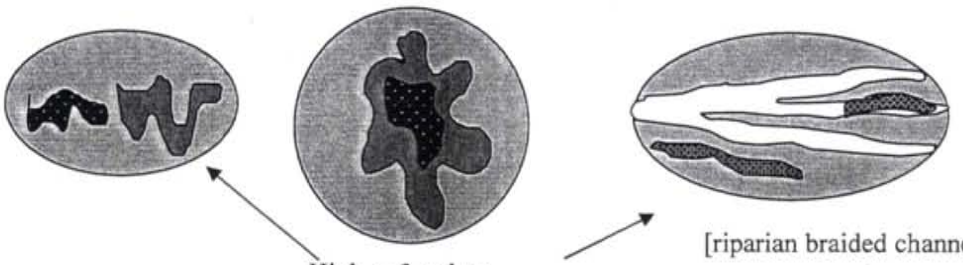
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓ None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number 1

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled X fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number U

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland U Date of site visit: 6/22/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure App B **Estimated size** 0.05 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number V

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number U

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number U

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number U

	D Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft X Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number U

	D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number U

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ___ Aquatic bed X Emergent plants ___ Scrub/shrub (areas where shrubs have >30% cover) ___ Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 ✓ 1 structure points = 0 Map of Cowardin vegetation classes	0
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) ___ Permanently flooded or inundated — 4 or more types present — points = 3 ___ Seasonally flooded or inundated — 3 types present — points = 2 X Occasionally flooded or inundated — ✓ 2 types present — point = 1 X Saturated only — 1 type present — points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ ***Lake-fringe wetland* = 2 points** ___ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	1
H 1.3. Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: ✓ ≥ 19 species points = 2 *List species below if you want to:* 5 - 19 species points = 1 < 5 species points = 0	1

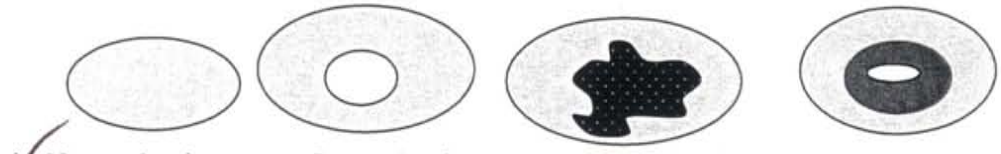
Total for page 2

Wetland name or number U

H 1.4. Interspersion of habitats *(see p. 76)*

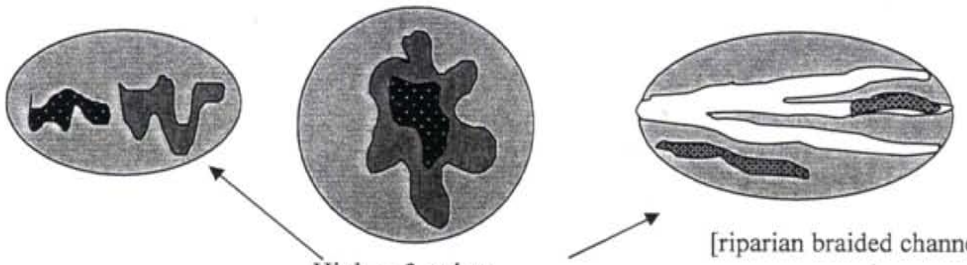
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓ None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number U

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled X fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

Wetland name or number U

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

__X__**Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

_____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats **= 4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number U

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number V

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland V Date of site visit: 6/22/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** 0.19 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	5
Score for Habitat Functions	10
TOTAL score for Functions	25

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number Y

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number ✓

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number V

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number V

	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 ✓ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 ✓ Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 1
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland X A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ (YES) multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number V

	D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 ✓ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	2
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 ✓ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	3
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	5
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	5

Wetland name or number ✓

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres. ____Aquatic bed __X__Emergent plants __X__Scrub/shrub (areas where shrubs have >30% cover) ____Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ____The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 ✓ 2 structures points = 1 1 structure points = 0 Map of Cowardin vegetation classes	1
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) ____Permanently flooded or inundated ____Seasonally flooded or inundated __X__Occasionally flooded or inundated __X__Saturated only ____Permanently flowing stream or river in, or adjacent to, the wetland ____Seasonally flowing stream in, or adjacent to, the wetland ____***Lake-fringe wetland* = 2 points** ____***Freshwater tidal wetland* = 2 points** 4 or more types present points = 3 ✓ 3 types present points = 2 2 types present point = 1 1 type present points = 0 Map of hydroperiods	1
H 1.3. Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: ✓ > 19 species points = 2 5 - 19 species points = 1 < 5 species points = 0 *List species below if you want to:*	1

