PRE-REHABILITATION PLAN

Starzman Lakes

I. PROPOSAL

A. Justification for Proposed Rehabilitation

- (1-2) Starzman Lakes are good productive waters that provide a small lake angling experience for float fishermen as well as shore anglers. Surveys indicate illegal plants of bluegill, which have compromised the trout fishery in recent years. Competition from non-native species has reduced the average yearling size of trout from 12 inches to 9 inches. Treatment is necessary to restore the lakes to productive trout only waters.

- (3) Primary management of these waters is for trout only.

- (4) Starzman Lakes were successfully treated in 1981 to remove largemouth bass.

B. Physical Description of Water Proposed for Rehabilitation

- WATER: Starzman Lakes (Upper, Middle, Lower)
- LOCATION: Sec 35 and 36, T32N, R24E, Okanogan Co.
- SURFACE ACRES: 18
- MAX. DEPTH: 26
- VOLUME: 252 acre-feet
- OUTLET: Intermittent
- STREAM: MILES N/A FLOW (cfs)
- PUBLIC ACCESS: Department of Natural Resources
- LAND OWNERSHIP: Public 20% Private 80%;
- ESTABLISHED RESORTS: None

C. Proposed Management Actions

- WATER: Starzman Lakes
- TARGET SPECIES: Sunfish (Bluegill)
- DATE LAST REHABED: 1981
- PROPOSED TREATMENT DATE: Oct 2008
- REPLANTING DATE: Late-spring 2009
- SPECIES: Rainbow/Eastern Brook trout
- STOCKING: 4,000 fingerling trout
- PROPOSED TOXICANT: Rotenone, powder and liquid
- CONCENTRATION: 1 ppm
- AMOUNT (ROTENONE AT 5% ACT. INGRED): 680 lbs, 10 gal liquid
- METHOD OF APPLICATION: pumper boats - slurry and spray; ATV with sprayer; small boat with small sprayer, backpack sprayers
- CREW DESCRIPTION: Leader Robert Jateff, Personnel 6-8

II. PURPOSE:

- Starzman Lakes have been managed as good quality production trout waters since the 1970's. Complete rehabilitation is the only feasible method of restoring these lakes to the 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 Starzman Lakes to its historic trout fishery, and improve its popularity by maintaining good 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 one-two years post treatment.

IV. RESOURCE IMPACTS:

- Target species: sunfish (bluegill)

- District and Regional Habitat, Wildlife and Non-Game biologists have been appraised of our rehabilitation plans and have no immediate concerns.

- 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 average 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 recreation. Dead fish along the shoreline will not be a public nuisance since the lake will be closed to fishing.

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.

- 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: also see I.A., II and III

- Recreational angling opportunity will be increased if the undesirable species are removed from Starzman Lakes. The level of participation will dwindle to almost nothing if no action is taken immediately. Given the success of the planned management action, as

many as 200 fishing days are estimated for the season. Anglers should average 2-3 fish per day within the 11”-12” range.

VII. ECONOMIC IMPACTS:

- Rehabilitation would restore the fishery and associated economic activity. An estimated 200 angler trips will be made to Starzman Lakes as a result of the proposed management action, with an economic impact of $26,400 per year (2004 dollars; based on WDW estimate of $132 per trip). Fingerling plants will cost the agency $560, and can be easily accomplished under current hatchery programs.

- The cost of treatment will be approximately $2,000, but 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 4,000 fingerling rainbow/eastern brook trout will be stocked alternately each spring. Creel checks will be done annually on Starzman Lakes, 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 prompted this action.

- A public meeting was held in Ephrata on Tuesday, July 15th at 7pm at the WDFW Regional Office. Letters have also been written to each individual landowner.

Initiated by: Region Two Fisheries Management