

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

II. Bureau of Reclamation Agreement Number(s): N/A

III. Principal Investigator(s):

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IV. Abstract:

Development of a centralized database was a requirement of the Recovery Program when it was formed in 1986. All researchers and hatcheries who receive funding through the Recovery Program are required to submit all fishery data to the central database at the completion of their study or rearing season. This mandates that all researchers are required to submit a complete list of all endangered, native and non-native fish handled each year to the central database. Most data have been submitted and included into the centralized database through 2012.

V. Study Schedule: Scheduled to continue for the length of the Recovery Program.

VI. Relationship to RIPRAP: General Recovery Program Support Action Plan.

V.A.2. Conduct interagency data management program to compile, manage, and maintain, all research and monitoring data collected by the Recovery Program.

VII. Accomplishment of FY 2012 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Tasks:

Most of the UCRB database consists of 'all fish' data collected during the different investigations funded by the Recovery Program. These data relate to species, number of individuals collected, collection date, site, gear, effort expended, habitat and any other parameter associated with collection or stocking of that fish. Field fish collection data, radiotelemetry data, stationary Passive Integrated Transponder (PIT) tag antenna data, and program funded propagation 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.

The database manager checks each file to ensure that the data conform to the required format. Future users will be referred to the reports for a complete description of the study design and conclusions of the original researchers. While an online GIS database has been developed for researchers to query the dataset, many researchers find the program to be not particularly user friendly and still query the database manager. This past year the database has been queried by recovery program researchers over seventy five times.

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't 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.

The database manager is also tasked with collecting and reporting all data associated with a PIT tag antenna that was installed (8/13/2010) in the Colorado River at the Price Stub instream diversion dam within the fish passage structure at river mile 188.3. All these data will be reported in this annual report.

#### Accomplishments:

PIT tags have been distributed as researchers and hatchery managers have requested them. An Access database is maintained documenting distribution of all PIT tags that are sent to investigators in both the Upper Basin and San Juan Recovery Programs. With the new contract in place with Biomark and new tagging products available to the programs, we found that most researchers and hatchery personnel were interested in the new 'gun' style implanter and pre-loaded needles in trays. Both Dexter and the Grand Valley Unit of Ouray National Fish Hatchery (GVONFH) had the ability to hold fish for a period of time after using the traditional and new style (gun) implanters. Their results varied. GVONFH found that the new implanters provided for fewer delayed mortalities and less slipped tags. Dexter found a slight increase in delayed mortalities when using the new pre-loaded needles. However, considering each fish receives a new needle with the pre-loads, we believe that the new style implanters are the way of the future for hatchery and research applications. The trays are bulky and are going to require extra funds for distribution (shipping charges). It is estimated that shipping charges could cost an additional \$1,200 (or slightly higher) per year.

All tagging databases (stocking and river) are up to date through 2010. PIT tagging data from 2012 should be coming in during the next month or so. Tagging data from 2011 and 2012 will be updated over the coming winter. All tagging and stocking databases have been converted to Access. We worked with Karen Holt to provide data for an online database that is available to researchers looking for information on specific PIT tag

numbers or general information of distribution of rare fish. We have also worked with the University of Missouri to include our data into USGS's GAP analysis program.

Efforts have continued to start bringing the 'other fish' data into consolidated Access files. They currently reside in a variety of Excel, Dbase, and Quattro Pro files. This will be a more complicated process because of the wide variety of data types that fall into this broad category.

Efforts in 2009 and 2010 concentrated on providing a consolidated database of all the nonnative fish data that has been accumulated since 2000. These consolidated data will play an important role in ongoing efforts to synthesize this important program in all rivers of the upper basin. This data has been updated through 2010 and have been handed over to CSU, the contract holder for the basin-wide synthesis. Data from 2011 non-native sampling has been received; however, has not been included into the database.

Additionally, efforts were made to consolidate the YOY Colorado pikeminnow monitoring data for a long term analysis. Data from the now terminated adult monitoring program were also consolidated into an Access file.

Investigators are not nearly as diligent about submitting the 'other fish' data as they are about submitting rare fish data, so we will need to update that information as it is received. We have been working with researchers to incorporate the more recent data. In addition, we need to update the list of studies that have data included in the database. Work on updating the database is continually ongoing.

