

I. Project Title: **Annual Operation and Maintenance of the Fish Passage Structure at the Government Highline Diversion Dam on the Upper Colorado River**

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III. Project Summary:

The purpose of this project is to collect and summarize annual data on the number of large-bodied fish, different fish species, and seasonal distribution of fish that use the fish passageway at the Government Highline Diversion Dam on the Upper Colorado River in Debeque Canyon. In 2007, fish use was not documented and therefore no biological data were collected from the fish trap. Rather, the fishway was operated only to remove river-borne sediment from the fish passage side of the river and within the fishway itself. Because the fishway has only been operated on a trial basis for the past 2 years, sediment has continued to accrue on the fish passage side of the river and an island now has formed in front of the attraction flow gate. Between May 24 and June 29, 2007, which coincided with the height and descending limb of spring runoff on the Upper Colorado River, the fish passage was continuously operated to flush built up sediment through the fish ladder. Gates for both the fish ladder and attraction flow were opened and river water used to flush sediment.

IV. Study Schedule:

- a. initial year: 2004
- b. final year: Ongoing

V. Relationship to RIPRAP:

Colorado River Action Plan: Colorado River
II.B.3.a(4). Operate, monitor, and evaluate the success of fish passage at Government Highline Diversion Dam.

VI. Accomplishment of FY 2007 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

A. FY-2007 Tasks and Deliverables:

Task 1. Routine O & M of the fish ladder and fish trap which includes monitoring, sorting, enumerating all fish in addition to cleaning trash and debris from trash racks, bar screens, fish trap, and fishway entrance.

Task not performed in 2007.

Task 2. Compile, computerize, and summarize fish use data; prepare annual progress report.

Task not performed for 2007.

B. Findings (2007 Highlights)

Fish Passage

1. In 2007, fish use was not documented and therefore no biological data were collected from the fish trap.

Operation and Maintenance

1. Sediment maintenance was performed continuously for 37 days between May 24 and June 29. The fish passage was continuously operated to flush built up sediment through the fish ladder. Gates for both the fish ladder and attraction flow were opened and river water used to flush sediment.
2. Problems with the gate operator for the attraction flow gate reduced our ability to lower and raise this gate. Raising and lowering this gate more frequently allows workers to adjust and maximize water velocities into the attraction flow chamber which increases the capability of dislodging sediment on the river side which has become compacted. A new gate operator with a 6:1 gear ratio has been ordered to replace the former gate (4:1 gear ratio) and will be installed prior to the May 2008 planned opening of the fishway.

VII. Recommendations:

- A. Biological: Fish passage at Price-Stubb Dam 5.4 miles downstream is now planned to be completed sometime in the spring of 2008. Until fish passage is completed at the downstream Price-Stubb Dam, fish passage at the upstream Grand Valley Project will not be fully operational. The Bureau of Reclamation awarded the construction contract for the fish ladder at Price Stubb Dam April 17, 2007. Construction started in July 2007 and completion is scheduled sometime in the spring of 2008. Therefore,

it is assumed that fish passage will be in place and operational at Price Stubb Dam by either late-spring or early-summer 2008. Government Highline fish ladder then should be fully operational. Plans are to operate Government Highline fish ladder continuously from the first of May to mid-October in 2008. At that time, the plan is to operate Government Highline fishway similar to that at the Redlands fishway. Information on the number of fish by species collected in the fish trap will be recorded daily during weekdays. Starting in 2009, the fishway will be operated similar to that at Redlands, opening in mid-April and running continuously until mid-October.

B. Operation and Maintenance:

1. To maintain optimum performance of the fish passageway, sediment maintenance should be performed annually to remove sediment and debris from the forebay of the fishway and attraction flow intakes to prevent buildup and compaction of sediment. Use of compressed air has proven to be a useful tool in alleviating build-up of sediment and small debris. However, at Redlands fishway this has provided only a short-term solution.
2. Due to the lack of continuous operation of the fish ladder, a large vegetated sediment bar has accrued in front of the intakes of the attraction flow grates and upstream to the inflow of the fishway itself. In the spring of 2008 prior to operation of the fish passageway, this sediment should be removed. A track hoe and dump truck may be needed to perform this work effectively. Sediment could be hauled to an upland terrestrial site within the fishway project area for sediment disposal and/or storage.

VIII. Project Status:

On track and ongoing.

IX. FY 2007 Budget Status

Note: Funding for this project in FY-2007 was reduced by \$ 27,627. The remaining funding was re-allocated to two other projects: 1) RP Project No.: 126, Removal of Smallmouth Bass in the Upper Colorado River between Price-Stubb Dam near Palisade, Colorado, and Westwater, Utah, (\$ 12,384) and 2) RP Project No.: 121a, Evaluation of Stocked Razorback Sucker and Colorado Pikeminnow in the Gunnison River (\$ 14,793) for FY-2007.

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| A. Funds Provided: | \$ 11,592 |
| B. Funds Expended: | \$ 11,592 |
| C. Difference: | \$ -0- |
- D. Percent of the FY 2007 work completed, and projected costs to complete:
100%.Recovery Program funds spent for publication charges: \$ -0-

X. Status of Data Submission: Not applicable for 2007.

XI. Signed: Bob D. Burdick 10/23/2007
Principal Investigator Date