PRE-REHABILITATION PLAN
Frater Lake (Pend Oreille County)

I. PROPOSAL

A. Justification for Proposed Rehabilitation

Frater Lake has historically been a popular Lowland Lake Opener westslope cutthroat trout fishery in the Colville area. Although the lake is typically iced over or too cold to fish on the last Saturday in April it tends to provide excellent fishing throughout the late spring and summer, filling a niche left behind by lakes that have warmed too much, precluding good trout fishing at lower elevations. Having a lake that provides fishing later into the spring and summer provides for more and varied opportunity for anglers looking to pursue trout in eastern Washington.

Frater was last rehabilitated in 1968 to rid the lake of tench. Since that time it has had low-level infestations of tench and pumpkinseed sunfish, but has consistently produced an excellent cutthroat fishery. In the past decade, cutthroat recruitment steadily declined until stocking was suspended in the fall of 2006. Pumpkinseed sunfish densities increased substantially over the past ten years leading to higher interspecific competition, thus precluding recruitment of cutthroat into the fish population of Frater Lake. Through the use of rotenone to rehabilitate the lake, it is anticipated that this lake will return to a productive westslope cutthroat trout fishery.

B. Physical Description of Water Proposed for Rehabilitation

l. WATER: **Frater Lake**
2. LOCATION: Sec 34, T37N R42E Pend Oreille County
3. SURFACE ACRES: 15 MAXIMUM DEPTH: 15ft
4. VOLUME: 90 acre-feet; 244,800,000 lbs H2O
5. OUTLET: Yes
6. STREAM: Intermittent stream flows to Leo Lake/Pend Oreille Chain Lakes. If intermittent channel is not dry, rotenone treatment will be suspended until there is no flow to Leo Lake.
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: **Frater Lake**
2. TARGET SPECIES: pumpkinseed sunfish, tench
3. DATE LAST REHABED: October 1968
4. PROPOSED TREATMENT DATE: September-November, 2008
5. REPLANTING DATE: Spring 2009
6. SPECIES: westslope cutthroat trout
7. FINGERLINGS: 5,000-6,000 at 200 fish per pound
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 1 ppm
   AMOUNT (ROTENONE AT 5% ACT. INGRED): 480 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 2,500 – 3,500 catchable westslope cutthroat trout. Stocking catchable sized cutthroat costs almost 20 times the cost of a fall fry plant, and Region One lacks the hatchery space and water to institute a westslope cutthroat catchable fish-stocking program as a substitute for lake rehabilitation. Fall cutthroat 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, trout recruitment and fish quality lead to an undesirable trout fishery.

III. INTENDED OUTCOME/MEASURE OF SUCCESS:

WDFW intends to restore Frater Lake to a popular, easily accessible cutthroat 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. Fall fry should be a minimum of 11 inches as yearlings, and carryover harvest should be 0 to 5 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 10 to 12 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 an exotic species that is 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 1,000 trips made to Frater Lake as a result of the proposed management action would result in an increased economic impact totaling $37,900 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 $379,000 in economic activity. The total annual cost to plant these lakes with cutthroat trout fry is less than $1,000. The rehabilitation will cost the Department about $15,000 (including costs of rotenone, time, travel).

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 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 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