

I. Project Title: Removal and Control of Nonnative Fishes in Colorado and Gunnison River Floodplain Source Ponds.

II. Principal Investigator:

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III. Project Summary:

The purpose of this project is to significantly reduce the number of chronic sources contributing nonnative fishes to riverine habitats. Access to ponds in the I70 corridor in Debeque Canyon, through continued negotiations with the Colorado Department of Transportation, was not forthcoming. Similarly, two private landowners refused access. However, access for sampling and potential reclamation of ponds on 24 private, five public, and four municipal properties was successfully negotiated. Exactly 118 ponds, that are directly connected to the Colorado or Gunnison rivers and/or lie within the 100 year floodplain, were surveyed to: 1) determine the presence or absence of threatened and endangered fish species, 2) identify nonnative fish species composition, 3) assist recovery efforts in establishing grow-out ponds, 4) evaluate each pond's potential as a source for nonnative fish entering the Colorado or Gunnison rivers, and 5) examine basic water chemistry. Of the 118 ponds 61 supported fish, 17 were void of fish, 32 were ephemeral, five were taken over by the river and three were mistakenly identified as ponds by Mitchell (1995). Of the 61 ponds that supported fish 24 were reclaimed, one was temporarily covered with black plastic, and three were screened. Alternative fish control techniques that were explored included: 1) water management to facilitate alternate filling and drying of ponds, 2) redirection of irrigation water to prevent pond reinvation by nonnative fishes, and 3) installation of black plastic over pond surface to eliminate aquatic vegetation and nonnative fish by elevating the water temperature. A native fish refuge using fish salvaged from the Government Highline Canal after draining was established. Training was obtained by the principal investigator and associated personnel in the: 1) uses and types of screens on the market, 2) application and safe use of pesticides, and 3) use of Microsoft Word, Excel, Access, and PowerPoint programs. Information was provided to the public by mailing one Listening Log concerning nonnative fish control and one Swimming Upstream brochure produced by the Recovery Program to approximately 450 PAI's. Two "Bill's Backyard" television news spots produced by CDOW were aired concerning bluegill stocking and the Highline Lake screen, and razorback growout ponds and land acquisition. Additional

Nonnative Fish Control (NNFC) information was presented to CDOW Aquatic Section, CDOW Habitat biologists, Mesa State College Water Quality class, and Mt Garfield Middle School. Finally 18 landowners received monetary incentive payments for allowing sampling and/or reclamation/screening through the incentive package which was initiated FY98/99.

IV. Study Schedule:

- a. Initial year: 1997
- b. Final year: 2002

V. Relationship to RIPRAP:

General Recovery Program Support Action Plan:

- III. Reduce negative impacts of nonnative fishes and sportfish management activities.
 - IIIA. Reduce negative interactions between nonnative and endangered fishes.
 - 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.

VI. Accomplishment of FY 99/00 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

- * Reported chemicals stored on site to the local fire department, Local Emergency Planning Committee, and State Emergency Response Commission according to SARA Title III (Emergency Planning and Community Right to Know) mandate.
- * Contributed to Nonnative Fish Control I&E efforts by: 1) mailing one edition of a "Listening Log" (as recommended by Hans Bleiker) and the December 1999 issue of "Swimming Upstream" brochure produced by the Recovery Program to approximately 450 PAI's, 2) airing two "Bill's Backyard" television news spots produced by CDOW concerning stocking bluegill in Highline Lake and the Highline Lake Screen, and razorback growout ponds and land acquisition 3) publishing one article in the Daily Sentinel concerning NNFC, 4) posting Recovery Program signs in prominent locations along the river, and 5) distributing the Recovery Program's Grand Valley Video to interested private landowners.
- * Training was obtained by the principal investigator and associated personnel in the: 1) uses and types of screens on the market, 2) application and safe use of pesticides, and 3) use of Microsoft Word, Excel, Access, and PowerPoint programs.
- * Clarified and aided implementation of the Nonnative Fish Stocking Regulation. As a result of this new regulation 65 applications to stock nonnative fish were reviewed Twenty-three of the 65 applicants wished to restrict stocking to trout while the remaining 42 requested permits to stock warmwater fish. Twenty-nine of the 42 were outside the 50-year floodplain and either had no outlet or the outlet was screened.

Twelve landowners were required, through the warmwater fish stocking process, to screen their outlets with at least 1/4" mesh screen prior to stocking warmwater fish. One landowner choose not to pursue a permit due to the location of his pond within the 50 year floodplain and the need for a berm.

