PRE-REHABILITATION PLAN

Desert, North Desert, Harris, Dune, Sedge, Tern, Aztec, Meadowlark, and Lizard Lakes and the Desert Wildlife Ponds
(*Updated July, 2008 Jeff Korth*)

I. PROPOSAL

A. Justification for Proposed Rehabilitation

The Desert Lakes include **Desert, North Desert, Harris, Dune, Sedge, Tern, Aztec, Meadowlark, and Lizard Lakes** and numerous, small unnamed ponds (**Desert Wildlife Ponds**) in the vicinity, west of the Winchester Wasteway, These waters have been popular trout fisheries since their creation in the mid-1960's. These walk-in fisheries attract anglers looking for a 'quality' experience. Seasons extend year around, so no opening day creel surveys have been done, and angler interviews have been sporadic over the years. However, recreational use data for the Desert Wildlife Management Area has been collected since the late 1970's.

During the first years of planting, anglers averaged 5-6 fish per trip. Catch rates settled down to about 3 fish/angler during the early 1970's. Surveys conducted during 1977 estimated that the majority (42%) of the activity in the Desert Wildlife Management Area was due to fishing. The Area received a total of 4,892 angling trips and yielded a catch of 12,130 trout. The average catch was 2.5 per trip and averaged about 0.6 fish per hour, and has since declined substantially.

In conjunction with the State's increasing population, all types of use on the Desert Wildlife Area have increased dramatically during the last decade. Total angling alone is estimated to average about 15,000 trips per season when these lakes have good fisheries. Yet angling activity as a percentage of the whole has decreased from around 40 percent during the late 1970's to about 30 percent currently of the total use. Once productive enough to be popular with fly fishers and others looking for a quality angling experience, the proposed waters rarely attract those anglers anymore. Gill netting surveys conducted during 1995 and 2007 revealed that small sunfish, bluegill, and bass represented most of the fish life in these lakes. These species entered some waters from Winchester Wasteway before those lakes were isolated. Illegal introductions account for the remaining waters. A few trout were extant in only three of these lakes. Catch rates were about one fish or less per trip. The exception was Desert Lake, which had a good population of largemouth bass ranging in size from 2-4 lbs each.

Some progress has been made in reclaiming these trout waters. The largest lake among these waters, Desert Lake, has been rehabilitated several times when first isolated from the Wasteway. The treatment of Harris Lake was completed in 1997, and a very good fishery ensued for about seven years. The smaller waters have only been contaminated through illegal introductions during recent times, and the proposed rehabilitation will be their first. These waters' potential to produce viable game fisheries has been well established in the past. These waters are also under consideration for selective fisheries regulations.

The Desert lakes had been proposed and approved for rehabilitation during 1997-98. High water levels in the spring of 1997 prevented most of the treatments from being carried out, and it was later discovered that new levees would have to be constructed before other remaining waters could be successfully treated. Several excavation and levee projects have since been accomplished, eliminating surface connections between theses waters and the Winchester Wasteway that occur during high water periods. This work and the creation of the smaller ponds were done in cooperation of both Wildlife and Fisheries Programs, and accomplished primarily through the use of waterfowl funds. The smaller ponds, collectively called the Desert Wildlife Ponds (TD–02), were created to enhance waterfowl breeding, brood rearing, and molting habitats and to benefit other species that require early succession vegetation. Removal of fish from these waters will increase invertebrate production and enhance food availability for desired aquatic invertebrates, breeding and molting ducks, and other species of wildlife.

An unknown, but very high percentage (estimate 80-90%), of wetlands in the Desert Wildlife Area (DWA) are in a very late stage of succession. Species of animals adapted to a late stage dominate the fauna of the DWA. Species adapted to an early stage of succession are absent from much of the DWA and are continuing to decrease in abundance. The management goal is to restore a more "balanced" wetland obligate fauna in the DWA. Early successional stage wetlands are now rare on the DWA. Ponds within another part of the Desert (North Potholes Reserve) were treated with rotenone in Sept.1981 to remove undesirable fish species including carp and provide the opportunity for a managed fish population of warm-water (spiny-ray) species to provide a sport fishery. Breeding and molting duck use increased dramatically post-treatment. Numbers of duck broods and molting adults peaked at very high levels in 1985-86 and declined annually to pre-treatment (very low) numbers by summer of 2003. Large numbers of carp were observed in waters of NPR by the mid-1990s. The dominance of carp and pumpkinseed fish is the likely cause of the dramatic decline in observed duck use.