#### Price-Stub Antennas

The Price Stub PIT tag antennas produced multiple hits on 275 fish during FY 2012. We reported in 2010 that the close placement of each of the four antenna (~10 inches) complicated determining directionality (upstream vs. downstream). After cleaning the passageway, in late June of 2011, of all of the debris from spring high water, Audrey Hopkins of Biomark adjusted some of the settings at the unit. She changed the antenna sequence (AS) from 1,2,3,4,0,0,0,0,0,0,0 to 1,3,1,3,1,3,2,4,2,4,2,4 and adjusted the delay time from 100mS to 45mS. These adjustments have provided more resolution for determining directionality from detections. There are still some unknowns; however, not as many as were previously encountered. For FY 2012; 19% (n=51) of the fish passed the antennas heading upstream, 40% (n=110) in an undetermined direction, and 41% (n=114) in a downstream direction. Bonytail (n=88, *Gila elegans*), humpback chub (n=1, *Gila cypha*), roundtail chub (n=36, *Gila robusta*), Colorado pikeminnow (n=8, *Ptychocheilus lucius*), razorback sucker (n=135, *Xyrauchen texanus*), flannelmouth sucker (n=3, *Catostomus latipinnis*), and three unidentified PIT tags were detected during FY2012. The following table gives a detailed breakdown of the fish that were detected by the antennas:

Date of Detection	Direction	Species	Number of Fish	History
Oct. 2011	Upstream	BT	1	Stocked in 2011 at RMI 194.4 in Debeque Canyon in August and September
	Unknown		2	
	Downstream		1	
	Upstream	RZ	0	N=33 stocked in 2011 at Hoagland Conservation Easement RMI 227.6 N=13 stocked in 2011 at Rifle Bridge RMI 240.7
	Unknown		16	
	Downstream		30	
	Upstream	RT	1	Tagged in 2007 in Westwater Canyon at RMI ~120's
	Unknown		0	
	Downstream		0	
Nov. 2011	Upstream	BT	1	Stocked in 2011 at RMI 194.4 in Debeque Canyon in August and September
	Unknown		21	
	Downstream		27	
	Upstream	BT	0	Stocked in 2011 at RMI 110.8 at Cisco Launch in UT
	Unknown		1	
	Downstream		0	
	Upstream	RZ	0	N=32 stocked in 2011 at Hoagland Conservation Easement RMI 227.6 N=7 stocked in 2011 at Rifle Bridge RMI 240.7
	Unknown		22	
	Downstream		17	
Dec. 2011	Upstream	BT	0	Stocked in 2011 at RMI 194.4 in Debeque Canyon in August and September
	Unknown		7	
	Downstream		7	
	Upstream	RZ	0	N=13 stocked in 2011 at Hoagland Conservation Easement RMI 227.6
	Unknown		6	
	Downstream		7	
Jan. 2012	Upstream	RZ	0	N=1 stocked in 2011 at Hoagland Conservation Easement RMI 227.6
	Unknown		1	
	Downstream		0	
Feb. 2012	Upstream	RZ	0	N=2 stocked in 2011 at Hoagland Conservation Easement RMI 227.6
	Unknown		1	
	Downstream		1	
Mar. 2012	Upstream	RZ	0	N=1 stocked in 2011 at Hoagland Conservation Easement RMI 227.6
	Unknown		0	
	Downstream		1	
	Upstream	BT	0	Stocked in 2011 at RMI

	Unknown		1	194.4 in Debeque
	Downstream		0	Canyon in August and September
	Upstream	CS	1	Male tagged 5/10/1995 GR RMI 254.0, recaptured twice in 1999 CO RMI 174-178, recaptured 5/16/2003 CO RMI 187.6, recaptured 5/26/2005 CO RMI 170.5, recaptured 4/22/2009 CO RMI 192.9
	Unknown		0	
	Downstream		0	
Apr. 2012	Upstream	BT	1	Stocked in 2011 at RMI 194.4 in Debeque Canyon in August and September
	Unknown		3	
	Downstream		0	
	Upstream	RZ	1	Stocked in 2006 at CO RMI 184.9, recaptured 5/24/2007 CO RMI 154.0, recaptured 5/3/2010 CO RMI 187.2
	Unknown		0	
	Downstream		0	
	Upstream	FM	2	Tagged in 2003 by CPW
	Unknown		1	
Downstream	0			
May 2012	Upstream	BT	3	Stocked in 2011 at RMI 194.4 in Debeque Canyon in August and September
	Unknown		1	
	Downstream		0	
	Upstream	HB	1	Tagged 9/27/2011 in Westwater at CO RMI 121.8
	Unknown		0	
	Downstream		0	
	Upstream	RZ	1	N=2 stocked in 2011 at Hoagland Conservation Easement RMI 227.6
	Unknown		0	
	Downstream		1	
	Upstream	CS	0	Same fish as highlighted above
	Unknown		0	
	Downstream		1	
	Upstream	RT	9	N=6 tagged in October 2008 at Black Rocks CO RMI 136, N=4 tagged in October 2011 at Black Rocks CO RMI 136
	Unknown		1	
	Downstream		0	
	Upstream	RT	7	N=1 tagged in October

