

COLORADO RIVER RECOVERY PROGRAM
FY 2012 ANNUAL PROJECT REPORT

RECOVERY PROGRAM
PROJECT NUMBER: C-20

I. Project Title: **Highline Lake screening O&M**

II. Bureau of Reclamation Agreement Number(s): R12AP40001

Project/Grant Period: Start date: 12/28/2011
 End date: 09/30/2016
 Reporting period end date: 09/30/2012
 Is this the final report? Yes _____ No X

III. Principal Investigator(s):

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IV. Abstract:

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.

On March 21, 2006 the original spillway barrier net was removed and on March 22, 2006

the replacement spillway net was installed. In April 2011 we received the replacement net but were unable to install due to lake surging with water and planned on a fall installation. Major dredging operation is to take place in the spring of 2013 and we are now waiting to install until after the dredging so we do not impact new net.

V. Study Schedule: 1999- on-going

VI. 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.

VII. Accomplishment of FY 2012 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. No issues or problems were identified. The connecting cable, shackles, U bolts are in good working order.

Task 2. Net Cleaning and Repair Operations (in water): The boat safety line that has been in need of being replaced was replaced by United Underwater Contractors on November 7, 2012. We have continued to do 3 cleanings of the net since it has shown to be very successful to lighten the load on the net. Cleaning of the net took place March 24, 2012, June 16, 2012 and October 16, 2012. The first cleaning this year took place 1 month

earlier than the first cleaning took place last year. The early cleaning was a result of a large surge of water last spring which ultimately started to pull the net under with the volume of water and debris being flushed into the lake and we wanted to prevent this from happening this spring. The third cleaning was late and we had the net partially submerge. The net was cleaned manually all 3 times 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 for each of their inspections. The reports are available at the park.

The highlights of the report submitted on March 24, 2012 were: 1) Cleaning was done early due to high water and large amount of debris last spring that ultimately partially submerged and the top skirt was over the top of the net. The early cleaning did not result in any pull downs of the net when we surged in April. The net was thick with moss and algae growth. 2) All anchoring cables are attached to the 4 manta bolts and the safety wire is in place and holding the shackles secure. 3) The net, thimbles, shackles, manta bolts and cable were completely inspected and all were in good condition. The safety boat cable is about worn out and in need of being replaced

The highlights of the report submitted on June 16, 2012 were: 1) the net, lead line, thimbles, shackles, manta bolts and cable were completely inspected. All of the hardware is looking good but the safety boat cable is in poor condition and 6 buoys were replaced. 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.

The highlights of the report submitted on October 16, 2012 were: 1) The net had a thick buildup of moss and algae and we had a large surge of water from the canal in October which caused the net to partially submerge. 2) The lead line, thimbles, shackles, manta bolts and cable were unable to be inspected due to the angle of the net making it impossible to get under the net. 3) All anchoring cables are attached to the 4 manta bolts and the safety wire is in place and holding the shackles secure. 4) After the cleaning took place the net immediately resurfaced and on November 7, 2012 the boat safety cable that had been in poor condition the past year plus has been replaced. The new cable is 7/16 coated galvanized cable with a breaking strength of 14400 pounds. 5) On November 7, 2012 the lead line, thimbles, shackles, and manta bolts were inspected and found to be in good condition. The cables holding the buoy system are starting to show some wear and will need to be monitored.

VIII. Recommendations:

The cable holding the buoy system in place will need continued monitoring and will need to be replaced at some point. The net is currently still in good condition but is past its recommended life cycle and will be replaced in the fall of 2013 after the dredging project takes place. Due to the large amount of algae and moss on the net and the dredging to take place in 2013 we may have to do 4 cleanings of the net. Park staff will monitor the net and debris being washed into the lake in the spring and will inform divers after dredging to clean net then as well.

IX. Project Status:

This project is on-track and on-going

X. FY 2012 Budget Status

- A. Funds Provided: \$90,000 for replacement net purchase
- B. Funds Expended: \$90,000 from above, plus \$6,300 expended by CPW on three cleanings and cable replacement (CPW covers annual O&M up to \$10,000)
- C. Difference: \$0.00 from (A) above
- D. Percent of the FY 2012 work completed, and projected costs to complete: 100% n
- E. Recovery Program funds spent for publication charges: -0-

XI. Status of Data Submission (Where applicable): N/A

XII. Signed: Alan C. Martinez 11/15/12
Principal Investigator Date

(Just put name and date here, since you will be submitting the report electronically)