

Memorandum

November 16, 2011

To: File

From: Carol Piening

Subject: Notes from 11/15/2011 Meeting on WDFW HPA Rule Revisions

**Organization representatives present:**

Stephen Bernath, Washington Department of Ecology  
Robert RC Cunningham, Northwest Treasure Supply  
Jamie Glasgow, Wild Fish Conservancy  
Johan Hellman, Washington Public Ports Association  
Tim Hyatt, Skagit River System Cooperative  
Randy Kline, Washington State Parks and Recreation Commission  
Casey Kramer for Ken Schlatter, Washington State Department of Transportation  
Gayle Kreitman, NOAA Fisheries  
Annette Pearson, Pierce County/Gary Rowe, Washington State Association of Counties  
Bill Thomas, Washington Prospectors Mining Association  
Lance Winecka, Regional Fish Enhancement Groups

**Interested others present:**

Robert Brenner, Port of Tacoma  
Michael Grilliot, Washington Department of Natural Resources  
Christina Martinez, Washington State Department of Transportation  
Dave Molenaar, NOAA Fisheries  
Gregor Myhr, Washington State Department of Transportation  
Lisa Willis, Port of Vancouver (by telephone)

**Agenda Items:**

<b>Topic</b>	<b>Status</b>
Work area isolation, fish removal and exclusion (WAC 220-110-120)	Presentation, questions, and policy discussion
Water crossing structures (WAC 220-110-070)	Presentation, questions, and policy discussion
Fishways (WAC 220-110-075)	Presentation, questions, and policy discussion

**Follow-ups:**

*WDFW will:*

- Find out the source of the requirement for 0.8 feet for minimum water depth in a hydraulic design culvert without a natural bed (WAC 220-110-075 (7) (a)).

- Find out the date for “grandfathered” fords.
- Find a way to make it clearer which elements of the draft rule are intended to give direction to applicants, and which are intended to give direction to WDFW staff.

### **Agenda Topic Discussions**

Process: Alan Bogner provided a quick review of ground rules. Later in the meeting, he reminded people that their written comments and suggestions for improving the language are welcome at any time; there is no need to wait until we have discussed all the topics.

#### **220-110-120 Work area isolation, fish removal and exclusion**

Randi Thurston presented an overview of proposed rules for work area isolation and fish removal and exclusion. In the current rule, this section is titled “Temporary bypass culvert, flume, or channel.” The revisions could also include requirements for cofferdams, and for fish removal and exclusion. NOAA Fisheries has fish-removal standards (See attachment A). WDFW has no current standards, nor does industry. Most HPAs require safe capture and removal, but we recognize that dewatering when fish are present will harm some fish.

Should WDFW put a complete fish removal protocol in rule, recognizing that there are many site-specific variables, or a general statement setting performance standards?

Elements that are likely to be in a fish removal protocol include:

- WDFW prefers gravity diversions over pumped diversions.
- It is important to have qualified personnel remove fish.

Clarifications:

- “Qualified personnel” could be defined as in the NMFS protocol.
- WDFW is open to suggestions on how to clarify the “fill” requirement in 220-110-120 (2).
- “Lines” are the pipes or conduits carrying the diverted water.
- “Least impacting methods” are usually established as a result of negotiations between the project proponent and the permitting biologist.
- Whether or not waters are fish-bearing is determined by a biologist, rather than relying on water-typing maps.
- WDFW is looking for advice on how to get the information we need and assure that fish are excluded/removed as safely as possible.
- In practice, WDFW issues daily permits, modifying the permit based on site-specific conditions.
- The NMFS protocol is for fish removal, not for fish surveys.

- Under RCW 77.55, amphibians are not covered. Therefore, fish removal protocols cannot include provisions for removing amphibians. Other permits may be required. Freshwater mussels are covered under RCW 77.55.

Participants raised the following points:

- The “qualified personnel” should be on-site when the fish are being moved.
- WDFW should either require that overnight dewatering to be monitored, or not allow it.
- Update the reference to WAC 220-110-053, which is no longer going to be developed.
- Sites are variable; a performance standard that allows the designer to adapt to site-specific conditions is preferable. See particularly section (6) (d) (iv).
- Both these opinions were expressed: If the permitting biologist can modify rule prescriptions in individual HPAs, then more precision in the rule is probably better. However, some biologists are very reluctant to write provisions that vary from guidance, let alone rule.
- Rules need to be clearer, so that anyone who is subject to them can understand what is required.

