COLORADO RIVER RECOVERY PROGRAM
FY 2002 ANNUAL PROJECT REPORT

RECOVERY PROGRAM
PROJECT NUMBER: **CAP-20**

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. Ayres Associates, Inc., of Boulder, Colorado, was the design engineer; Redden Nets of Bellingham, Washington, was the net manufacturer; and Ashley Construction of Grand Junction, Colorado, installed the net.

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. Rigging attaches to the sides of the spillway and to 13 anchors secured on the bottom of the lake. 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) and the Colorado Division of Wildlife (CDOW) to permit CDP to operate the net with funding from the CDOW, and to evaluate the operations and maintenance of the fish-barrier net.

IV. Study Schedule: 1999–2003

V. Relationship to RIPRAP:
COLORADO RIVER ACTION PLAN: MAINSTEM
III. Reduce negative impacts of nonnative fishes and sportfish management activities.
III.B. Reduce negative impacts to endangered fishes from sportfish management activities.
III.B.1.a. Operate and maintain Highline Reservoir net.

VI. Accomplishment of FY 2002 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Task 1. Monitor while on site the performance of the non-native fish containment net using weekly visual observations and underwater visual observations and video as needed. Monitor marked bass below the dam using the CDOW fish crew.

Although we cleaned the net in August as prescribed, when high flows were generated through the reservoir in October due to upstream irrigation being curtailed, the velocity of the flows pulled the net down and created an opportunity for escapement. This situation was created for a period of approximately 7 days when flows caused the net to bow and pulled down the float line permitting 4" of flow over the float line. The wash below the net was checked and only 2 marked bass were found. We will continue to cooperate with CDOW to mark all stocked largemouth bass so that we are able to monitor the performance of the net.

Task 2. Cooperate with the Colorado Division of Wildlife (CDOW) in their Management/Stocking Plans for Highline Lake.

An additional 7,000 largemouth bass 3–5" in length were stocked in Highline Lake in late August. Clipping of a fin marked all fish stocked.

Task 3. Determine the most effective manner to properly deploy the fish net skirt. The use of 4' PVC pipe notched at each end appears to be an excellent solution.

During the high flows this fall an additional number of the spreader bars were deployed. We used 1" diameter PVC this time and secured one end of the unit. This technique continues to perform well.

Task 4. Continue to monitor the rock jetty to insure that the west end of the non-native fish containment net remains free from silt and gravel being deposited on the net, submerging the floats and causing a containment failure.

A companion jetty was constructed to facilitate the gravel deposition prior to the original jetty. We continue to make use of a small dredge unit to maintain the net free of sand and gravel.

Task 5. Find the most productive method to clean the net of algae without expending large mounts of project funds. See recommendations.

Task 6. Evaluate when the net will need to be replaced.

After strength tests were done, I received net test results from Redden Marine who fabricated the original net. Average mesh breaking strength of the sample submitted was 50.8 lbs., the original breaking strength was approximately 110 lbs. The sample that was submitted for testing was from the net that is on-shore and subject to significant UV and abrasion. We have not found any significant tears or failures in the net surface that would permit escapement. Due to the reduction in strength of over 50%, replacement is indicated. The replacement cost of the net would be $92,500. Currently replacement is programmed for FY 2004.

VII. Recommendations:

The "letter of Agreement" between CDP, CDOW & CRRIP needs to be extended as the original has letter has expired. This process was initiated 11/26/02. Funding for continued O&M will need to be secured by the end of the State fiscal year in June 2003.

Additional testing will be done on a portion of the net with not as much abrasion exposure to see if the over 50% loss of strength is localized or is representative of the entire net.

VIII. Project Status:

This project is on-track and on-going but **funding of a replacement net is critical**.

IX. FY 2002 Budget Status:

A. Funds Provided: Not to exceed $10,000 (CDOW).
B. Funds Expended: $4,416.35 (Federal FY 02). These funds were used for such items as divers to inspect the net, cable to repair beaver-damaged mainline, riprap for the jetty, fuel, cleaning by contractor, and a small 2" pump.
C. Difference: $5,583.65
D. Percent of the FY 2002 work completed: 100%
E. Recovery Program funds spent for publication charges: None

X. Status of Data Submission: NA

XI. Signed: ***Chris Foreman*** 11-27-02
Principal Investigator Date