

# PRE-REHABILITATION PLAN

## Beda Lake

### I. PROPOSAL

#### A. Justification for Proposed Rehabilitation

Beda Lake, located along the Winchester Wasteway and west of Potholes Reservoir, has historically and is currently managed as a trout fishery. Beda Lake has produced a popular trout fishery since its formation in the mid-1960's. Like most wetlands in the Columbia Basin, Beda Lake formed after groundwater tables rose following irrigation development. During the first years of stocking, anglers averaged 5-6 fish per trip. Catch rates leveled off to around 3 fish/angler during the early 1970's. Beda Lake is currently managed as a "quality" trout fishery with a selective gear regulation and year-round season.

Definitive numbers are not available for a comparison of current and past recreational angling activity at Beda Lake. Seasons have always extended year around, so no opening day creel surveys have been done on a regular basis, and angler checks have been sporadic over the years.

Beda Lake is a walk-in fishery, which attracts anglers looking for a "quality" experience when fishing is good. When predatory and competing species are suppressed, these waters are productive enough to be popular with fly fishers.

Sunfish were discovered in Beda Lake in the mid-1970's, and catch rates dropped to about one fish per trip. Largemouth bass were illegally introduced into Beda Lake in the late 1980's, and the lake gained some local notoriety as a fair bass fishery during the early 1990's while the rainbow catch dropped to about 0.3 fish/angler. Beda Lake was restored to trout fishery in 1996 through rehabilitation, and catch rates as well as angler participation increased dramatically. However, the rehabilitation was done in spring, and high water levels prevented a thorough treatment. Bass were eradicated, but sunfish persisted, and the fishery began to decline again in 1998. Another rehabilitation was completed for Beda in the fall of 2000 when water levels were lowest. This treatment was more effective, and the fishery lasted at least five years before sunfish again began to have an impact on fingerling survival. The fishery has been managed through stocking larger fish purchased from private hatcheries (Trout Lodge) the last few years.

Despite four rehabilitations at Beda Lake, pumpkinseed sunfish have persisted. The cause for poor trout survival has been a corresponding increase in pumpkinseed sunfish, which compete for the food base. These fish have become so numerous that large schools of sunfish were readily observed in the shallows during the summer. Anglers frequently reported catching the larger sunfish while angling in the shallows for trout. Eventually, the numbers of sunfish competing for the same resources out-stripped lake productivity, and growth of all fish declined.

As many of the lakes in this area, Beda Lake is fed by subsurface seeps. These seeps, along with the dense fringe of emergent vegetation, probably provide freshwater havens for the targeted species during treatment. There is no surface connection between these waters and the wasteway

to allow fish passage. Illegal introductions are undoubtedly the origin of unwanted species in these waters.

Proximity to the wasteway, the resultant springs, and the dense aquatic and emergent vegetation have made this a difficult rehabilitation in the past. Treatment will be attempted in September or very early October, if possible, when the wasteway is at its lowest flow and presumably subterranean flows to Beda Lake would also be diminished. Water levels in Beda Lake will also be their lowest during this time period, and there will be less inundation of the fringe emergent vegetation. Aquatic vegetation will, unfortunately, be at peak growth and will require greater amounts of liquid rotenone for effective treatment. The waters of these lakes will still be quite warm, reducing the period of toxicity; however, the target species metabolism will also be very high, and the impact of the pesticide should be enhanced.

Alternatives to rehabilitation are costly or impractical. Stocking catchable sized fish cost almost ten times the cost of a fry plant, and Region Two lacks the hatchery space and water to institute a catchable fish stocking program. Optimistic estimates of survival of 4-6 inch advanced fry in larger mixed species waters range from 10-20 percent. Spring fry survival in lakes free of competing species ranges from 50-80 percent. It has been 9 years since the last treatment of these lakes. WDFW policy states that lake rehabilitation is an option for eliminating illegally planted fish to restore the intended management scheme.

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

1. WATER: **Beda Lake**
2. LOCATION: Sec 15,22 T18N R26E Grant Co.
3. SURFACE ACRES: 50    MAX. DEPTH: 25
4. VOLUME: 350.6 acre-feet; 952,981,286 lbs H<sub>2</sub>O
5. INLET STREAM: subterranean flow.
6. OUTLET STREAM: none
7. PUBLIC ACCESS: Entire Lake, walk in only, no facilities.
8. LAND OWNERSHIP: Public 100%
9. ESTABLISHED RESORTS: None

## **C. Proposed Management Actions**

1. WATER: **Beda Lake**
2. TARGET SPECIES: pumpkinseed sunfish
3. DATE LAST REHABED: April 10-11, 2000
4. PROPOSED TREATMENT DATE: September - October 2010
5. REPLANTING DATE: spring 2011
6. SPECIES: rainbow trout
7. CATCHABLES: 2-3,000 if available    FINGERLINGS: 5,000
8. PROPOSED TOXICANT: Powdered and/or Liquid Rotenone
9. CONCENTRATION: ≤ 2.5 ppm
10. AMOUNT (ROTENONE AT 5% ACT. INGRED): Option 1 (2,384lbs and 90 gal) Option 2

(231 gal)

11. METHOD OF APPLICATION: Option 1 (boat/ATV) Option 2 (ATV/helicopter spray)

12. CREW DESCRIPTION: Leader(s) Chad Jackson + 3-5 crew

**Total Toxicant** (ROTENONE AT 5% ACT. INGRED) = Option 1 (2,384lbs and 90 gal) Option 2 (231 gal)

## **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 trout fisheries is very high. These fisheries are prized by anglers willing to sacrifice harvest for the chance to catch and release larger fish. Beda Lake is a favorite among the fly fishing crowd.

