

PRE-REHABILITATION PLAN

Fish Lake, Spokane County

I. PROPOSAL

A. Justification for Proposed Rehabilitation

Fish Lake has been treated 4 times with rotenone (1956, 1968, 1975 and 1998) and once with toxaphene (1963) since it was designated as a trout-only management water. Previous treatments targeted bullhead catfish, yellow perch, pumpkinseed sunfish, and goldfish. The lake is proposed to be treated in 2012 to control an overabundant pumpkinseed sunfish population that is limiting trout recruitment through inter-specific competition. In addition, during pre-season trout sampling conducted by WDFW in the spring of 2012, a northern pike was captured. Currently, the only known northern pike populations in Washington State occur in the Pend Oreille and Spokane river drainages. Northern pike represent a very serious threat to all other fish species in waters where they are illegally stocked, and WDFW is actively working to prevent/reduce further spread of these invasive, predacious fish. Northern pike are classified as a prohibited species in Washington. It is illegal to transport live northern pike.

B. Physical Description of Water Proposed for Rehabilitation

1. WATER: **Fish Lake**
2. LOCATION: Sec's 4 and 5, T23N, R42E and Sec 32, T24N, R42E, Spokane County
3. SURFACE ACRES: 47 MAXIMUM DEPTH: 48 feet
4. VOLUME: 1357 acre-feet; 3,687,836,177 lbs H₂O
5. OUTLET: Yes, sand-bagged to prevent outflow at the time of treatment
6. STREAM: Yes, intermittent. Likely dry at time of treatment.
7. PUBLIC ACCESS: Yes
8. LAND OWNERSHIP: Public 15%, Private 85%.
9. ESTABLISHED RESORTS: None.

C. Proposed Management Actions

1. WATER: **Fish Lake**
2. TARGET SPECIES: pumpkinseed sunfish, brown bullhead, and northern pike
3. DATE LAST REHABBED: October 1998
4. PROPOSED TREATMENT DATE: September-November, 2012
5. REPLANTING DATE: Spring 2013
6. SPECIES: Rainbow trout, eastern brook trout and tiger trout
7. STOCKING PLAN: 5,000 catchables and 24,500 fry-fingerlings
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: ≤4.0 ppm
AMOUNT (ROTENONE AT 5% ACT. INGRED): 12,918 lbs powder and 100 gal liquid
9. METHOD OF APPLICATION: pumper boat slurry and airboat spray
10. CREW DESCRIPTION: Leader Bill Baker, plus ~ 8 other personnel

II. PURPOSE:

The Washington Department of Fish and Wildlife (WDFW) provides many types of fisheries in

response to public desires. WDFW manages both trout and warmwater recreational fisheries using multiple species of fish, providing diverse recreational angling opportunity. Public demand for, and participation in, production trout fisheries is high. These fisheries are prized as opportunities for families to recreate together, as well as providing an appropriate challenge for occasional or novice anglers. Lowland Lakes Opening Day trout fisheries provide a relaxed recreational opportunity; give anglers outdoor opportunity during the spring, summer, and fall months; and are also integral to state and local economies.

Alternatives to rehabilitation are costly and/or impractical. To maintain a fishery comparable to the current fingerling-stocked trout fishery in this water with catchable-sized fish would require 7,500 to 10,000 catchable rainbow trout annually. Stocking catchable-sized fish costs almost ten times the amount of a fry plant, and Region 1 lacks the hatchery space, water and funding to institute a catchable-size stocking program as a substitute for lake rehabilitation. Regardless of fish size at stocking, interspecific competition with warmwater fishes limits trout growth and condition. Ultimately, in the face of competition with warmwater fish, low trout recruitment and fish quality lead to an undesirable trout fishery.

III. INTENDED OUTCOME/MEASURE OF SUCCESS:

WDFW intends to restore Fish Lake to a popular, easily accessible trout fishery based on fingerling-stocked trout. The average catch rates should be 4 to 5 fish per angler on the opener with a sustained harvest of 2 to 3 fish per angler for the duration of the season. Spring fry should be a minimum of 11 inches the following opening day, and larger carryovers should contribute 10 to 15 percent of the overall harvest. Success will be measured during Opening Day and with random creel contacts and biological surveys. Beneficial effects of lake rehabilitation should be expected to last approximately 6 to 8 years under current management schemes. In addition to reasons listed under Resource, Recreational and Economic Impacts, to abandon this lake as a trout fishery is to invite other illegal fish introductions across the state in trout-only managed lakes.