- * Established a native fish refuge using fish salvaged from the Government Highline Canal immediately after draining. A total of 550 native fish including approximately 63% roundtail chub, 33% flannelmouth sucker, and 4% bluehead sucker were stocked in a pond owned by the BLM near Rulison, Colorado on 11/17/99. Follow-up sampling (7/19/00) indicated the native fish displayed good body condition and apparent growth.
- * Collected physical and/or biological data from 118 ponds which have direct connectedness to the Colorado or Gunnison rivers or were located within the 100 year floodplain. Of the 118 ponds 52 contained only nonnative fish species, and nine contained both native and nonnative fishes. None of the ponds sampled contained exclusively native fish. A total of 3,390 nonnative fish and only 30 native fish were collected in the 61 ponds that supported fish. Of the remaining 57 ponds 17 were void of fish, 32 were ephemeral, five were taken over by the river since the Mitchell report (1995). It was also determined that three ditches were mistakenly identified as ponds by Mitchell (1995).
- * Chemically reclaimed 24 ponds totaling 51.1 surface acres.
- * One 0.5 surface acre pond was covered with black plastic. This experimental technique was used to fulfill both landowner and Recovery Program needs. The pond was choked with aquatic vegetation which the landowner wanted removed without the use of chemicals. Green sunfish were abundant in this pond. The plastic was applied for two weeks in the summer. Due to increased water temperatures both the vegetation and the nonnative fish were eradicated.

Implementation of a landowner incentives package has facilitated access to private property and expedited nonnative fish reclamation efforts. Several landowners choose to participate in the nonnative fish control program after they considered how they would personally benefit through the incentives package. Incentive money was paid to 18 private landowners as an access fee. Continued consent building through the Listening Log and word of mouth is necessary to gain further access to private properties.

We are working with aquatic biologists, District Wildlife Managers, federal employees, private fish growers and private landowners to facilitate interpretation of the new western slope Nonnative Fish Stocking Regulations A table has been developed to aid in the interpretation of these regulations with consideration of the "intent" of the Procedures for Stocking Nonnative Fish Species in the Upper Colorado River Basin (1996) and recent developments such as the 1/4" bar mesh screening criteria. This table has been distributed to all interested PAI's.

Water management of ponds at Horsethief Canyon SWA as an alternate Nonnative Fish Control technique was not successful this fiscal year. Alternate filling of the wetland and drying of the ponds followed by drying of the wetland and filling of the ponds did not result in fish mortality due to the high water table and mild winter. Examination of daily

temperature profiles in the Fruita area over the past 40 years revealed ponds will rarely freeze long enough to promote winter kill by freezing of all standing water. Negotiations to control nonnative fish on this property using other control measures are underway.

VII. Recommendations:

Project should continue in FY00/01 as described in the scope of work. Microsoft Access will be used to address mail for the Listening Log and facilitate retrieval of pond/fish/PAI data. The database will be revised as on-the-ground inventories proceed. The lake survey protocol was effective in determining species composition and will be conducted prior to all reclamation projects.

VIII. Project Status: Project is on track and ongoing.

IX. FY 99/00 Budget Status:

- A. Funds Provided: \$95,250
- B. Funds Expended: \$127,277 (as of June 30, 2000) As cited in Part 3 of 3 (this report)
VIII. Project Status: Funds not expended will be used for nonnative fish reclamation activities in floodplain ponds.
- C. Difference: -\$32,027 Screen installation/evaluation funds were spent on nonnative fish control activities/equipment. The remainder of the screen installation/evaluation funds, \$1,028, were expended in the months following the end of the state fiscal year and prior to the end of the federal fiscal year. (See B above and Part 3 of 3, IX this report).
- D. Percent of the FY 99/00 work completed, and projected costs to complete: 100% of work was completed.
- E. Recovery Program funds spent for publication charges: None

X. Status of Data Submission: Not applicable

XI. Signed: Anita Martinez Dec. 8, 2000
Principal Investigator Date

References:

Colorado Division of Wildlife, and U.S. Fish and Wildlife Service. 1996. Procedures for Stocking Nonnative Fish Species in the Upper Colorado River Basin.

U.S. Fish and Wildlife Service. 1998. Intra-Service Consultation on Control of Nonnative Fishes in Floodplain Ponds. ES/GJ-6-CO-98-F-004. Denver, Colorado. 13pp.

Mitchell, M. J. 1995. Impact of the procedures for stocking nonnative fish species in the Upper Colorado River Basin on private landowners and the commercial aquaculture industry. Inventory of public and private ponds along the upper Colorado and lower Gunnison Rivers in Colorado. Colorado Department of Agriculture 95-0021. Queen of the River Fish Company, Inc., Longmont, Colorado. 38pp. Plus appendices.

I. Project Title: Evaluation of the Interagency Standardized Monitoring Program

II. Principal Investigators:

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III. Project Summary:

The purpose of this project was to assess the accuracy and precision of the Interagency Standardized Monitoring Program (ISMP) to estimate abundance and size structure of the centrarchid fishes in backwaters of the Colorado River near Grand Junction, Colorado. The density of fishes in backwaters will be estimated by the ISMP methodology and compared with density estimates based on three-pass removal or capture-recapture population estimates. Results of this study will be used to guide decisions regarding design of the annual monitoring program, sport fish management, and control of non-native fishes in the Colorado River and its floodplain in the Grand Valley.