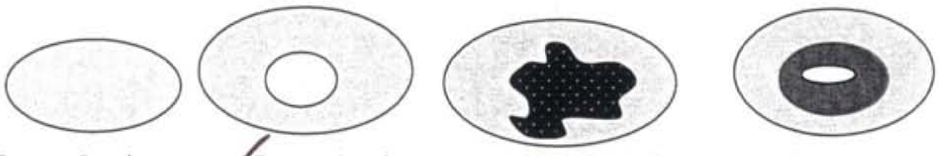
Total for page 3

Wetland name or number _____

H 1.4. Interspersion of habitats *(see p. 76)*

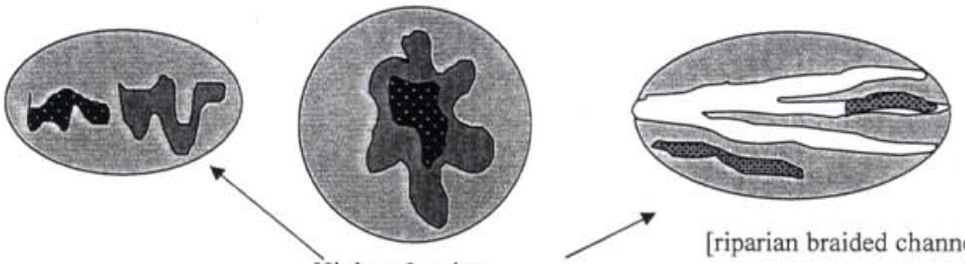
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



None = 0 points ✓ Low = 1 point Moderate = 2 points

1



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

____ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

0

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

4

Comments

Wetland name or number _____

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	4
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	10

Wetland name or number W

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland W Date of site visit: 6/22/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** 0.03 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	4
Score for Habitat Functions	9
TOTAL score for Functions	23

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	X
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number W

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number W

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

___At least 30% of the open water area is deeper than 6.6 ft (2 m)?

NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

____The wetland is on a slope (*slope can be very gradual*),

____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

____The water leaves the wetland **without being impounded**?

NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*

NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number W

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number W

	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: ✓ Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland X Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number W

	D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit ✓ Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	4
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	4
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** *(see p. 49)* Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** (**NO**) multiplier is **1**	multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	4

Wetland name or number W

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___ Aquatic bed	
_X_ Emergent plants	
___ Scrub/shrub (areas where shrubs have >30% cover)	
___ Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	0
___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	
4 structures or more — points = 4	
Map of Cowardin vegetation classes — 3 structures — points = 2	
2 structures — points = 1	
✓ 1 structure — points = 0	
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___ Permanently flooded or inundated — 4 or more types present — points = 3	
___ Seasonally flooded or inundated — 3 types present — points = 2	1
_X_ Occasionally flooded or inundated — ✓ 2 types present — point = 1	
_X_ Saturated only — 1 type present — points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___ ***Freshwater tidal wetland* = 2 points** — Map of hydroperiods	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: > 19 species — points = 2	
List species below if you want to: ✓ 5 - 19 species — points = 1	1
< 5 species — points = 0	

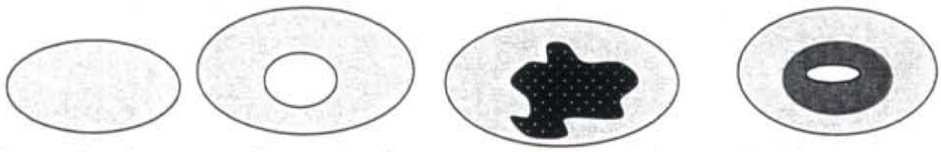
Total for page 2

Wetland name or number _____

H 1.4. Interspersion of habitats *(see p. 76)*

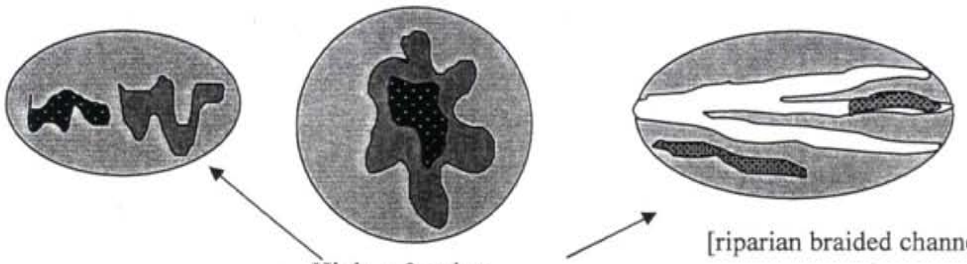
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓ None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

