

Population Monitoring Work Group Meeting
November 29, 2017

Meeting Materials:

Meeting Agenda

Meeting Minutes

Scope of Work [not included]

Rating RGSM Monitoring Expert Recommendations [spreadsheet not included]

Replacement Sites

Science Panel Recommendations [spreadsheet not included]



Middle Rio Grande Endangered Species
Collaborative Program
Est. 2000

**Population Monitoring Work Group
Meeting Agenda**

November 29, 9:00 AM – 12:00 PM
Location: Western EcoSystems Technology, Inc.

Meeting Agenda

Conference Call information:
Phone: (712) 451-0011 Passcode: 141544

9:00-9:05	Welcome and Introductions	<i>Debbie Lee</i>
	➤ Approval of Agenda	
9:05-9:20	Review of October Meeting Minutes	<i>Debbie Lee</i>
	➤ Approval of October Meeting Minutes	
9:20-9:30	Review of Charge	<i>Debbie Lee</i>
9:30-9:45	Update on Population Monitoring	<i>Eric Gonzales</i>
	➤ Incorporation of Comments	
	➤ Dry Site Replacement Protocol	
9:45-10:05	Update from Data Analysis Team	<i>Debbie Lee/ Jared Studyvin</i>
	➤ Status of Data	
10:05-10:15	Break	
10:15-11:15	Review of Hubert et al. Recommendations	<i>Debbie Lee</i>
	➤ Review of Recommendation Prioritizations	
	➤ Data Analysis Tasks from each Recommendation	
	➤ Volunteers for Tasks	
11:15-11:50	Discussion of Available Population Monitoring Data	<i>Debbie Lee/ Jared Studyvin</i>
11:50-12:00	Review of Action Items and Next Steps	<i>Luc Moulson</i>
12:00	Adjourn	



Middle Rio Grande Endangered Species Collaborative Program

Est. 2000

Population Monitoring Work Group (PMW) Meeting Minutes

November 29, 2017 – 9:00 AM – 12:00 PM

Location: Western EcoSystem Technology, Inc. (WEST) Office

Decisions:

- ✓ The agenda was reviewed and approved without change and no objections voiced.
- ✓ The October meeting minutes were approved without change and no objections voiced.
- ✓ The PMW decided to evaluate the panel recommendations and develop discrete analysis tasks, and doing a realistic assessment of the skills and time commitments needs for each task.
- ✓ Jared Studyvin, the lead statistician from WEST, will serve as the chair of the Data Analysis Team (DAT).

Actions:

WHO	WHAT	BY WHEN
Eric Gonzales	Send the modified population monitoring scope of work to WEST to circulate to the group.	December 1, 2017
Mike Marcus	Reconcile the numbering and information in the recommendation matrices and send the revised matrix to WEST.	December 4, 2017
Rick Billings and Grace Haggerty	Send the Task 2 proposal approved by the Executive Committee (EC) to WEST.	December 8, 2017
WEST	Draft a document summarizing the direction of the DAT and circulate to group.	December 8, 2017
All	Note the management importance of each recommendation and send to WEST.	January 5, 2018
Jared Studyvin and Ashley Tanner	Break down the panel recommendations into tasks and analyses and circulate to DAT for comment and review.	January 5, 2018
Mike Marcus and Eric Gonzales	Identify which recommendations American Southwest Ichthyological Researchers (ASIR) has already incorporated and for which years.	January 5, 2018
WEST	Compile management implications/importance of each recommendation and send to the full PMW.	January 8, 2018
Mick Porter	Investigate whether by-haul records can be separated by year type. If yes, then complete the task.	January 30, 2018 (tentative)

Mick Porter	Will conduct the analysis for panel recommendations PM6-8 from Hubert et al with assistance from Kate Mendoza and Mo Hobbs, both with Albuquerque Bernalillo County Water Utility Authority (ABCWUA), upon request.	January 30, 2018
Eric Gonzales and Thomas Archdeacon	Will review the coding for analysis done by Mick Porter, U.S. Army Corps of Engineers (USACE).	Upon request
Rich Valdez, Jared Studyvin, or Charles Yackulic	Will conduct the analysis for panel recommendations PM4-5.	TBD

Request/Recommendations:

- The group recommended that the first question for the DAT could be to prioritize the recommendations by what management decisions the analysis could inform.
- It was recommended that the first task for the DAT should be to compute by station amounts by the end of January.

