

# **PRE-REHABILITATION PLAN**

## **Williams Lake (Stevens County)**

*March 2017 – B. Baker & B. Walker*

### **I. PROPOSAL**

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

Williams Lake has historically been a popular winter trout fishery in the Colville area. Illegal introductions of nuisance fish species have plagued trout production in this lake for about the past 20 years. Williams Lake has been illegally stocked with Goldfish *Carassius auratus* and Smallmouth Bass *Micropterus dolomieu*, resulting in poor recruitment of the Rainbow Trout *Oncorhynchus mykiss* fry plant (2014-2016) due to competition and predation. Poor survival and growth of trout necessitate the removal of illegally introduced fish species.

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

1. WATER: **Williams Lake**
2. LOCATION: Sec 36, T38N R38E Stevens County
3. SURFACE ACRES: 38 MAXIMUM DEPTH: 47ft
4. VOLUME: 988 acre-feet; 2,687,3600,000 lbs H<sub>2</sub>O
5. OUTLET: Intermittent to wetland
6. STREAM: n/a
7. PUBLIC ACCESS: Yes
8. LAND OWNERSHIP: PUBLIC 60% (WDNR), PRIVATE 40%
9. ESTABLISHED RESORTS: None

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

1. WATER: **Williams Lake**
2. TARGET SPECIES: Goldfish and Smallmouth Bass
3. DATE LAST REHABED: October 2008
4. PROPOSED TREATMENT DATE: October 2017
5. REPLANTING DATE: Spring 2018
6. SPECIES: Rainbow Trout
7. CATCHABLES: 3,800 FRY: 15,000-18,000
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 4 ppm  
AMOUNT (ROTENONE AT 5% ACT. INGRED): 10,404 lbs., 25 gal.
9. METHOD OF APPLICATION: pumper boat slurry and airboat spray
10. CREW DESCRIPTION: Leader(s) Bill Baker, Personnel ~ 6

### **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 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. Winter season trout fisheries provide a relaxed recreational opportunity, give anglers outdoor opportunity during the winter months, and are also integral to the state and local economies.

Alternatives to rehabilitation are costly or impractical. To maintain a comparable fishery in this lake with catchable-sized trout would require around 4,000 stocked annually. Stocking catchable sized fish costs roughly ten times the cost of a fry plant, and WDFW Region 1 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, competition with Goldfish limits trout growth and condition substantially. Ultimately, in the absence of rehabilitation, the current fish community in Williams Lake will negatively affect trout recruitment and quality, leading to a poor trout fishery.

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

WDFW intends to restore Williams Lake to a popular, easily accessible trout fishery based on fry-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 remainder of the fishing season. Success will be measured during Winter Season Opening Day creel, random creel contacts, and biological surveys. Beneficial effects of the treatment should last approximately 8 to 10 years under the current management scheme. 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, Goldfish and Smallmouth Bass, will be severely and negatively impacted. Goldfish are an exotic species and Smallmouth Bass are a warmwater species that is not a desired component of the fishery under the current lake management plan.
2. Regional Lands, Habitat, Wildlife and Non-Game managers have been apprised of the proposed rehabilitation. No unmitigated concerns have been expressed regarding 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 pre-treatment 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. Loss of the 2017 winter fishery in Williams Lake will occur. During the period of treatment, the lake will be closed to angling and other recreational uses such as boating and swimming. The

fishery will resume in the winter of 2018, driven by planted catchable Rainbow Trout during the first year and spring fry plants in subsequent years.

5. Professional biologists and other naturalists have visited these sites frequently over the past 50 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 spring waterfowl nesting. The eradication of Goldfish and Smallmouth Bass will also benefit waterfowl through increased production of invertebrates. The stocked population of trout will not be as numerous as the current Goldfish and Smallmouth Bass populations.

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. Landowners will be notified of the rehabilitation and consequent potential exposure of livestock to rotenone.

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

5. Required personal protective equipment (PPE) will be worn by all staff participating in the rotenone treatment.

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 catch rates should reach 3-5 fish/trip on the opener and 2-3 fish/trip sustained harvest for the duration of the season. Yearling trout should average about 11 inches. Carryovers should make up about 10 to 15 percent of the catch and average 15 inches for 2-year-olds and 18 inches for 3-year-olds.

#### **VII. ECONOMIC IMPACTS:**

An estimated minimum of 960 trips per year made to Williams Lake as a result of the proposed management action would result in an increased economic impact totaling \$38,400 per year (2011 dollars; based USFWS estimate of \$40.00 per trip). If the project is successful for 8 years

it will generate an estimated \$307,000 in economic activity. The total annual cost to plant these lakes with rainbow trout fry is less than \$1,000. The rehabilitation will cost the Department about \$38,500 (including costs of rotenone, time, and travel). The investment by the State will be realized within 2 years of 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 and I.C.7 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 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 2017 in Colville and Olympia to explain WDFW's 2017 rehabilitation proposals, assess public opinion, and address local concerns.

**Initiated by: Region 1, District 1 Fisheries Management**