_X_ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number _____

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats **= 4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓ There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number X

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Wetland X Date of site visit: 6/22/07

Rated by Greg Allington Trained by Ecology? Yes__ No X Date of training_____

SEC: 32 TWNSHP: 23N RNGE: 1W Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure AppB **Estimated size** 0.03 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	8
Score for Hydrologic Functions	2
Score for Habitat Functions	9
TOTAL score for Functions	19

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	X
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number X

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number X

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

___At least 30% of the open water area is deeper than 6.6 ft (2 m)?

NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

____The wetland is on a slope (*slope can be very gradual*),

____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

____The water leaves the wetland **without being impounded**?

NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*

NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number X

5. Does the entire wetland unit **meet all** of the following criteria?

____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number X

	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 ✓ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 ✓ NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 ✓ Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 ✓ Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	4
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft X Untreated stormwater discharges to wetland Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	8

Wetland name or number X

	Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 ✓ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	2
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 ✓ Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 ✓ The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	2
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ **YES** multiplier is **2** (**NO**) multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	2

Wetland name or number X

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___Aquatic bed	
_X_Emergent plants	
___Scrub/shrub (areas where shrubs have >30% cover)	
___Forested (areas where trees have >30% cover)	
If the unit has a forested class check if:	
___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon	
Add the number of vegetation structures that qualify. If you have:	
4 structures or more points = 4	
Map of Cowardin vegetation classes — 3 structures points = 2	
2 structures points = 1	
✓1 structure points = 0	0
H 1.2. Hydroperiods ***(see p. 73)***	**Figure ___**
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)	
___Permanently flooded or inundated — 4 or more types present points = 3	
___Seasonally flooded or inundated — 3 types present points = 2	
_X_Occasionally flooded or inundated — ✓2 types present point = 1	1
_X_Saturated only — 1 type present points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: ✓≥ 19 species points = 2	
List species below if you want to: — 5 - 19 species points = 1	1
< 5 species points = 0	

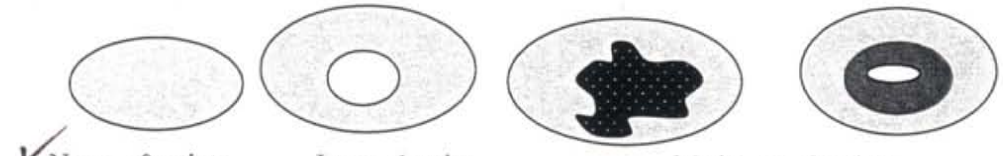
Total for page 2

Wetland name or number X

H 1.4. Interspersion of habitats *(see p. 76)*

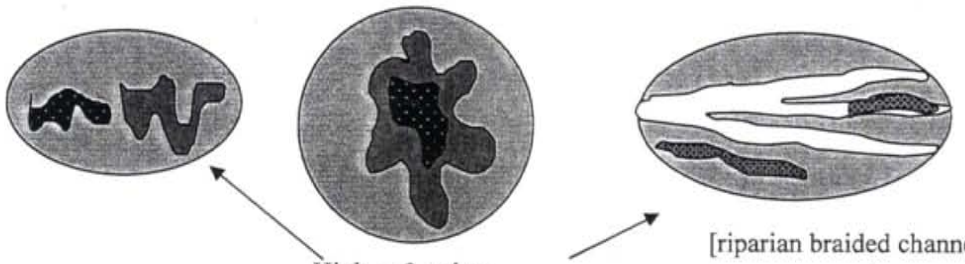
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



✓ None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

X Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number X

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** X Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

Wetland name or number X

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see p. 82)*

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

These are DFW definitions. Check with your local DFW biologist if there are any questions.

____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres).

____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____**Old-growth forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age.

____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____**Prairies:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community.

____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%.

____**Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those that would otherwise be isolated; and/or the open space is an isolated remnant of natural habitat larger than 4 ha (10 acres) and is surrounded by urban development.

X **Estuary/Estuary-like:** Deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure less than 0.5ppt. during the period of average annual low flow. Includes both estuaries and lagoons.

____**Marine/Estuarine Shorelines**: Shorelines include the intertidal and subtidal zones of beaches, and may also include the backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) that are important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has **3 or more** priority habitats = **4 points**

If wetland has **2** priority habitats = **3 points**

If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 ✓There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9