	Unknown		0	2007 at Westwater CO RMI 120's, N=2 tagged in October 2008 at Westwater CO RMI 120's, N=4 tagged in October 2011 at Westwater CO RMI 120's
	Downstream		0	
	Upstream	Unknown	1	
	Unknown		0	
	Downstream		1	
June 2012	Upstream	BT	3	Stocked in 2011 at RMI 194.4 in Debeque Canyon in August and September
	Unknown		0	
	Downstream		0	
	Upstream	RZ	2	N=1 Same fish as highlighted above N=2 stocked in 2011 at Hoagland Conservation Easement RMI 227.6
	Unknown		0	
	Downstream		1	
	Upstream	RT	1	N=2 Tagged in 2011 in Black Rocks at CO RMI 136.0
	Unknown		1	
	Downstream		0	
	Upstream	RT	3	N=5 tagged in 2011 in Westwater at CO RMI 120's, N=1 tagged in 2007 in Westwater at CO RMI 120's
	Unknown		1	
	Downstream		2	
	Upstream	Unknown	0	N=1 could not find tag in UCRRP distribution database
	Unknown		1	
Downstream	0			
July 2012	Upstream	BT	1	Stocked in 2011 at RMI 194.4 in Debeque Canyon in August and September
	Unknown		0	
	Downstream		0	
	Upstream	RZ	4	N=3 stocked in 2011 at Hoagland Conservation Easement RMI 227.6, N=1 stocked in 2010 at Hoagland Conservation Easement RMI 227.6
	Unknown		0	
	Downstream		0	
	Upstream	CS	4	N=1 Same fish as highlighted above, N=1 tagged 4/29/1999
	Unknown		0	
Downstream	0			

				CO RMI 187.7, recaptured twice in 2004 CO RMI 170-173, recaptured 6/2/2005 CO RMI 175.5, recontacted twice in 2010 at Price Stub antennas CO RMI 188.3, recontacted 8/27/2011 at Price Stub antennas CO RMI 188.3, N=1 tagged 5/09/2005 CO RMI 42.3, N=1 tagged 5/26/2005 CO RMI 3.5, recaptured 4/17/2008 CO RMI 9
	Upstream	RT	0	N=2 tagged in 2011 in Westwater at CO RMI 120's, N=1 tagged in 2008 in Westwater at CO RMI 120's
	Unknown		1	
	Downstream		2	
	Upstream	RT	1	N=3 tagged in October 2008 at Black Rocks CO RMI 136, N=1 tagged in October 2011 at Black Rocks CO RMI 136
	Unknown		2	
	Downstream		1	
	Upstream	Unknown	0	N=1 tag distributed to FWS GJ in 2011
	Unknown		1	
	Downstream		0	
August 2012	Upstream	RZ	1	N=1 stocked in 2011 at Hoagland Conservation Easement RMI 227.6
	Unknown		0	
	Downstream		0	
	Upstream	CS	0	N=1 tagged 7/12/2007 GU RMI 3.0, N=1 Same fish as highlighted above
	Unknown		0	
	Downstream		2	
	Upstream	RT	0	N=1 tagged in October 2011 at Black Rocks CO RMI 136
	Unknown		0	
	Downstream		1	
September 2012	Upstream	BT	0	N=7 stocked this year data hasn't been submitted to UCRRP database
	Unknown		5	
	Downstream		2	
	Upstream	RZ	1	N=1 stocked in 2011 at Hoagland Conservation
	Unknown		13	

	Downstream		8	Easement RMI 227.6, N=21 stocked this year data hasn't been submitted to UCRRP database
	Upstream	RT	0	N=1 tagged in October 2008 at Black Rocks CO RMI 136, recontacted 5/11/2012 at Price Stub antennae CO RMI 188.3
	Unknown		0	
	Downstream		1	

VIII. Recommendations:

1. Continue to identify and acquire data sets that belong in the centralized database.
2. Continue collecting data from Price-Stub antennas.
3. Consider additional budgeting for Operation and Maintenance charges associated with the Price-Stub antennas (~\$5,000 safety net).
4. Consider providing additional funds for distributing (shipping) the trays with pre-loaded needles (~\$1,200) to hatcheries and researchers.

IX. Project Status: Project is currently behind schedule, but is catching up. This project is scheduled to continue through the length of the Recovery Program.

X. FY 2012 Budget Status

- A. Funds Provided: 60,846
- B. Funds Expended: 60,846
- C. Difference: -0-
- D. Percent of the FY 2012 work completed, and projected costs to complete: 80%
- E. Recovery Program funds spent for publication charges: -0-

XI. Status of Data Submission (Where applicable): Price Stub antennae data will be submitted to UCRRP database manager by January 2012.

XII. Signed: Travis Francis      10/29/2012  
Principal Investigator      Date