Next Meeting:

February 2018 (exact date TBD)

Upcoming Dates and Deadlines:

December 15 – The final datasets from the Data Acquisition Contract are to be delivered to the U.S. Bureau of Reclamation (USBR). These will be sent to WEST as soon as possible, to be sent to the DAT members.

Meeting Notes

Welcome and Introduction

- Debbie Lee, WEST, called the meeting to order and invited participants to introduce themselves.
 - ✓ The agenda was reviewed and approved without change and no objections voiced.
 - ✓ The October meeting minutes were approved without change and no objections voiced.

Historical Population Monitoring Data Update

- The final contract deliverables from the Data Acquisition contract, including the historical Rio Grande silvery minnow (RGSM) Population Monitoring Program (PopMon) by-haul dataset will be released on December 15, 2017. The data will be provided in a flat file (Excel spreadsheet) with columns showing the original data, the data reported, the QA/QC'd data, and the final data. The level of redundancy provided in the file is to ensure a high degree of transparency.
 - WEST will contact Jen Bachus, USBR, for the specifics of the data acquisition flat file.

- Concerns were raised about the group using the by-haul data to recalculate the by-station data and CPUE, as well as the possibility of conflicting records in the data set.
 - It was explained that the by-haul data that is being released will be the most QA/QC'd data and therefore the most accurate. The new data may not match what was reported in the past, but will only differ by a small amount due to the more rigorous QA/QC process. Therefore any calculations done with the by-haul data will be more accurate than previous analyses, and the results should only differ slightly.
- The group agreed to postpone further discussion on concerns with the dataset until the next meeting, after the data files have been released.

Review of Charge to Committee

- The PMW was charged by the EC with three (3) tasks:
 - 1) Conduct a peer review of the population monitoring program,
 - 2) Review the population monitoring plan and reanalyze the historical data, and
 - 3) Using the information from task 2, revise the RGSM population monitoring plan.

The EC approved the PMWs proposal for task 2 in 2016 and the group continues under that authorization.

- Rick Billings, ABCWUA and Grace Haggerty, NM Interstate Stream Commission (ISC), will send WEST the Task 2 proposal approved by the EC.

Update on Population Monitoring Contract

- The PMW submitted comments on the 2018 Population Monitoring Contract to USBR in October 2017. The group's comments are being incorporated into the contract, but whether or not an optional task is exercised will depend on the budget allotted for the contract.
- The group requested to see the modified scope when it has been awarded. It was confirmed that USBR executives have approved sharing the technical scopes of awarded contracts with the Program.
 - USBR will send the modified population monitoring scope of work to WEST to circulate to the group.
- The group reviewed the dry site replacement protocol provided by ASIR. The group felt the protocol was sufficient. It was noted that due to the high water year, the protocol was not implemented.

Review of Hubert et al. Recommendations

- The DAT met on November 14 and decided to evaluate the overlap between the Hubert et al. and Noon et al. panel recommendations. The panel recommendations matrix provided by Rich Valdez, SWCA Environmental Consultants (SWCA), highlights the overlapping data analysis tasks.

Discussion of Charge to the Data Analysis Team

- The group briefly discussed the charge of the DAT, as there were concerns raised that the DAT was conducting work that was not at the direction of the PMW. The group decided to charge the DAT with developing a plan on how to proceed with the data analysis task, and then implement that plan with support from WEST statisticians and Charles Yackulic, U.S. Geological Survey, an external statistician from the Glen Canyon Dam Program.
- There was a request for the DAT to provide a work plan, schedule, and possibly a budget before proceeding with the data analysis project.
- Luc Moulson, WEST, reviewed the notes from the DAT for the group to clarify the direction the DAT is taking and the proposed group breakdown of an external reviewer, an internal reviewer/coordinator, and the analysis team.

