

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 2007** 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 floating sign, buoys, and connecting cable are currently functioning well but needs to be replaced in the near future.

Task 2. Net Cleaning and Repair Operations (in water): Cleaning of the net took place June 6<sup>th</sup> 2007 and again September 28<sup>th</sup> 2007. The net was cleaned manually by divers from United Underwater Contractors. The timing will need to be modified slightly since it appears that we are getting excessive algae buildup in the summer. The early cleaning will remain the same since it helps to remove any debris that comes into the lake when the canals open up and the late cleaning will move up about a month to clean the excessive algae buildup from the summer.

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 June 6<sup>th</sup> 2007 were: 1) The Manta bolts are all in good condition. 2) The shackles were in good condition and tight but safety wire needs to be installed to keep the shackles from coming loose. 3) The boat safety line has some serious wear and should have probably been replaced with the net. The cable is near worn in several spots and 2 of the anchor cables are missing. 4) 3-4 of the spreader bars are missing on the upper skirt and the others were all retied. 5) The divers found that

there was a lot of growth on the top half of the net in the 1<sup>st</sup> year after the net was installed. Due to the large amount of growth we will start doing both a spring and fall cleaning with the divers. The divers cleaned the net again on September 28<sup>th</sup> 2007 and again prepared a report of their inspection which is also available at the park. The highlights of the report submitted on September 28, 2007 were: 1) Manta bolts are in good condition. 2) The shackles were still in good condition and tight but they recommend that safety wires are installed to keep from losing any shackles if they were to become loose. 3) The main top line of the skirt was cut and needs repaired. 4) The boat safety line has some serious wear and needs to be replaced. 5) The net had a lot of growth on the top half and with high water pressure there was enough strain to pull sections of the net lower in the water. They are recommending a late August or early September cleaning for the second cleaning date.

VII. Recommendations:

I have talked with Sherm Hebein with the Colorado Division of Wildlife about the findings and we have asked United Underwater Contractors to put together a bid to repair the top line of the skirt, wire the shackles and to replace the boat safety line. The canal is to be shut off November 3, 2007 and it would be recommended to make these repairs after this time. After reviewing the reports from the divers the second cleaning will be moved up to the last week in August or the first week in September.

VIII. Project Status:

This project is on-track and on-going

IX. FY 2007 Budget Status:

- A. Funds provided: ??
- B. Funds Expended: \$2,000.00
- C. Difference: ?? United Underwater Contractors has not been paid for either job as of October 3, 2007. Sherm Hebein said that the 1<sup>st</sup> invoice was process the end of September and that the last invoice will be processed immediately.
- D. Recovery funds spent on publication: \$0

X. Status of Data Submission: NA

XI. Signed: Alan Martinez                      10-17-07  
Principal Investigator                      Date