

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 2008** 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): Cleaning of the net took place July 2nd 2008 and again September 23rd 2008. The net was cleaned manually by divers from United Underwater Contractors. The first cleaning of the net was bumped back to see if it would help on the excessive algae buildup. The algae buildup is still continuing and we probably need to look at 3 net cleanings annually.

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 July 2nd 2008 were: 1) The boat safety cable, buoys and anchor system were completely inspected and are in good shape. 2) All anchoring cables are now 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 and reattached as needed. 4) Many large rocks were removed from the skirt, hundreds of hooks and a bow fishing arrow were removed from the net as well. The diver said that he has never seen this amount of debris and fishing equipment in the net before. 5) The divers found that there was a lot of growth on the top half of the net again. Due to the large amount of growth we continued to clean the net twice a year. The divers cleaned the net again on September 23rd 2008

and again prepared a report of their inspection which is also available at the park. The highlights of the report submitted on September 23, 2008 were: 1) The net had more growth on it than normal which is allowing less water flow through the net and buoys were beginning to pull down. This large buildup occurred even with a shorter period of time between cleanings. 2) One buoy was missing from the net and will be replaced on the next cleaning. 3) The spreader bars were checked and reattached as needed and 5 additional spreader bars were added. The boat safety cable, buoys and anchor system were completely inspected. Everything was in good condition. 4) Divers were asked to inspect the net for zebra or Quagga mussels and they said there were no mussels found on the net. 5) Less fishing equipment was found in the net but there still was a lot of rocks and debris still found in the skirt. They are recommending a third cleaning date to keep the buildup down which will hopefully put less strain on the net and hopefully prolong the life of the net.

VII. Recommendations:

I would recommend that we look at doing 3 cleanings on the net to see if we can cut down on the algae growth that is accumulating.

VIII. Project Status:

This project is on-track and on-going

IX. FY 2007 Budget Status:

- A. Funds provided: N/A
- B. Funds Expended: \$4,900.00
- C. Difference: N/A
- D. Recovery funds spent on publication: \$0

X. Status of Data Submission: N/A

XI. Signed: Alan Martinez 02-09-09
Principal Investigator Date