IV. Study Schedule:

- a. Initial year: 1997
- b. Final year: 2000

V. Relationship to RIPRAP:

General Recovery Program Support Action Plan:

- III. Reduce negative impacts of non-native fishes and sport fish management activities.
- III.A. Reduce negative interactions between non-native and endangered fishes.
- III.A..2., III.A.2.c. Identify, implement, evaluate viable active control measures.

Colorado River Mainstem:

- III. Reduce negative impacts of non-native fishes and sport fish management activities.
 - III.A.3.a. Evaluate and make recommendations.
 - III.A.4. Remove small non-native cyprinids from backwaters and other low-velocity habitats.

- VI. Accomplishment of FY 99/00 (federal fiscal year 2000) Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

No field work was planned or conducted. Data collected in 1997 and 1998 were analyzed and a draft report was prepared. That report is presently under review by P. Martinez, Colorado Division of Wildlife. Results of 1997 and 1998 sampling can be found in those annual reports. The draft report (attached) is expected to be ready for Recovery Program review within about two months.

- VII. Recommendations: Finish report review and implement recommendations.

- VIII. Project Status: Project is on track and ongoing.

- IX. FY 2000 Budget Status (state fiscal year 1999)
 - A. Funds Provided: \$26,500
 - B. Funds Expended: \$26,500
 - C. Difference: \$0.0
 - D. Percent of FY work completed, and projected costs to complete: no additional funds needed.
 - E. Recovery Program funds spent for publication charges: None

- X. Status of Data Submission: Expect data will be submitted following completion of final report in winter 2001.

- XI. Signed: Kevin R. Bestgen 6 December 2000
Principal Investigator Date

Appendix: See draft report detailing findings of this study.

I. Project Title: Installation/Evaluation of Fish Control Devices in Outlets of Gravel Pit Ponds - Colorado River.

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III. Project Summary:

The purpose of this project is to investigate existing technology which minimize reinvasion and escapement of fishes from treated ponds and ponds outside the treatment area by screening or other anti-escapement devices. Nonnative fish access to the Colorado River was arrested in seven ponds by the installation of the three screens. A net installed in Highline Lake in August of 1999 has been under observation by Colorado Division of Wildlife and Colorado State Parks personnel to evaluate its operation, maintenance and effectiveness in controlling escapement of nonnative fish from the reservoir. Preliminary observations on the net's performance was discussed at the Upper Basin Researchers meeting in January of 2000 in Moab, UT.

IV. Study Schedule:

- a. Initial year: 1997
- b. Final year: 2002

V. Relationship to RIPRAP:

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.B. Reduce negative impacts to endangered fish from sport fish management activities.

VI. Accomplishment of FY 2000 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

- * Installed three screens on private land which arrested movement of nonnative fish from seven ponds into the Colorado River. All screens were subject to three-way contracts between the landowner, CDOW, and the vendor. The Colorado Division of Water Resources expressed concern for dam safety in the event of screen failure. These concerns were addressed.
- * Monitored fish escapement and movement from Highline Lake into Mack Wash and Salt Creek following installation of the Highline Lake fish screen.

Two filter screens and one Yak screen were installed this fiscal year. These three screens controlled the movement of nonnative fish from seven ponds into the Colorado River. The larger filter screen plugged with moss within one month after installation. All the fill was removed and replaced and a fence was installed approximately four feet from the filter to keep moss away from it. Since then this filter screen and the other screens have performed well.

Continued examination and installation of prototype screens and determination of viable screen options will compliment nonnative fish control activities by preventing reinvasion of reclaimed ponds and isolating nonnative sport fisheries from riverine access. Monitoring nonnative fish control projects for reinvasion of reclaimed ponds and movement of nonnative fish through screened outlets will provide an evaluation of current nonnative fish control techniques.

VII. Recommendations:

Installation, monitoring and evaluation of selected screen configurations/apertures for prevention of fish escapement, fouling and maintenance. Increased agency coordination in identification and application of existing standards to facilitate compliance with intent of Stocking Procedures until development of screen guidelines and establishment of monitoring protocols are completed.

VIII. Project Status: To be implemented. Funds not expended will be used for nonnative fish reclamation activities in floodplain ponds.

IX. FY 2000 Budget Status:

- A. Funds Provided: \$50,000
- B. Funds Expended: \$16,945 (See Part 1 of 3, this report, Section IX. B.)
- C. Difference: \$33,055 (Unspent funds were applied to other nonnative fish control activities. See Part 1 of 3, this report, Section IX. B.).
- D. Percent of the FY 00 work completed, and projected costs to complete: 34%
- E. Recovery Program funds spent for publication charges: None

X. Status of Data Submission: Not applicable

XI. Signed: <u>Patrick J. Martinez</u>	<u>Dec. 8, 2000</u>
Principal Investigator	Date

