

I. Project Title: Highline Lake screening O&M

II. Principal Investigators:

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III. Project Summary:

A spillway barrier net designed to control escapement of nonnative, warm water fishes from Highline Reservoir (Highline Lake State Park, Colorado) that might enter the Colorado River was installed in August 1999. Research has shown that nonnative fishes eat young, native fish and compete for food and habitat in the river. In addition to keeping the nonnative and native fishes apart, installation of the fish barrier net brings the reservoir into compliance with the nonnative fish stocking requirements established by the states of Colorado, Utah, and Wyoming, and the U.S. Fish and Wildlife Service.

The fish barrier net is made of Dynema, a high molecular weight polyethylene material, which is extremely strong and durable. The net is approximately 363 feet wide, 19 feet deep, weighs 1,400 pounds, and has mesh openings no larger than a quarter inch. The net stretches across an area of the reservoir that empties into a concrete spillway that flows into Mack Wash and Salt Creek before reaching the Colorado River. It is designed to flex with the surge of the current and changing water depth to prevent fish from escaping over or under it.

As this is the first time this separation has been attempted an MOU was reached between the Colorado Division of Parks (CDP), the Colorado Recovery Program, and the Colorado Division of Wildlife (CDOW) to permit CDP to operate and maintain the net with funding from the CDOW and the Colorado Recovery Program.

IV. Study Schedule: 1999- on-going

V. Relationship to RIPRAP: Colorado River Action Plan: Main stem

The Procedures for Stocking Nonnative Fish Species in the Upper Colorado River Basin (CDOW et al. 1996) included specific reference to the need to screen the spillway at Highline Lake to control escapement of nonnative, warm water fish species. This requirement prescribed that "Public and private waters that have a direct connection to rivers in the Upper Colorado River Basin (e.g., Elkhead Reservoir, Highline Reservoir and many ponds) will be equipped or managed with an anti-escapement device or practice acceptable to the Service (USFWS) and the State fish and Wildlife Agency." In addition, the Procedures, section IV.6, state that "The Program (RIP) will pursue funding for

equipping public reservoirs with anti-escapement devices" (CDOW et al. 1996, Martinez 1997). Funding from the Recovery Implementation Program for Endangered Fishes in the Upper Colorado River Basin (RIP) became available in 1998 (Martinez 1999) for installation of a fish screen at Highline Lake and the net was installed on 18 August 1999.

General Recovery Program Support Action Plan:

III. Reduce negative impacts of nonnative fishes and sport fish management activities.

III.A.2. Identify and implement viable control measures.

III.A.2.c. Implement and evaluate the effectiveness of viable active control measures.

III.B. Reduce negative impacts to endangered fish from sport fish management activities.

III.C. Ensure public involvement occurs as appropriate.

Colorado River Action Plan: Main stem

III.B.1.a. Operate and maintain Highline Reservoir net.

VI. Accomplishment of **FY 2009** Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Task 1. Maintain Protective Buoy Line: The buoy line was inspected on a weekly schedule with the Park's Patrol Boat during the summer season and no issues or problems were identified. The connecting cable, shackles and U bolts were replaced and the boat safety line is in good working order.

Task 2. Net Cleaning and Repair Operations (in water): This was the first year that we went to 3 cleanings a year on the net and it was very successful and lightened the load on the net. Cleaning of the net took place May 1, 2009, July 24, 2009 and again October 2, 2009. The net was cleaned manually by divers from United Underwater Contractors.

Task 3. Weekly visual survey—The net top line and floats along with the skirt and the PVC pipe sections that we use to deploy the skirts were visually checked on a weekly basis with the Park Patrol Boat – on weekends the Patrol Boat would be on-the-water for several hours and when time permitted we would examine the net from the water surface.

Task 4. Underwater Survey—the net was inspected by United Underwater Contractors, the same divers that have been checking the net for the last several years and they prepared a report of their inspection. The report is available at the park. The highlights of the report submitted on May 1, 2009 were: 1) The net, lead line, thimbles, shackles, manta bolts and cable were completely inspected. All of the hardware is looking good with the exception of some wear starting to show on the cable cover. 2) All anchoring cables are attached to the 4 manta bolts and the safety wire is in place and holding the shackles secure. 3) All of the spreader bars are in place. 4) One buoy was missing and will be replaced next cleaning. 5) The net was full of leaves and tumbleweeds and buildup is impregnated on net making it more difficult to clean. 6) The divers are removing pieces of the old net each time they are out. They would like to remove the old net for \$1,500.00. Due to the large amount of growth we have stepped up to three

cleanings this year. The divers cleaned the net again on July 24, 2009 and again prepared a report of their inspection which is also available at the park. The highlights of the report submitted on July 24, 2009 were: 1) The net, lead line, thimbles, shackles, manta bolts and cable were completely inspected. All of the hardware is looking good with the exception of some wear starting to show on the cable cover. 2) A new aquatic weed is growing up in front of the net which was photographed and put in the report. 3) The spreader bars were checked and reattached as needed and 5 additional spreader bars were added. Two buoys were replaced as well. 4) Divers are inspecting the net for zebra or Quagga muscles and they said there were no muscles found on the net. 5) A large amount of trash weeds and a large number of fishing lures were removed from the net. 6) The top skirt is becoming encrusted with algae and needs to be high pressure sprayed when there is no water coming into the lake putting pressure on the net. The net was cleaned a third time by the divers on November 2, 2009 and another report of their inspection was completed and is available at the park. The highlights of the report submitted on November 2, 2009 were: 1) The net and all hardware were inspected and are all in good condition. 2) The third cleaning has reduced the amount of buildup and strain on the net. 3) The top skirt needs to be cleaned thoroughly with a high pressure sprayer. They are recommending a cleaning of the top skirt which will be addressed this spring.

VII. Recommendations:

The top skirt needs to be power washed during the spring 2010 before water is turned into lake to remove the algae.

VIII. Project Status:

This project is on-track and on-going

IX. FY 2009 Budget Status:

- A. Funds provided: No Recovery Program funds are provided for this project.
- B. Funds Expended: \$3,000.00
- C. Difference: N/A
- D. Recovery funds spent on publication: \$0

X. Status of Data Submission: NA

XI. Signed: Alan Martinez 12-18-09
Principal Investigator Date