B. Physical Description of Waters Proposed for Rehabilitation

l. WATER: **Aztec Lake**
2. LOCATION: Sec 27 T18N R26E Grant Co.
3. SURFACE ACRES: 3 MAX. DEPTH: 15
4. VOLUME: 25 acre feet; 67,953,600 lbs water
5. INTLET: none
6. OUTLET: none FLOW (cfs) NA
7. PUBLIC ACCESS: Entire Lake
8. LAND OWNERSHIP: PUBLIC 100%; PRIVATE 0%
9. ESTABLISHED RESORTS: None

l. WATER: **Desert Lake**
2. LOCATION: Sec 31 T18N R27E Grant Co.
3. SURFACE ACRES: 42 MAX. DEPTH: 15
4. VOLUME: 195 acre feet; 530,038,080 lbs water
5. INTLET: none
6. OUTLET: none FLOW (cfs) NA
7. PUBLIC ACCESS: Entire Lake

8. LAND OWNERSHIP: PUBLIC 100%; PRIVATE 0%
9. ESTABLISHED RESORTS: None

l. WATER: **North Desert Lake**
2. LOCATION: Sec 31 T18N R27E Grant Co.
3. SURFACE ACRES: 3 MAX. DEPTH: 15
4. VOLUME: 25 acre feet; 67,953,600 lbs water
5. INTLET: none
6. OUTLET: none FLOW (cfs) NA
7. PUBLIC ACCESS: Entire Lake
8. LAND OWNERSHIP: PUBLIC 100%; PRIVATE 0%
9. ESTABLISHED RESORTS: None

l. WATER: **Harris Lake**
2. LOCATION: Sec 36 T18N R26E Grant Co.
3. SURFACE ACRES: 39 MAX. DEPTH: 20
4. VOLUME: 353 acre feet; 958,961,203 lbs water
5. INTLET: none
6. OUTLET: none FLOW (cfs) NA
7. PUBLIC ACCESS: Entire Lake
8. LAND OWNERSHIP: PUBLIC 100%; PRIVATE 0%
9. ESTABLISHED RESORTS: None

l. WATER: **Dune Lake**
2. LOCATION: Sec 36 T18N R26E Grant Co.
3. SURFACE ACRES: 8 MAX. DEPTH: 15
4. VOLUME: 70 acre feet; 190,270,080 lbs water
5. INTLET: none
6. OUTLET: none FLOW (cfs) NA
7. PUBLIC ACCESS: Entire Lake
8. LAND OWNERSHIP: PUBLIC 100%; PRIVATE 0%
9. ESTABLISHED RESORTS: None

l. WATER: **Lizard Lake**
2. LOCATION: Sec 6 T17N R27E Grant Co.
3. SURFACE ACRES: 3 MAX. DEPTH: 15
5. VOLUME: 25 acre feet; 67,953,600 lbs water
5. INTLET: none
6. OUTLET: none FLOW (cfs) NA
7. PUBLIC ACCESS: Entire Lake
8. LAND OWNERSHIP: PUBLIC 100%; PRIVATE 0%
9. ESTABLISHED RESORTS: None

l. WATER: **Meadowlark Lake**
2. LOCATION: Sec 6 T17N R27E Grant Co.

3. SURFACE ACRES: 3 MAX. DEPTH: 15
4. VOLUME: 25 acre feet; 67,953,600 lbs water
5. INTLET: none
6. OUTLET: none FLOW (cfs) NA
7. PUBLIC ACCESS: Entire Lake
8. LAND OWNERSHIP: PUBLIC 100%; PRIVATE 0%
9. ESTABLISHED RESORTS: None

l. WATER: **Sedge Lake**
2. LOCATION: Sec 36 T18N R26E Grant Co.
3. SURFACE ACRES: 9 MAX. DEPTH: 15
4. VOLUME: 85 acre feet; 231,042,240 lbs water
5. INTLET: none; connected to Tern Lake
6. OUTLET: none FLOW (cfs) NA
7. PUBLIC ACCESS: Entire Lake
8. LAND OWNERSHIP: PUBLIC 100%; PRIVATE 0%
9. ESTABLISHED RESORTS: None

