

I. Project Title: **Upper Basin Database Management**

II. Principal Investigator(s):

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III. Project Summary:

Development of a centralized database was a requirement of the Recovery Program when it was formed in 1986. All researchers who receive funding through the Recovery Program are required to submit all fishery data to the central database at the completion of their study. In addition, all researchers are required to submit a complete list of all endangered fish handled each year to the central database. Guidelines for the annual tagging list are circulated to researchers each year. A consolidated tagging list is compiled and distributed after tagging data are received from all researchers.

Most of the UCRB database consists of the 'all fish' data collected during the different investigations funded by the Recovery Program. These data relate to species, number collection date, site, gear, effort expended, habitat and any other parameter associated with collection of that fish. Only field fish-collection data or radiotelemetry data are required to be submitted. The Recovery Program does not require submitting data from invertebrate, geomorphology, hatchery or laboratory studies. All fishery data associated with a study are due to the database when the final report is approved by the Recovery Program.

All data are stored in individual dBASE files according to project and year(s) of collection. Data are not combined into one large database because of the wide variety of studies and study designs used. A list of field names and data codes has been prepared to guide database development. Investigators who use dBASE and field names and codes from the list do not need to provide any further documentation about the data file. However, any fields not described in the List of Field Names must be fully documented when the file is submitted. Because of the wide variety of study designs file structures vary widely, but all data of the same type are contained in fields with the same name and structure (e. g. the river where sampling occurred is identified by the same two-digit code in a field named 'RIVER'). Investigators may also submit their data as delimited ASCII files or spreadsheet files. However, these files must contain only raw data aligned in rows and columns suitable for importing into dBASE or another database program. The data codes or numeric format must conform to the list of codes mentioned above. Investigators must also submit

complete documentation describing the contents of the file.

The database manager checks each file to ensure that the data conform to the required format and prepares one page of documentation for each file received. The documentation includes name of principal contact, river where data were collected, year of data collection, a brief summary of the study design, description of the data file itself (i.e. field names and description of contents, data codes, etc), and a list of the major reports or publications that are associated with the data file. Future users will be referred to the reports for a complete description of the study design and conclusions of the original researchers.

The database manager also distributes PIT tags to researchers as they request them and maintains a list of all tags and who they are distributed to. PIT tag lists submitted by researchers are compared with this database to identify transcription errors. All errors can not be corrected, but at least a few errors can be eliminated before they are included in the basin-wide tagging list. Other errors are corrected when they are identified.

- IV. Study Schedule: Scheduled to continue for the length of the Recovery Program.
- V. Relationship to RIPRAP:
General Recovery Program Support Action Plan.
 - V.A.1. Conduct interagency data management program to compile, manage, and maintain, all research and monitoring data collected by the Recovery Program.
- VI. Accomplishment of FY 04 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Database Management

PIT tags have been distributed as researchers and hatchery managers have requested them. Beginning in 2004, the new 134 khz tags were distributed in small numbers. So far, the new tags were used in the Colorado River Colorado pikeminnow population estimate and in the Westwater Canyon and Cataract Canyon humpback chub population estimates. We are almost done with the old 400 khz tags, with about 4,500 tags remaining. All stocked bonytail and razorback suckers were equipped with 400 khz tags this year, but future stockings will utilize the new tags. We will need to decide how to use up the remaining tags.

New tag readers were distributed to Vernal and Grand Junction CRFP and UDWR Moab. A new shipment of tag readers was received this fall from FY 04 money. We need to order a few more early in FY 05 and we should be ready to proceed with the transition in the next field season. Investigators will have to carry both old and new tag readers for the foreseeable future until the transition is complete.

The Colorado pikeminnow and razorback sucker tagging lists were updated through 2003. The chub tagging list is updated through 2002 and will be updated through the

present as soon as field workers finish with compiling tagging lists associated with work on population estimates. Tagging data from 2004 will be updated over the coming winter.

Considerable time was spent on switching from the old dBase system to a system based on Access (Microsoft). Most people have not used dBase for quite some time. Data files have been submitted in spreadsheets — Excel or Quattro Pro. However, spreadsheets have upper limits on the number of records that can be contained in a single file and some of the tagging lists have now exceeded that number.

The razorback sucker stocking database has been switched to the new program and is now current through 2003. Data from stockings in 2004 will be added this winter.

The bonytail stocking database is currently being moved to the Access database. Some additional checking needs to occur with some of the older stocking data to ensure that all data are included accurately.

Data on fish tagged during 2003 will be submitted by researchers as soon as possible to evaluate recaptures of stocked fish. To date, tagging data have only been received from the Grand Junction CRFP office. Other stations are currently preparing their data lists.

The Colorado pikeminnow and razorback sucker tagging lists were provided to several researchers who requested them. Checks for specific fish were made for several individual researchers. Cross checking with tag distribution lists were also made for several researchers who needed to verify tag numbers that could not be matched up.

All PIT tag numbers received were checked for possible errors by comparing the list of incoming PIT tag numbers with a list of all PIT tags issued. Several minor errors were found and clarified with the original investigators. In the past, the only checking done was to check validity of PIT tag numbers. Beginning in 2000, checks were made on major codes included with the data to ensure consistency with established guidelines. A few inconsistencies were found and corrected. However, by and large the tagging data submitted by researchers is in very good shape when received for inclusion in the data base.

- VII. Recommendations: Because Access is not as flexible as the spreadsheet programs that most investigators are now using to provide data, we need to provide some additional standardization of format for future years. This will make the loading of data into access much more efficient than it was this year. Investigators should get together at the upcoming Researcher's meeting to agree on a new format.
- VIII. Project Status: Project is on track. Scheduled to continue through the length of the Recovery Program.

IX. FY 04 Budget

A. Funds Provided:	34,965
B. Funds Expended:	34,965
C. Difference:	0
D. Publication Charges:	0

X. Status of Data Submission: Tagging data from 2004 should be coming in soon.

XI. Signed: C.W. McAda, November 8, 2004