PRE-REHABILITATION PLAN FOR EPHRATA LAKE IN GRANT COUNTY, WASHINGTON

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Wildlife Program Region 2
Ephrata, WA

I. PROPOSAL

i. Background:

Ephrata Lake is located approximately 3.5 miles south of Soap Lake in Grant County, Washington. Originally Ephrata Lake was a natural depression that held some standing water fed by natural springs. However, as a result of the Columbia Basin Irrigation Project, water tables rose and helped to create the actual lake. After the water collected in the basin, Ephrata became a highly productive waterfowl area both for molting and brood rearing.

Multiple attempts, both lawful and unlawful, have been made to establish a recreational fishery, but due to high waterfowl production and fish competing for food resources, Ephrata Lake was rehabilitated in 1986 and 1988 to remove stocked fish. In 2004, fishing was closed at Ephrata Lake to discourage future illegal releases of game fish. Nevertheless, there currently is an abundant population of Largemouth Bass in the lake.

This project is intended to increase the abundance and diversity of aquatic invertebrates available to foraging waterfowl hens and their broods, which would otherwise be consumed by fish. WDFW staff will monitor the invertebrate response and the subsequent response by waterfowl as well as work to restore the uplands to increase available nesting habitat. These actions should benefit waterfowl using the area and help to reduce local population declines.

ii. Justification:

Habitat availability and brood rearing locations have been identified by researchers as being a limiting factor for waterfowl in the Columbia Basin (Giudice 2001 and Klett et al. 1988). There has been dramatic declines of waterfowl production throughout the Columbia Basin since the 1970s, including at Ephrata Lake.

During the spring and summer of 2016, WDFW surveyed staff aquatic invertebrates at several wetland sites throughout the Columbia Basin to assess the insect biomass available to waterfowl. Each site was sampled three times throughout the brood-rearing season, and biomass was calculated by drying and weighing collected samples. Comparisons of fish-free versus fish-bearing waters were found to have more invertebrate biomass which is supported by other published research (Hornung and Foote 2006; Zimmer et al 2001; Hanson and Riggs 1995). Our data from Ephrata Lake is not conclusive, but in another area we found indications that fish have

reduced invertebrate biomass. Within the WDFW study area, ponds without fish had a nearly 6-fold increase in insect biomass than in ponds without fish. We would expect to see a significant response in Ephrata Lake after fish are removed. High numbers of waterfowl broods (>40 broods) were historically found on Ephrata Lake prior to 2006, whereas more recent surveys have found fewer than 5 broods. Given this discrepancy there is strong support for removing the fish from Ephrata Lake, especially since there will be no impact to recreational fisheries.

iii. Physical Description of Water Proposed for Treatment and Fish Management Actions:

- **a. Water Name:** Ephrata Lake
- **b. Location:** T21N-R27E-S5, 6, 7 & 8
- **c. Size:** 160 SA
- **d. Average Depth:** 6 feet
- **e. Maximum Depth:** 9 feet
- **f. Water Volume:** 1,440 AF
- **g. Inlet Description:** Spring Fed, Ground water seepage
- **h. Outlet Description:** None.
- **i. Public Access:** Walk-in only. Fishing is prohibited
- **j. Land Ownership:** WDFW, WADNR, BOR and Private
- k. **Established Resorts:** None
- **l. Target Species:** Largemouth Bass
- **m. Date Last Rehabilitated:** 1988
- **n. Proposed Treatment Date:** October 2017
- **o. Replanting Date:** None
- **p. Species:** None
- **q. Size(s):** None
- **r. Proposed Planting Rate:** None
- **s. Proposed Toxicant:** Cube Root powdered and CFT Legumine liquid rotenone
- **t. Amount of Rotenone (5% Active Ingredient):** ≤15,267 pounds powdered and ≤48 gallons of liquid rotenone-

iv. Proposed Maximum Concentration and Total Amount of Toxicant Used:

i. **Ephrata Lake:**Powdered Rotenone: ≤15,267 pounds (≤3.5ppm; product concentration)

ii. Liquid Rotenone: ≤48.0 gallons (≤0.5ppm; product concentration)

v. Crew Description:

A work crew of approximately 8-15 staff will be required to complete Ephrata in a single day. The District 5 Wildlife Biologist (Sean Dougherty) will act as the project lead but will be supported with the technical aspects of the project by District 5 Fish

Biologist (Chad Jackson) and other WDFW Fish Program Staff. Sean Dougherty and Chad Jackson possess a valid Washington pesticide application license. Other WDFW staff possess valid pesticide application licenses and will assist the project lead with certain aspects of the treatment.

II. INTENDED OUTCOME AND MEASURE(S) OF SUCCESS

The intended outcome of the rehabilitation is to completely eradicate nuisance fish species present and restore productivity for waterfowl. Treatment success will be measured primarily through waterfowl response and periodic sampling using electrofishing and gillnetting will be used to determine the percent kill of nuisance fish species and/or their reestablishment in any of the treated waters identified above.

III. NATURAL RESOURCE IMPACTS

Impacts to natural resources at treated lakes include the eradication of targeted nuisance fish species. There are no native or endemic fish species concerns for these waters because most of them were artificially created through irrigation seepage and thus originally fishless. Varying levels of mortality will be suffered by other aquatic biota including phytoplankton, zooplankton, and benthos (e.g., insects, crayfish, snails, clams, etc.). However, according to the literature these species recover to at least pre-treatment levels and in several cases recovery exceeds pre-treatment levels. Recover of these species is so immediate because a 100% kill is never achieved, abundances of some species (e.g., phytoplankton and zooplankton) is normally low during treatment months (September-November), the eggs of some species are already deposited in the sediment and are not affected by rotenone, and/or they reside in the sediment that naturally detoxifies rotenone. Additionally, amphibians that metamorphose during the fall and/or species that overwinter with gills could be impacted during treatment.

IV. RECREATIONAL IMPACTS

Recreational fishing in Ephrata Lake is prohibited so there will be no impact to recreational fishing. However, hunting is allowed and there will likely be increased waterfowl use and increased abundance of upland birds as a result of the planned upland habitat enhancements. All of which will lead to increased hunting opportunities.

V. ECONOMIC IMPACTS

Potential economic impacts to local economies are limited and will likely lead to little increase or decrease as a result of this project. However, increased brood rearing success

could potentially increase local waterfowl populations and more waterfowl could lead to more recreational opportunities as a result.

VI. MITIGATION FOR ADVERSE IMPACTS

The only identified adverse impact of the project is the short-term and temporary loss of access to Ephrata Lake by hunters during treatment. This loss of access is expected to last one week or less while WDFW staff treat Ephrata Lake.

VII. OTHER RELATED FISH MANAGEMENT ACTION(S)

At this time no other fish management related action(s) will be undertaken by WDFW.

VIII. PUBLIC NOTIFICATION

WDFW will hold public meetings locally in Ephrata (location, date, and time TBD) and at the Natural Resources Building in Olympia in July (date and time TBD). The purpose of these meetings is to alert the general public of the proposed treatments, collect public comments, and assess public opinion of the proposed project. Notice of the public meeting will be made through a WDFW press release and ads in pertinent local newspapers.

Additionally, all adjacent landowners within ¼ mile of the project will receive notification letters about the proposed treatments. During treatment and until the lakes detoxify, WDFW will sign all points of access alerting the public about the treatment.