#### 220-110-070 Water crossing structures and 220-110-075 Fishways

Carol Piening presented an overview of proposed rules for water crossing structures and fishways. Jeff Davis provided clarifications. Water crossing structures must pass all fish at all mobile life stages. Rules are being updated to reflect current engineering standards, and be consistent with guidance. The major changes proposed are:

- Temporary culverts will be permitted for only one year, instead of two.
- Permanent culverts may be stream-simulation design or no-slope design. Hydraulic design culverts are retained, but moved to the section on fishways, because that is the methodology used to design a fishway. Hydraulic design culverts will only be permitted for use as fishways.
- Revisions include language for temporary and permanent fords.
- Fishways section also includes fish ladders, roughened channels, weirs, and trap-and-haul.

Clarifications:

- Fords are formally constructed stream crossings, tied to the use of a motor vehicle. The term “ford” is not defined in statute. Existing, legally established fords can remain in place.
- Permits are rarely issued for fords. When they are, it is usually in areas east of the Cascades where there is concern about ice or rain-on-snow events.

- Culverts are already being permitted and built to the proposed standards. Proposed changes to rule language will not change the current way we are permitting culverts. On the ground, WDFW is permitting new and replacement stream simulation and no-slope culverts, but is no longer writing HPAs for new hydraulic culverts. Occasionally, WDFW will write a permit to use a hydraulic design to retrofit an existing culvert.
- A “roughened channel” is a fishway. It is a streambed constructed to be more stable than what would occur naturally.
- General standards (such as structures functioning in 100-year flood events) apply to water crossing structures.
- A “hydraulic culvert” is defined by water velocity and the ability to pass a six-inch trout.

Participants raised the following points:

- Reword 070 (4) (b) (i) (B). As written, it sounds like it refers to a very steep (25% gradient) stream.
- Consider potential water quality impacts of fords and temporary culverts.
- Consider consistency with forest practices.
- There is a risk associated with temporary culverts that they will “blow out” in winter storms.
- There is no discussion of when an HPA is required for maintenance of water crossing structures in this draft.
- Making rules consistent with draft guidance will result in cost increases. People who are involved in the water-crossing guidance had concerns with practicability, which they will also raise in regard to the draft rule.
- Consider consistency with Federal Highway Administration (FHWA) requirements. If state requirements are more stringent and therefore more expensive, FHWA will not fund the increased cost.
- Requiring fish passage through temporary culverts will have large design, construction, maintenance, and cost impacts. If the rules require that temporary culverts be repaired to stream simulation standards, that will have large fiscal impacts.
- The distinctions between “repair”, “maintenance”, “new” and “replacement” are very important in water crossing structures. Rules must not have the unintended consequence of having people keep sub-standard structures in place. Rules must not have the unintended consequence of requiring mitigation for the same impact twice.
- Some routine maintenance activities, such as sweeping bridges, could be included in a pamphlet HPA.
- Stormwater regulations and 401 certifications may have useful information.

- There are no technical requirements for permanent culverts in non-fish-bearing waters in this draft.

### *General clarifications*

The first version of potential rule revisions that was distributed to this group was more extensive than the second (current) version. WDFW decided to scale back the scope of proposed rule amendments for a number of reasons, including limited time and staffing.

Some “brand new” sections that were proposed in the first version have been dropped from the second version. Some revisions of existing sections that were proposed in the first version have been dropped from the second version, reverting to existing rule language. Some sections are being revised, but are not scheduled for discussion with this group. However, WDFW welcomes comments and suggestions on all sections.

Here is a summary of changes from the first version that was distributed (“compilation for advisors 2011-10-11”) to the version we are working from now (“compilation for advisors 2011-11-03”).

**Revert to existing.** The following sections may have contained changes in the first version, but in the second version they retain existing rule requirements. (Some minor changes have been made to accommodate the new organization of the rule.) WDFW does not intend to reintroduce changes to these sections in the course of this rulemaking.