Beda Lake is most successfully and economically managed as lowland lake trout waters since their formation in the early 1960's, and since 1996 as selective fisheries managed for above average catch rates, large yearling trout, and higher than average carryover rates. Management intends to return this lake to a trout fishery, as per the Management Plans established almost two decades ago. Rehabilitation will eliminate or drastically reduce interspecific competition and allow the trout fisheries to flourish.

Complete rehabilitation is the only feasible method of restoring these waters to this type of management scheme. The cost of stocking trout large enough to mimic the situation developed under current management would be 30 times as great just for the feed needed at the hatchery, and the quality of the resultant fish would not compare favorably in anglers' minds with fish grown in the lakes.

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

WDFW intends to restore Beda Lake back to a popular and quality trout fishery. The average catch rates should be at least five to ten 14 inch yearling trout per angler and a 20 per cent carryover rate. Success of this measure will be apparent through angler contacts at the office, at club functions, and periodic angler checks at the lakes. 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. Aside from reasons listed under Resource, Recreational and Economic Impacts, to abandon these lakes as trout fisheries is to invite other incursions across the state.

## **IV. RESOURCE IMPACTS:**

1. Target species: Pumpkinseed sunfish

2. District and Regional Habitat, Wildlife and Non-Game biologists have been appraised of current rehabilitation plans. No substantial objections were raised, and only cautionary concerns were 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. Loss of the year 2011 fishery may ensue if catchable sized trout are unavailable for stocking for the season. The fingerling-based fishery will again be available by the spring of 2012. Hunting may be curtailed during the treatment (about 2-4 days). The lakes will be closed to angling, and other recreational uses such as boating, and swimming will be curtailed during the planned period of treatment. These waters are not a source of potable water for humans.

5. Professional biologists and other naturalists have visited this site frequently over the past 40 years. To our knowledge, no endemic, rare, threatened or otherwise listed species have been documented nor will any be impacted by the rehabilitation.

## **V. MITIGATING FOR ADVERSE IMPACTS:**

1. Provided catchable-sized fish are available the following spring, no loss of recreational fishing time will occur for Beda Lake. Trout fry survival and growth will be greatly enhanced, and future trout fisheries will attain their previous status. No removal of dead fish is planned as the nutrient base contained therein is best returned to the lake.

Fall rehabilitation will not interfere with waterfowl spring nesting. The eradication of spiny-ray fishes would also benefit waterfowl through increased production of invertebrates. Stocked populations of trout will not be anywhere near as numerous as the current spiny-ray population. It is in the interest of all species being managed to refrain from over-taxing the food-base.

2. No downstream resources exist.

3. No endemic, rare, threatened or otherwise listed species are known from this area.

4. Protective wear for the eyes, face and hands will be available for all purveyors of rotenone.

5. The 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: also see I.A., II and III**

Recreational angling opportunity will be increased if the spiny-rayed fishes are removed from Beda Lake and fingerling trout stocking programs are reinstated. Given the success of the planned management action, 1,000 angler trips are conservatively estimated for the season. Anglers' catch should average about five to ten fish per trip. Yearling trout should average about 13-14 inches. Carryovers should be expected to be about 15-20 percent of the catch, and average 16-17 inches for 2-year-old fish.

## **VII. ECONOMIC IMPACTS:**

An estimated 1,000 trips made to these lakes as a result of the proposed management action would result in an increased economic impact totaling \$37,900 per year (1991 dollars; based WDFW estimate of \$37.90 per trip). Currently, it costs over \$12,000 per year to stock the larger fish necessary to attract anglers to this venue. After rehabilitation, the total annual costs to Columbia Basin Hatchery to plant these lakes with 4,000 catchable rainbow the first year is \$2,600 and 7,000 fingerlings each year thereafter is \$600 per annum. The rehabilitation will cost the Department about \$20,000 (including costs of rotenone, time, travel). Even if rehabilitations occur every five years, the cost of fingerling plants (5 yrs.), catchables for the season after rehabilitation, and the rehab totals \$25,600. During this same five years, the fishery would generate almost \$200,000 to the state's economy.

The cost to manage these waters for the same five year period with annual plants of larger fish (about 4,000 fish per year) is generously (in terms of trout survival) estimated at \$60,000. However, interactions between spiny-rayed species and trout are much less predictable, and a comparable program would not result. In addition, stocking catchable-sized trout does not produce as desirable a fishery in the angler's eye as fingerling stocking programs; this is particularly true of the clientele at Beda and Brookies lakes.

Further, hatchery space and water are fully utilized in accomplishing the current program. If greater numbers of catchable fish were to be raised, many other waters would suffer cutbacks in current planting allotments. The additional Department investment in hatcheries, and management time to manage our fisheries in this manner would be considerable in the long term.

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:**

Beda Lake will be stocked with 5,000 rainbow trout fingerlings @ < 100/lb. Provided the fish are available, 2-3,000 catchable-sized rainbow trout will be stocked for the 2011 season. Creel checks and population surveys will be made as time is available.

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:**

A public hearing will be held on July 28<sup>th</sup>, 2010 to explain Region 2's 2010 rehabilitation proposals, assess public opinion, and address local concerns. The announcement will be provided to area papers and radio stations at least a week in advance of the meeting. With many of the lake's users living outside Grant County, actual percentages pro and con are difficult to obtain. Public support may be best judged by the number of participants in the fishery (vis a vis Recreational Impacts).

Initiated by: Region Two Fisheries Management