l. WATER: **Tern Lake**
2. LOCATION: Sec 36 T18N R26E Grant Co.
3. SURFACE ACRES: 8 MAX. DEPTH: 15
4. VOLUME: 70 acre feet; 190,270,080 lbs water
5. INTLET: none; connected to Sedge Lake
6. OUTLET: none FLOW (cfs) NA
7. PUBLIC ACCESS: Entire Lake
8. LAND OWNERSHIP: PUBLIC 100%; PRIVATE 0%
9. ESTABLISHED RESORTS: None

l. WATER: **Desert Wildlife Ponds** (16 ponds).
2. LOCATION: Sec 31 T18N, R27E, Grant Co.
3. SURFACE ACRES: 21 MAXIMUM DEPTH: 6 feet
4. VOLUME: 115 acre feet; 312,586,560 lbs water
5. OUTLET: None. Natural and man-made dikes separate waters (16 separate ponds) in the proposed treatment area (TA) from the Lakes and Winchester Wasteway.
6. STREAM: None FLOW: N/A
7. PUBLIC ACCESS: Entire Area.
8. LAND OWNERSHIP: PUBLIC 100% PRIVATE 0 %
9. ESTABLISHED RESORTS: None

C. Proposed Management Actions

1. WATER: **Aztec Lake**

2. TARGET SPECIES: pumpkinseed sunfish, bluegill, largemouth bass
3. DATE LAST REHABED: never rehabed
4. PROPOSED TREATMENT DATE: September – October 2008
5. REPLANTING DATE: Spring 2009
6. SPECIES: rainbow trout
7. CATCHABLES: 0 FRY: 300
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 2 ppm
AMOUNT (ROTENONE AT 5% ACT. INGRED): 67 lbs., 10 gal.
9. METHOD OF APPLICATION: pumper boat slurry and airboat/ATV/helicopter spray
10. CREW DESCRIPTION: Leader(s) Jeff Korth Personnel ~ 6

1. WATER: **Desert Lake**
2. TARGET SPECIES: pumpkinseed sunfish, bluegill, largemouth bass
3. DATE LAST REHABED: March, 1984
4. PROPOSED TREATMENT DATE: September – October 2008
5. REPLANTING DATE: Spring 2009
6. SPECIES: rainbow trout
7. CATCHABLES: 0 FRY: 8,000
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 1.5 ppm
AMOUNT (ROTENONE AT 5% ACT. INGRED): 525 lbs., 30 gal.
9. METHOD OF APPLICATION: pumper boat slurry and airboat/ATV/helicopter spray
10. CREW DESCRIPTION: Leader(s) Jeff Korth Personnel ~ 6
Note: Desert Lake may be excluded from treatment if further surveys confirm a well-balanced population of warmwater fish.

1. WATER: **North Desert Lake**
2. TARGET SPECIES: pumpkinseed sunfish, bluegill, largemouth bass
3. DATE LAST REHABED: March, 1984
4. PROPOSED TREATMENT DATE: September – October 2008
5. REPLANTING DATE: Spring 2009
6. SPECIES: rainbow trout
7. CATCHABLES: 0 FRY: 300
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 2 ppm
AMOUNT (ROTENONE AT 5% ACT. INGRED): 67 lbs., 10 gal.
9. METHOD OF APPLICATION: pumper boat slurry and airboat/ATV/helicopter spray
10. CREW DESCRIPTION: Leader(s) Jeff Korth Personnel ~ 6

1. WATER: **Harris Lake**
2. TARGET SPECIES: pumpkinseed sunfish, bluegill, largemouth bass
3. DATE LAST REHABED: March, 1997
4. PROPOSED TREATMENT DATE: September – October 2008
5. REPLANTING DATE: Spring 2009
6. SPECIES: rainbow trout
7. CATCHABLES: 0 FRY: 8,000
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 1.5 ppm
AMOUNT (ROTENONE AT 5% ACT. INGRED): 950 lbs., 30 gal.

9. METHOD OF APPLICATION: pumper boat slurry and airboat/ATV/helicopter spray
10. CREW DESCRIPTION: Leader(s) Jeff Korth Personnel ~ 6

1. WATER: **Dune Lake**
2. TARGET SPECIES: pumpkinseed sunfish, bluegill, largemouth bass
3. DATE LAST REHABED: never rehabed
4. PROPOSED TREATMENT DATE: September – October 2008
5. REPLANTING DATE: Spring 2009
6. SPECIES: rainbow trout
7. CATCHABLES: 0 FRY: 2,000
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 1.5 ppm
   AMOUNT (ROTENONE AT 5% ACT. INGRED): 190 lbs., 20 gal.
9. METHOD OF APPLICATION: pumper boat slurry and airboat/ATV/helicopter spray
10. CREW DESCRIPTION: Leader(s) Jeff Korth Personnel ~ 6