- Marinas in saltwater areas (066)
- Boat ramps, launches, and hoists (067)
- Channel change or realignment (080)
- Conduits (105)
- Dredging (for navigation, not mineral prospecting or aquatic plant removal) (115)
- Gravel removal (140)
- Large woody material removal or repositioning (150)
- Felling and yarding of timber (this was called “Forest practices activities” in the first draft) (160)
- Pond construction (180)
- Water diversions and intakes (190)
- Aquatic plant removal and control technical provisions (331)

**Proposed in first version, dropped in second version:** The following all-new sections were proposed in the first version, but have been dropped from the second version. WDFW does not intend to re-propose these sections.

- Barge landing sites
- Covered moorage, boathouses, houseboats, and associated moorage
- Tide gates, flood gates, and associated structures.
- Fish guards/screens
- Dikes and levees
- Dams and weirs

- Streamlined review of certain fish habitat enhancement projects
- Aquaculture

**RCW-driven updates.** The following sections have been revised in the current draft to make sure they are consistent with changes to RCW. Those are the only changes that have been made:

- Outfall structures (170)
- Miscellaneous hydraulic projects (035) – subsections (9) and (10) pertaining to tide gates were added.

**No change.** The following sections have not been changed from existing language:

- Mineral prospecting (200)
- Mineral prospecting without timing restrictions (201)
- Mineral prospecting with timing restrictions (202)
- Authorized work times and mineral prospecting equipment restrictions...(206)

#### *Marina/Parking Lot*

- What is an appropriate trigger for replacement of structures?
- Pamphlets or simplified HPAs for general types of maintenance activities
- Additions to 220-110-035, Exemptions
- Relationship between outcome of rule update and HCP conservation measures.
- Additional stakeholder meetings following HCP discussions with Services.
- Protocols for removal of amphibians from construction areas/scientific collection permits.

## **ATTACHMENT SEVEN – PROTOCOL FOR FISH REMOVAL AND EXCLUSION\***

### **Fish Capture – General Guidelines**

1. Fish Capture Methods
  - a. Minnow traps. Optional. Traps may be left in place prior to dewatering and may be used in conjunction with seining. Once dewatering starts, minnow traps should only be used if there is someone present to check the traps every few hours, and remove the traps once the water level becomes too low.
  - b. Seining. Where Practical. Use seine with mesh of a size to ensure entrapment of the residing fish and age classes.
  - c. Dip nets. Required. Use in conjunction with other methods as area is dewatered.
  - d. Electrofishing. Optional. Use electrofishing only after other means of fish capture have been exhausted or where other means of fish capture are not be feasible.
2. Seining shall be the preferred method for fish capture. Other methods shall be used when seining is not possible, or when /after attempts at seining have proven ineffective.
3. Only dip nets and seines composed of soft (non-abrasive) material shall be used.
4. Electrofishing equipment shall not be used unless and until other, less injurious methods have been used. A minimum of three complete passes without capture using seines and/or nets shall be conducted before electrofishing is used.
5. Only a backpack electrofisher shall be used.
6. A biologist or staff person with 100 hours of electrofishing field experience or appropriate training shall supervise the capture and safe removal of food fish, game fish, and other fish life from the job site. Training can be acquired from WDFW, US Fish and Wildlife Service, National Marine Fisheries Service, Smith-Root, or the Northwest Environmental Training Center. The biologist or staff person supervising the fish capture shall train the crew to ensure they have the necessary knowledge, skills, and abilities to handle the fish safely. Training shall occur before an inexperienced crew begins electrofishing.

The training shall cover the following elements:

- a. Fish handling techniques and fish identification.
- b. How to monitor and install block nets.
- c. A demonstration of the proper use of seines and electrofishing equipment, the role each member of the crew performs, and basic gear maintenance.
- d. An explanation of how electrofishing attracts fish.
- e. An explanation of how gear can injure fish and how to recognize signs of injury.