- The group explained that they felt more comfortable with enlisting members from the PMW to do the analysis because they are the individuals who work with the species and have a high degree of familiarity with the data. Not only will the group have a high familiarity with the data, but they will be involved with the process from the beginning.
 - Concerns were raised that using members of the PMW for the re-analysis task may be problematic due to peoples' already tight schedules, and how group members would be held accountable. This concern would be assuaged if there was an agreed upon method to make sure that deadlines were met.
 - The PMW resolved to task the DAT with evaluating who has sufficient time and skills for the analysis while also relying more heavily on WEST to assist. WEST is comfortable to help with the analysis, but would like the group to remain engaged so that WEST does not become a "black box" obscuring the analysis process.
- ✓ The PMW decided to evaluate the panel recommendations and develop discrete analysis tasks, and doing a realistic assessment of the skills and time commitments needs for each task.
- ✓ Jared Studyvin, the lead statistician from WEST, will serve as the chair of the DAT.

Review of Evaluation of Analysis Task

- The group recommended that the first question for the DAT could be to prioritize the recommendations by the management decisions each analysis could inform.
- It was mentioned that ASIR has incorporated some of the panel recommendations into its protocols since 2016, and this may lower the priority of reanalyzing the historical data.
 - Mike Marcus, APA, and Eric Gonzales, USBR, will identify which recommendations ASIR has already incorporated and for which years.
- Some initial analyses will be completed as a pilot for how the DAT will function, and Jared will manage the different tasks. The following tasks were assigned:
 - Mick Porter, USACE, will investigate whether by-haul records can be separated by year type. If yes, then he will complete the task.
 - Mick Porter volunteered to handle panel recommendations PM6-8 from Hubert et al.
 - Kate Mendoza and Mo Hobbs, both with ABCWUA, will assist upon request.
 - Eric Gonzales and Thomas Archdeacon, U.S. Fish and Wildlife Service (USFWS), may review the code for the analysis done by Mick.
 - Jared Studyvin and Ashley Tanner, WEST, will also be available for review of the analysis.
 - Panel recommendations PM4-5 will be done by Rich Valdez; Jared Studyvin, and/or Charles Yackulic.
- Jared Studyvin and Ashley Tanner, WEST, will break down the discrete analysis tasks and evaluate the skills sets needed and circulate their recommendations to the group for comment.
- It was recommended that the first task for the DAT should be to compute by-station numbers by the end of January.

Meeting Participants

Participant		Organization
Thomas	Archdeacon	USFWS
Rick	Billings	ABCWUA
Lynette	Giesen	USACE
Eric	Gonzales	USBR
Grace	Haggerty	ISC
Debbie	Lee	WEST
Mike	Marcus	Assessment Payers Association
Luc	Moulson	WEST
Mick	Porter	USACE
Jared	Studyvin	WEST
Rich	Valdez	SWCA
Matt	Wunder	NM Department of Game and Fish

As part of the long-term Rio Grande Silvery Minnow population monitoring effort, the new 2017 contract requires adding 30 replacement sites, 10 per sampling reach, to supplement the standard monitoring sites during periods of river drying. We proposed using a random site-selection methodology for these supplemental replacement sites. The replacement sites were selected randomly using a spatially balanced statistical design (GRTS; Stevens and Olsen, 1999, 2003, 2004). The advantage the GRTS technique has over simple random sampling is that it ensures spatially balanced samples, even if sites are lost (and subsequently replaced by new GRTS sites) over time because of safety or access issues. The computer program "S-Draw" (Western EcoSystems Technology, Inc. - Trent L. McDonald) was used to randomly select sampling units within the Middle Rio Grande. This program allowed for efficient one-dimensional drawing of GRTS samples based on all possible 200-m sampling sites ($n = 1,170$) within the targeted study area. We selected the first 10 randomly-generated sites, for each sampling reach, from the GRTS program output.

Based on all river-drying scenarios that have occurred over the past two decades, this approach would ensure that a maximum of 30 wetted sites (10 per reach), as a combination of standard, additional, and replacements, would be available for sampling and reporting purposes. The maximum number of 30 wetted sites would only occur during April and October, but the typical number of 20 wetted sites (i.e., replacements for any of the standard sampling sites) would occur monthly from May to September. We will select replacements, at the time of sampling, based on the key requirements listed in the RFP for site placement (i.e., located in wetted areas, located in non-isolated stretches of river, located within the river channel, located in an area with > 0.5 mile of continuous river flow, located in an area that doesn't present unreasonable safety or access issues, located closest to the replaced dry site, located in the same reach as the replaced dry site, and located where they are likely to serve as viable replacements over time).