1. WATER: **Lizard Lake**
2. TARGET SPECIES: pumpkinseed sunfish, bluegill, largemouth bass
3. DATE LAST REHABED: never rehabed
4. PROPOSED TREATMENT DATE: September – October 2008
5. REPLANTING DATE: Spring 2009
6. SPECIES: rainbow trout
7. CATCHABLES: 0 FRY: 500
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 2 ppm
   AMOUNT (ROTENONE AT 5% ACT. INGRED): 67 lbs., 10 gal.
9. METHOD OF APPLICATION: pumper boat slurry and airboat/ATV/helicopter spray
10. CREW DESCRIPTION: Leader(s) Jeff Korth Personnel ~ 6

1. WATER: **Meadowlark Lake**
2. TARGET SPECIES: pumpkinseed sunfish, bluegill, largemouth bass
3. DATE LAST REHABED: never rehabed
4. PROPOSED TREATMENT DATE: September – October 2008
5. REPLANTING DATE: Spring 2009
6. SPECIES: rainbow trout
7. CATCHABLES: 0 FRY: 500
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 2 ppm
   AMOUNT (ROTENONE AT 5% ACT. INGRED): 67 lbs., 10 gal.
9. METHOD OF APPLICATION: pumper boat slurry and airboat/ATV/helicopter spray
10. CREW DESCRIPTION: Leader(s) Jeff Korth Personnel ~ 6

1. WATER: **Sedge Lake**
2. TARGET SPECIES: pumpkinseed sunfish, bluegill, largemouth bass
3. DATE LAST REHABED: never rehabed
4. PROPOSED TREATMENT DATE: September – October 2008
5. REPLANTING DATE: Spring 2009

6. SPECIES: rainbow trout
7. CATCHABLES: 0 FRY: 2,000
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 1.5 ppm
AMOUNT (ROTENONE AT 5% ACT. INGRED): 230 lbs., 20 gal.
9. METHOD OF APPLICATION: pumper boat slurry and airboat/ATV/helicopter spray
10. CREW DESCRIPTION: Leader(s) Jeff Korth Personnel ~ 6

1. WATER: **Tern Lake**
2. TARGET SPECIES: pumpkinseed sunfish, bluegill, largemouth bass
3. DATE LAST REHABED: never rehabed
4. PROPOSED TREATMENT DATE: September – October 2008
5. REPLANTING DATE: Spring 2009
6. SPECIES: rainbow trout
7. CATCHABLES: 0 FRY: 2,000
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 1.5 ppm
AMOUNT (ROTENONE AT 5% ACT. INGRED): 190 lbs., 20 gal.
9. METHOD OF APPLICATION: pumper boat slurry and airboat/ATV/helicopter spray
10. CREW DESCRIPTION: Leader(s) Jeff Korth Personnel ~ 6

1. WATER: **Desert Wildlife Ponds** (16 ponds).
2. TARGET SPECIES: pumpkinseed sunfish, bluegill, largemouth bass
3. DATE LAST REHABED: never rehabed
4. PROPOSED TREATMENT DATE: September – October 2008
5. REPLANTING DATE: none
6. SPECIES: rainbow trout
7. CATCHABLES: 0 FRY: 0
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 1.5 ppm
AMOUNT (ROTENONE AT 5% ACT. INGRED): 310 lbs., 30 gal.
9. METHOD OF APPLICATION: pumper boat slurry and airboat/ATV/helicopter spray
10. CREW DESCRIPTION: Leader(s) Jeff Korth Personnel ~ 6

II. PURPOSE:

The rehabilitation of these waters will accomplish two purposes -

The larger waters have been most successfully and economically managed as trout fisheries. Remote, walk-in access and either spring or fall fry plants have successfully created extended angling opportunity for this year-around fishery in the past. Periodic rehabilitations are the most expedient manner of controlling the minions of spiny-rayed fishes and have been necessary due to incomplete kills and illegal introductions. The warmwater fishery as it exists has not maintained the same amount of recreation, as evidenced by the corresponding decline angler participation.

Rehabilitation of all waters, but especially the Desert Wildlife Ponds serves the purposes of wildlife and waterfowl management. Removal of carp, bass, bluegill and pumpkinseed fish will

increase invertebrate production and enhance food availability for desired aquatic invertebrates, breeding and molting ducks, and other species of wildlife.