IV. RESOURCE IMPACTS:

1. The population of the target species (pumpkinseed sunfish, brown bullhead, and northern pike) will be severely and negatively impacted. These species are not desired for a fishery under the current lake management plan.
2. Regional Lands, Habitat, Wildlife and Non-Game managers have been apprised of our rehabilitation plans. No unmitigated concerns have been expressed on the potential impacts to non-targeted species.
3. According to Bradbury (1986), the effects of rotenone on benthos are variable, depending on the concentrations and species. Crustaceans are most tolerant while the smaller insects are most affected. Immediate reduction of populations averages 25%, and survival doubles when access to bottom sediments exists. Benthic communities generally recover to at least pretreatment levels within two months. Zooplankton is more severely impacted, and communities generally take two to twelve months to fully recover. While relatively tolerant of even heavy doses of rotenone, amphibians (especially larval) are at risk, and reptiles are affected somewhat less so. Almost no chance of eliminating an entire population exists.

4. During treatment, the lake will be closed to angling, and other recreational uses such as boating, and swimming will be curtailed. There will be no loss of a fishery associated with our activities. Fish Lake will be stocked to provide a fishery with catchable sized rainbow trout in the spring of 2013, prior to the Lowland Lakes Opening Day and subsequent fry/fingerling stocking of eastern brook trout and tiger trout will sustain the fishery in future years.

5. Professional biologists and other naturalists have visited these sites frequently over the past 40 years. To our knowledge, no endemic, rare, threatened or otherwise listed species will be adversely impacted by the rehabilitation.

V. MITIGATING FOR ADVERSE IMPACTS:

1. Trout fry survival and growth for the proposed water will be greatly enhanced, and the future trout fishery will attain the previous status. No removal of dead fish is planned as the nutrient base contained therein is best returned to the lake.

2. Fall rehabilitation will not interfere with waterfowl spring nesting. The eradication of the undesirable fishes will also benefit waterfowl through increased production of invertebrates. Stocked populations of trout will not be as numerous as the current undesirable fish population.

3. Livestock use of the waters to be treated will not be significantly affected. The concentration of rotenone used in the treatment will be far below that considered harmful to mammals. The landowners will be notified of the rehabilitation and consequent exposure of livestock to rotenone.

4. No endemic, rare, threatened or otherwise listed species are known to inhabit this area.

5. Protective wear for the eyes, face, body and hands will be available for all purveyors of rotenone.

6. Lakes will be posted according to Department of Ecology guidelines to notify the public of the treatment and discourage the public from possessing or consuming dead fish.

VI. RECREATIONAL IMPACT:

See Section III.

Angler success should reach 4-5 fish/angler on the opener and 2-3 fish/angler sustained harvest for the duration of the season. Yearling trout should average about 11 inches. Carryovers should be expected to be about 10 to 15 percent of the catch and average 13 inches for 2-year-olds and 16 inches for 3-year-olds.

VII. ECONOMIC IMPACTS:

An estimated minimum of 3,000 trips are made to Fish Lake annually as a result of current fish

management. This results in an increased economic impact totaling \$113,435 per year (1991 dollars; based WDW estimate of \$37.90 per trip). If the project is successful for 10 years it will generate a minimum of \$1.1 million in economic activity. The total annual cost to plant this lake with trout fry is less than \$2,000. The rehabilitation will cost the Department about \$42,700 (including costs of rotenone, time, travel, etc.). The investment by the state will be realized after the first year following treatment.

Estimates for the cost of the enforcement action necessary to curtail the activity of the individuals responsible for illegal fish plants are not available. However, this cost might be looked upon as a statewide expenditure since some preventive benefit would certainly occur as perpetrators find out the Department takes illegal transport and planting of fish seriously.

VIII. RELATED MANAGEMENT ACTION:

See Section I.C.6. for fish planting information

A public outreach and education campaign, along with increased penalties and enforcement activities are desirable if WDFW is going to dissuade illegal stocking of state-managed waters. Educating the public about the costs in Department dollars and time with emphasis on what WDFW might be able to accomplish with those resources would be a very worthwhile activity for O & E. This may result in stemming recruitment to this ill advised group and turning local opinion against the offenders.

IX. PUBLIC CONTACT:

Public meetings will be held during July 2012 in Spokane and Olympia to explain WDFW's 2012-13 rehabilitation proposals, assess public opinion, and address local concerns.

Initiated by: Region 1 Fisheries Management