Stevens, D. L., and A. R. Olsen. 1999. Spatially restricted surveys over time for aquatic resources. Journal of Agricultural, Biological, and Environmental Statistics 4:415–428.

Stevens, D. L., and A. R. Olsen. 2003. Variance estimation for spatially balanced samples of environmental resources. Environmetrics 14:593–610.

Stevens, D. L., and A. R. Olsen. 2004. Spatially balanced sampling of natural resources. Journal of the American Statistical Association 99:262–278.

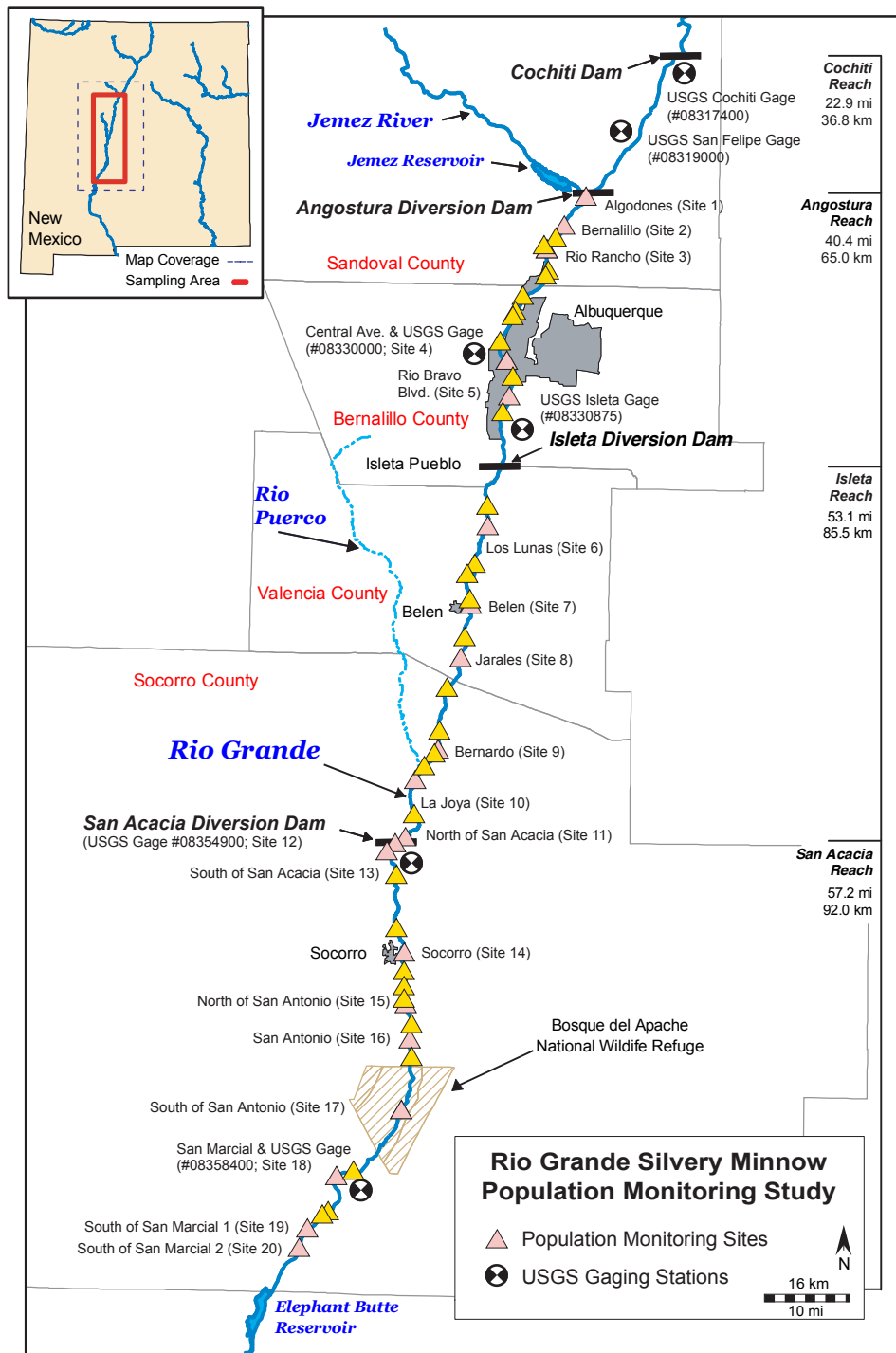


Figure 1. Map of the study area and sampling sites (numbered) for the Rio Grande Silvery Minnow population monitoring study. Replacement sites shown in yellow.