III. INTENDED OUTCOME/MEASURE OF SUCCESS:

WDFW intends to restore the Desert lakes to a popular, 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 surveys 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.

Wildlife surveys have been conducted every year during the month of May since the project began. These surveys are conducted to determine if wildlife species diversity and composition changes occur after the wetland enhancement project began. Annual wildlife surveys will continue to be conducted during May to determine wildlife use in the area. Additional wildlife surveys may be conducted during spring and fall to attempt to evaluate migratory bird use. With the return of the project ponds to an early succession stage, we expect an increase in the species diversity of the area. Waterfowl surveys will be conducted in May (pair counts), July (duck brood count), August (molting ducks), and Oct.-Jan. (monthly aerial surveys for migrant/wintering waterfowl).

IV. RESOURCE IMPACTS:

1. Target species: Pumpkinseed sunfish; Bluegill; Largemouth Bass

2. Regional Habitat, Wildlife and Non-Game biologists have been appraised of our rehabilitation plans. The only concern of consequence is for the northern leopard frog (*Rana pipiens*), which is found extensively north and west of Potholes Reservoir, including the Frenchman and Winchester wasteways and all of the Desert lakes. The northern leopard frog is listed as a State Endangered Species in Washington State, and on the federal species of concern list.

3. Lake rehabilitations in the Desert Lakes may have some potential detrimental effect on the population of northern leopard frogs in the treated water. While relatively tolerant of even heavy doses of rotenone, amphibians (especially larval) are at risk, and herptiles are affected somewhat less so (Bradbury, 1986). Live adult northern leopard frogs have been observed among freshly killed carp at the Homestead Lake rehabilitation. Rotenone levels were double those proposed for the desert lakes, yet the adult frogs did not appear affected. The lakes and smaller marshes in the desert are in very close proximity to one another, and many adults would be able to escape to adjacent waters. After treatment, re-colonization would be rapid. There is no chance of eliminating an entire population. Frogs that re-enter the previously treated lakes would have fewer competitors for aquatic organisms since the overly abundant populations of spiny-ray fishes would be eliminated or severely diminished. Trout are stocked at much lower rates and competition would be reduced. Thus the overall effect of rehabilitation on the population of

northern leopard frogs as a whole would be beneficial.

Timing the treatment for the fall will lessen impacts to the larval stages of the northern leopard frog. Northern leopard frogs commence reproductive activities in the Spring when water temperatures reach around 50 F. While egg development may also occur at around 50 F, the average is probably higher (Nussbaum, Brodie, and Storm. Amphibians and Reptiles of the Pacific Northwest). Spring rehabilitations are usually done when water temperatures remain in the 40's F to precede the spawning of the target fishes; however, high water flows preclude treatments at these sites. Rotenone is ineffective in killing animals in the egg stage. Timing of treatments for the autumn will allow most leopard frog larva to metamorphose into adult frogs, which will be unaffected by rotenone at piscicidal levels. We believe that the treatment of these waters would not cause significant negative impacts to the northern leopard frog.

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.

These waters are not a source of potable water for humans or livestock. The area will be closed to fishing, and other recreational uses such as wildlife viewing will be curtailed during the planned period of treatment. The fishery will again be available by fall 2009. Participation in the trout fisheries will exceed that currently found for existing fisheries. An expected increase in angler traffic may disrupt waterfowl use. However, management plans for these waters intend to keep activity low key and consistent by maintaining the year around season and walk-in only access, keeping disturbance to a minimum. Creating a successful wetland enhancement and quality waterfowl hunting area risks increased human use of the area and the associated impacts to habitat and wildlife. There is a potential for conflicts to arise between waterfowl hunters and anglers.

4. Professional biologists and other naturalists have visited this site frequently over the past 40 years. The WDFW Habitat and Wildlife Programs and PHS maps have been consulted. To our knowledge, no endemic, rare, threatened or otherwise listed species will suffer significant negative impacts from the rehabilitation (see above discussion of the northern leopard frog).

V. MITIGATING FOR ADVERSE IMPACTS:

1. Trout fry survival and growth will be greatly enhanced, and future trout fisheries will attain their previous status. This outcome more than mitigates the small loss of angling currently planned for elimination or other human recreation during the planned time of rehabilitation.

