

I. Project Title: Highline Lake screening O&M

II. Principal Investigators:

Chris Foreman, Park Manager
Highline Lake State Park
1800 11.8 Rd
Loma, CO. 81524
(970) 858-7208
highline.park@state.co.us

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: Mainstem

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, warmwater 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: Mainstem

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

VI. Accomplishment of **FY 2005** Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Task Description and Schedule:

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 functioning well and we foresee not having to replace this unit with the replacement of the net itself.

Task 2. Net Cleaning and Repair Operations (in water): Cleaning of the net was done hydraulically from the barge in August of 2004 by Park personnel, manually by divers at the end of March 2005 prior to the inflow from the Highline Canal arriving. Because the new net had arrived and installation was pending the August cleaning was not done. This timing appears to be effective in providing the opening of the clogged net to permit water flow without pulling the net down. This year was one of constant high flows – the spillway did not cease spilling until the canal was turned off on November 2nd 2005.

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. The skirt section continues to be problematic and high flows cause the skirt to lay over the main float line necessitating manual re-deployment. Shore inspection of siltation and debris buildup to the West end of the net showed the improvement to the jetty to have eliminated this chronic maintenance issue.

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 April 6th 2005 were: 1) The jetty on the North end of the net was

