

# **PRE-REHABILITATION PLAN**

## **Ellen Lake (Ferry County)**

### **I. PROPOSAL**

#### **A. Justification for Proposed Rehabilitation**

Ellen Lake has historically been a popular Lowland lake Opening Day trout fishery in the Kettle Falls area. Repeated illegal introductions of largemouth bass have plagued trout production on this lake for the past 20 plus years. Through regulation modification and the use of rotenone to rehabilitate the lake, it is anticipated that this lake will return to a productive trout fishery.

Ellen Lake has been illegally stocked with largemouth bass and green sunfish. The resulting fish population in this lake has provided a limited recreational fishery since the illegal introduction. Ellen Lake has a small amount of appropriate warmwater fish habitat, thus preventing the development of a quality utilizable warmwater fishery. WDFW is proposing to rehabilitate the lake and restock with rainbow trout. Similar to Hatch Lake and Williams Lake in the Colville area, it appears there are anglers that enjoy fishing for bass in Ellen Lake and persist in illegally stocking the fish following our management actions. To combat these "bucket biologists" WDFW enacted the regulation on Ellen Lake to make it "catch and release except for trout". The intent of the new regulation is to make harvesting any species from the lake other than trout illegal. Thus, preventing the illegal introduction of warmwater fish for the sole purpose of prospecting for a few "good" years of fishing on the illegally introduced species that fits a narrow agenda that does not benefit the desired angler demand.

#### **B. Physical Description of Water Proposed for Rehabilitation**

1. WATER: **Ellen Lake**
2. LOCATION: Sec 26 and 27, T37N R36E Ferry County
3. SURFACE ACRES: 82 MAXIMUM DEPTH: 31ft
4. VOLUME: 902 acre-feet; 2,453,440,000 lbs H<sub>2</sub>O
5. OUTLET: None
6. STREAM: N/A
7. PUBLIC ACCESS: Yes
8. LAND OWNERSHIP: PUBLIC 100% (U.S. Forest Service)
9. ESTABLISHED RESORTS: None on lake

#### **C. Proposed Management Actions**

1. WATER: **Ellen Lake**
2. TARGET SPECIES: largemouth bass, green sunfish
3. DATE LAST REHABED: October 2004
4. PROPOSED TREATMENT DATE: September-November, 2008
5. REPLANTING DATE: Spring 2009
6. SPECIES: rainbow trout
7. CATCHABLES: 2,500-10,000 FINGERLINGS: 10,000-30,000
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 1 ppm  
AMOUNT (ROTENONE AT 5% ACT. INGRED): 2400 lbs., 5 gal.
9. METHOD OF APPLICATION: pumper boat slurry and airboat spray
10. CREW DESCRIPTION: Leader(s) Chris Donley, Personnel ~ 6

## **II. PURPOSE:**

The Washington Department of Fish and Wildlife (DFW) provides many types of fisheries in response to public desires. WDFW manages both trout and warmwater recreational fisheries based on many different species of fish and levels of difficulty. 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 the state and local economies.

Alternatives to rehabilitation are costly or impractical. To maintain a comparable fingerling-stocked trout fishery in these waters with catchable-sized fish would take 7,500 – 15,000 catchable rainbow. Stocking catchable sized fish costs almost ten times the cost of a fry plant, and Region One lacks the hatchery space and water to institute a catchable fish-stocking program as a substitute for lake rehabilitation. Spring fry survival in lakes free of competing species ranges from 50-80 percent. Regardless of fish size at stocking, interspecific competition with warmwater fishes limits fish growth and condition significantly. Ultimately, reduced trout recruitment and fish quality lead to an undesirable trout fishery.

## **III. INTENDED OUTCOME/MEASURE OF SUCCESS:**

WDFW intends to restore Ellen Lake to a popular, easily accessible trout fishery based on fingerling-stocked trout. The average catch rates should be 3 to 5 fish/angler on the opener with a sustained harvest of 2 to 3 fish/angler for the duration of the season. Spring fry should be a minimum of 11 inches, and carryover harvest should be 5 to 10 percent of the overall harvest. Success will be measured during Opening Day and random creel contacts and biological surveys. Given a reasonable chance of reducing the populations of undesirable species dramatically, the beneficial effects should 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 incursions across the state in trout only managed lakes.

## **IV. RESOURCE IMPACTS:**

1. The population of the target species, largemouth bass and green sunfish, will be severely and negatively impacted. The aforementioned species are exotic species that are not desired for a fishery under the current lake management plan.
2. Regional Lands, Habitat, Wildlife and Non-Game managers have been appraised 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 herptiles 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 during the planned period of treatment. There will be no loss of a fishery associated with our activities. Ellen Lake will be stocked to provide a fishery with catchable sized rainbow trout in the spring of 2009 prior to the Lowland Lakes Opening Day.

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 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 largemouth bass and green sunfish will also benefit waterfowl through increased production of invertebrates. Stocked populations of trout will not be anywhere near as numerous as the current largemouth bass and green sunfish 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 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 three to five fish per trip 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 2,500 trips made to Ellen Lake as a result of the proposed management action would result in an increased economic impact totaling \$95,000 per year (1991 dollars; based WDW estimate of \$37.90 per trip). If the project is successful for 8 years it will generate a minimum of \$760,000 in economic activity. The total annual cost to plant these lakes with rainbow trout fry is less than \$2,000. The rehabilitation will cost the Department about \$30,000 (including costs of rotenone, time, travel). The investment by the state is realized more than 10-fold in economic activity after the second 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 very seriously.

## **VIII. RELATED MANAGEMENT ACTION:**

See I.C.6. for fish planting data

Increased penalties and enforcement activities are desirable if WDFW is ever 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 WDFW Public Affairs. 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 2008 in Ephrata, Spokane, Colville and Olympia to explain WDFW's 2008-09 rehabilitation proposals, assess public opinion, and address local concerns.

**Initiated by: Region One, District 2 Fisheries Management**