- f. Definitions of basic terminology: e.g. galvanotaxis and tetany.
  - g. A review of these guidelines and the equipment manufacturer's recommendations.
  - h. A field session in which trainees actually perform each role on the netting and electrofishing crew.
7. Fish shall be handled with extreme care and kept in water at all times during transfer procedures. A healthy environment for the stressed fish shall be provided. The transfer of fish shall be conducted using shaded or dark large buckets (five gallon minimum to prevent overcrowding) and minimal handling of fish. There should not be overcrowding in the buckets and holding time should be minimized. Large fish should be kept separated from smaller prey-sized fish to avoid predation during containment. The water temperature in the transfer buckets should not exceed the temperature of cold pool water in the subject stream. Retain fish the minimum time possible to ensure that stress is minimized, temperatures do not rise, and dissolved oxygen remains suitable. Supplemental oxygen (aeration) shall be considered in designing fish handling operations. Release fish as near as possible to the isolated reach in a pool or area that provides cover and flow refuge.

## **B. Dewater Instream Work Area and Fish Capture**

Fish screen. Except for gravity diversions that have gradual and small outfall drops directly into water, all water intake structures shall have a fish screen installed, operated, and maintained in accordance with the General HPA Provision.

The sequence for stream flow diversion will be:

1. Install flow conveyance devices (pumps, discharge lines, gravity drain lines, conduits, and channels), but do not divert flow.
2. Install upstream barrier. Allow water to flow over upstream barrier.
3. Install block net at upstream end of work area in an area of low water velocity to minimize potential impingement. Block nets will be checked regularly. If any fish are impinged or killed on the nets they will be checked hourly.
4. Slowly reduce flow over upstream barrier by one-third.
5. Inspect as discharge is diminishing and in dewatered areas for stranded and trapped fish and remove them with dip nets.
6. Reduce flow over upstream barrier by an additional one-third.
7. Again, inspect dewatered areas for stranded and trapped fish and remove them with dip nets.
8. Divert upstream flow completely.
9. Install downstream barrier if necessary (only in low gradient, backwatered reaches).
10. If water remains within the work area; seine, dip net, and lastly electrofish (if using this technique), the project area until catch rates have reached no fish for 3 consecutive passes. Move rocks as needed to flush fish and effectively electrofish the work area.
11. If needed, pump water out of isolated pools within the project area to a temporary storage and treatment site or into upland areas and filter through vegetation prior to reentering the stream channel. Continue to seine, dip net and electrofish while pumping.

12. If fish continue to be captured, shut pump off before average water depths reach one foot. Continue to seine, dip net and electrofish until no fish are caught for 3 consecutive passes.
13. Pump dry and check substrate for remaining fish.
14. Continue to pump water from the project area as needed for the duration of the project.

### Electrofishing Guidelines

1. Electrofishing is employed when other methods prove ineffective.
2. Equipment shall be in good working condition and operators should go through the manufacturer's preseason checks, adhere to all provisions, and record major maintenance work in a logbook.
3. Measure conductivity and set voltage. Each electrofishing session shall start with all settings (voltage, pulse width and pulse rate) set to the minimums needed to capture fish. The settings should be gradually increased only to the point where fish are immobilized and captured.
4. Only Direct Current (DC) or Pulsed Direct Current (PDC) should be used.

Table 1. Guidelines for minimum (initial) and maximum settings for backpack electrofishing.

	Initial Settings	Maximum Settings	Notes
Voltage	100 V	Conductivity (uS/cm) <100 100 – 300 >300	Max. Voltage 1100 V 800 V 400 V
Pulse width	500 us	5 ms	
Pulse rate	30 Hz	70 Hz	In general, exceeding 40 Hz will injure more fish

8. Fish should not come in contact with the anode. The zone of potential fish injury is 0.5m from the anode. Care should be taken in shallow waters, undercut banks, near structures such as wood, or where fish can be concentrated in high numbers because in such areas the fish are more likely to come into close contact with the anode.
9. Electrofishing should be performed in a manner that minimizes harm to fish. The stream segment should be worked systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period of time. Remove fish from the electrical field immediately; do not hold fish in net while continuing to net additional fish.

10. Crew members should carefully observe the condition of the excluded fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit may need adjusting. Each fish should be completely revived before releasing. Fish will be released as soon as possible downstream of the block nets in an area that provides refuge.

\* *Adapted from the National Marine Fisheries Service Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act, June 2000.*