LAKE PRE-REHABILITATION PLAN
Little Beaver Lake, Okanogan County

I. PROPOSAL

A. Justification for Proposed Rehabilitation

- Little Beaver Lake is located on USFS property within Okanogan County. It is a small water body, but in normal years, provides an excellent trout fishery in a small lake setting. The recent introduction of yellow perch into Little Beaver has compromised the trout fishery to the point where very few anglers fish the lake anymore. Removal of this competing species and replanting with native trout will help to restore the lake to its former quality trout-only status.

- Management of this water is for trout only.

- Little Beaver was last rehabilitated in September 1980.

B. Physical Description of Water Proposed for Rehabilitation

- WATER: **Little Beaver Lake**
- LOCATION: Sections 30, T39N, R30E, Okanogan Co.
- SURFACE ACRES: 5.5
- MAX. DEPTH: 6 feet
- VOLUME: 35 acre-feet
- OUTLET: Yes, subsurface flow in fall months
- STREAM: MILES 0.5 FLOW Minimal, less than 10 gpm
- PUBLIC ACCESS: USFS campground
- LAND OWNERSHIP: Public 100%
- ESTABLISHED RESORTS: None

C. Proposed Management Actions

- WATER: **Little Beaver Lake**
- TARGET SPECIES: Yellow perch
- DATE LAST REHABILITATED: September 1980
- PROPOSED TREATMENT DATE: October 2012
- REPLANTING DATE: Late summer / early fall 2013
- SPECIES: Westslope cutthroat trout
- STOCKING PLAN: 1,000 1-2" fry-fingerlings
- PROPOSED TOXICANT: Rotenone, powder and liquid
- CONCENTRATION: 4 ppm
- AMOUNT (ROTENONE AT 5% ACT. INGRED): 275 lbs powder and 13 gal liquid
- METHOD OF APPLICATION: pumper boats - slurry and spray; ATV with sprayer; small boat with small sprayer, backpack sprayers, airboat with sprayer
- CREW DESCRIPTION: Leader Robert Jateff, plus ~ 4 other personnel

II. PURPOSE

- Little Beaver Lake has been managed as a quality trout-only fishery since the 1960's. Complete rehabilitation is the only feasible method of restoring this lake to a trout-only management scheme. Removal of all competing species is the goal of the rehabilitation.

III. INTENDED OUTCOME/MEASURE OF SUCCESS

- We intend to restore Little Beaver Lake to its historic trout fishery, and improve its popularity by maintaining quality trout throughout the duration of the season. Success of this measure will be apparent during annual creel surveys and population sampling. Given a reasonable chance of eliminating the populations of undesirable species, the beneficial effects should be noticeable within one to two years post-treatment.

IV. RESOURCE IMPACTS

- Target species: *Yellow perch*

- District and Regional Habitat, Wildlife and Non-Game biologists have been contacted and consulted in regard to our rehabilitation plans. Their concerns with water quality and effects on wildlife post- rehabilitation have been discussed and will be addressed. In specific, there are concerns about nesting black terns and western toads. We will take particular care to observe and monitor these species during and after the rotenone treatment.

- 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 the population 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.

- Participation in the trout fisheries should exceed that currently found for existing fisheries. The water in the lake is used for recreational purposes only. Dead fish along the shoreline will not be a public nuisance since the lake will be closed to fishing and there are no residences on the lake.

V. MITIGATING FOR ADVERSE IMPACTS

- Trout survival and growth will be greatly enhanced. No removal of dead fish is planned as the nutrient base contained therein is best returned to the lake. Disturbance of waterfowl during treatment or by the anticipated fishery will be offset by increased food availability as the uncontrollable numbers of spiny-rayed fishes are eliminated in favor of easily balanced populations of trout.

- Water will be confined to the lake proper, and treatment will be conducted in the fall when the lake is at its lowest level and after the general hunting season so that there are fewer people near treatment area. The inlet and outlet creeks will be treated as well, but there will be no need to detoxify rotenone within outlet creek due to subsurface flow a short distance downstream.

- Protective gear for the eyes, face, hands and clothes will be supplied on-site for all purveyors of rotenone.

- The lake 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. The landowners will be notified of the rehabilitation and consequent exposure of livestock to rotenone.

VI. RECREATIONAL IMPACT

- Recreational angling opportunity will be increased if the undesirable species are removed from Little Beaver Lake. The current low level of participation will continue to dwindle to almost nothing if no action is taken immediately. Given the success of the planned management action, as many as 250 fishing days are estimated for the year long season. Anglers should average 2-3 fish per day within the 10"-12" range, with access to larger carryover trout 14-15 inches.

VII. ECONOMIC IMPACTS

- Rehabilitation would restore the fishery and associated economic activity. An estimated 250 angler trips will be made to Little Beaver Lake as a result of the proposed management action, with an economic impact of $33,000 per year (2004 dollars; based on WDW estimate of $132 per trip). Fingerling fish plants will cost the agency $100 and can be easily accomplished under current hatchery programs.

- The cost of treatment will be approximately $2,000, and the increase in license sales and subsequent boost to the local economy will more than offset that loss within two-three years after treatment.

VIII. RELATED MANAGEMENT ACTION

- Approximately 1,000 fingerling cutthroat trout will be stocked during fall 2013. If catchable cutthroat are available, they will be stocked initially to provide an immediate fishery post-rehab. Creel checks will be done periodically on Little Beaver Lake, as well as monitoring for invasive species. Aggressive techniques will be employed when competing species are first noticed, to help in controlling the population and to reduce the possibility of any future rehab.

IX .PUBLIC CONTACT

- Public concern over the increasing number of lakes in Okanogan County with undesirable species infestations and illegal stocking activities prompted this action.

- A public meeting will be held in Twisp on July 24th at the Aspen Professional Building, 20268 State Route 20 from 7-9 p.m. to discuss the treatment proposal. Letters will also be sent to all property owners as well as water rights holders.

Initiated by: Region Two Fisheries Management