Waterfowl breeding, brood rearing, molting, and wintering habitat for all the proposed waters will be greatly enhanced. Human disturbance resulting from the fisheries on adjacent lakes will be managed by limiting access to off-site parking areas to preserve the walk-in fishery. Rehabilitation will be completed before the nesting season begins. The Desert Wildlife Area is made up of diverse habitats and is home to much and varied wildlife, all of which would benefit from the increased production after pumpkinseed removal. No removal of dead fish is planned as the nutrient base contained therein is best returned to the lake.

It is in the interest of all species being managed to refrain from over-taxing the foodbase.

2. No downstream resources exist.

3. Besides the northern leopard frog, other species of concern known to inhabit this area include the Black Tern, Bald Eagle, Sagebrush Lizard, Sage Thrasher, American White Pelican, and White-tailed Jackrabbit. The proposed treatment is not expected to have significant negative impacts to these species.

4. Protective wear for the eyes, face and hands will be available for all applicators 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 opportunity will be increased. Based on past use and accounting for increased demand, about 200 additional angler trips/week during the months of April through September will occur on these waters. Approximately 5,000 recreation-days will be produced. Angler success should reach three fish per angler. Yearling trout should average about 14 inches. Carryovers should be expected to be about 20% of the catch, and average 15 inches for 2-year-odds and 18 inches for 3-year-olds.

The number of waterfowl hunting trips would be expected to increase, but an estimate of the magnitude of the increase would be difficult to predict. Rehabilitation of the ponds associated with TD –02 would increase the available waterfowl wintering habitat, waterfowl hunting opportunities, wildlife viewing, and economic activity associated with these types of recreation. Based on past use and accounting for increased demand, at least 200 recreation-days will be produced. The increased number of ducks produced in the waters to be treated will be available to hunters during the waterfowl hunting seasons.

VII. ECONOMIC IMPACTS:

An estimated 5,000 additional trips made to these lakes as a result of the proposed management action would result in an increased economic impact totaling $189,500 per year to the state's economy (1991 dollars; based DFW estimate of $37.90 per trip). Rehabilitation would restore

the fishery and associated economic activity.

The total annual cost to Columbia Basin Hatchery to plant these lakes with 25,600 fry is $1,075. The rehabilitation will cost the Department about $17,000 (including costs of rotenone, time, travel). Even if rehabilitations occur every five years, the cost of fry plants (5 yrs.) and the rehab totals about $22,000. During this same five years, the fishery would generate about $948,000 to the state's economy.

The cost to manage with annual catchable plants is generously (in terms of trout survival) estimated at $23,000 for five years. Interactions between spiny-rayed species and trout are much less predictable, and a comparable program may not result. 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.

Given the discussion in part VI, expected economic value is also difficult to estimate. However, as recreational opportunity increases, economic benefits also rise. The number of waterfowl hunting trips would be expected to increase, but an estimate of the magnitude of the increase would be difficult to predict.

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:

The Desert lakes will be planted with rainbow trout fry @ < 50/lb. the spring following rehabilitation. Creel checks and population surveys will be conducted as time is available. Possible further management actions include proposing some or all of these waters for a regulation change to selective fisheries (no bait, single barbless hook, reduced limits). Demand for these types of fisheries is increasing, and this type of fishery is also more amenable to terrestrial wildlife management.

Waters within the Desert Wildlife Ponds (TD-02) not treated in 2008 may be treated in following years to remove undesirable fish. The results should yield fish-free waters in those ponds treated with rotenone and no further fish management activities would be required. If total fish kill is not achieved, further treatment may be required in future years if fish populations reach undesirable levels. There will be continued operation and maintenance related management. Some of the on-going management activities will include: controlling undesirable vegetation, and maintaining the integrity of dikes due to beaver activity.

Increased penalties and enforcement activities are desirable if WDFW is ever going to dissuade illegal plantings 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 our Media Relations people. This may result in stemming recruitment to this ill-advised group and turning local opinion against the offenders.

IX. PUBLIC CONTACT:

Public support may be best judged by the number of participants in the fishery (vis a vis Recreational Impacts). When these treatments were last proposed in 1997 and 1998, a public hearing was held to explain Region Two 1997-98 rehabilitation proposals, assess public opinion, and address local concerns. The announcement was provided to area papers and radio stations at least a week in advance of the meeting. To date, there has been no public opposition expressed to these rehabilitations. Public hearings will be held in July 2008 to explain Region Two 2008-09 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 lakes' 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-à-vis Recreational Impacts).

Initiated by: Region Two Fisheries and Wildlife Management