Table 1. Sampling reaches and replacement sites for population monitoring of Rio Grande Silvery Minnow in the Middle Rio Grande, NM. Approximate site locations are provided, but exact locations will not be known until the time of sampling (i.e., local site access issues are uncertain and dry site locations are unknown).

Reach and Site	Locality
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Angostura Reach

- 1 UTM Easting: 357154; UTM Northing: 3907904; Zone: 13S; Datum: NAD83
- 2 UTM Easting: 355156; UTM Northing: 3906068; Zone: 13S; Datum: NAD83
- 3 UTM Easting: 354979; UTM Northing: 3902950; Zone: 13S; Datum: NAD83
- 4 UTM Easting: 355420; UTM Northing: 3901630; Zone: 13S; Datum: NAD83
- 5 UTM Easting: 351846; UTM Northing: 3897067; Zone: 13S; Datum: NAD83
- 6 UTM Easting: 349591; UTM Northing: 3894357; Zone: 13S; Datum: NAD83
- 7 UTM Easting: 349224; UTM Northing: 3893224; Zone: 13S; Datum: NAD83
- 8 UTM Easting: 345909; UTM Northing: 3888137; Zone: 13S; Datum: NAD83
- 9 UTM Easting: 348263; UTM Northing: 3879448; Zone: 13S; Datum: NAD83
- 10 UTM Easting: 346138; UTM Northing: 3874605; Zone: 13S; Datum: NAD83

Isleta Reach

- 11 UTM Easting: 343081; UTM Northing: 3855334; Zone: 13S; Datum: NAD83
- 12 UTM Easting: 340572; UTM Northing: 3843459; Zone: 13S; Datum: NAD83
- 13 UTM Easting: 340007; UTM Northing: 3842637; Zone: 13S; Datum: NAD83
- 14 UTM Easting: 340026; UTM Northing: 3837699; Zone: 13S; Datum: NAD83
- 15 UTM Easting: 339848; UTM Northing: 3831027; Zone: 13S; Datum: NAD83
- 16 UTM Easting: 335514; UTM Northing: 3819954; Zone: 13S; Datum: NAD83

17 UTM Easting: 334322; UTM Northing: 3813438; Zone: 13S; Datum: NAD83

18 UTM Easting: 334538; UTM Northing: 3809479; Zone: 13S; Datum: NAD83

19 UTM Easting: 332089; UTM Northing: 3806898; Zone: 13S; Datum: NAD83

20 UTM Easting: 329253; UTM Northing: 3799576; Zone: 13S; Datum: NAD83

San Acacia Reach

21 UTM Easting: 326098; UTM Northing: 3786408; Zone: 13S; Datum: NAD83

22 UTM Easting: 326952; UTM Northing: 3774039; Zone: 13S; Datum: NAD83

23 UTM Easting: 327711; UTM Northing: 3767033; Zone: 13S; Datum: NAD83

24 UTM Easting: 327306; UTM Northing: 3764510; Zone: 13S; Datum: NAD83

25 UTM Easting: 327762; UTM Northing: 3763092; Zone: 13S; Datum: NAD83

26 UTM Easting: 329289; UTM Northing: 3758142; Zone: 13S; Datum: NAD83

27 UTM Easting: 329172; UTM Northing: 3752381; Zone: 13S; Datum: NAD83

28 UTM Easting: 317591; UTM Northing: 3728691; Zone: 13S; Datum: NAD83

29 UTM Easting: 312777; UTM Northing: 3720553; Zone: 13S; Datum: NAD83

30 UTM Easting: 311972; UTM Northing: 3719854; Zone: 13S; Datum: NAD83
