

**Middle Rio Grande Endangered Species Collaborative Program (MRGESCP)  
Science & Technical (S&T) Ad Hoc Group Charge  
*Rio Grande Silvery Minnow Hypotheses Development Ad Hoc***

**Approved by Science and Adaptive Management Committee (SAMC) on August 26, 2021.  
Approved by the Rio Grande Silvery Minnow (RGSM) Hypotheses Development Ad Hoc on August 16, 2022.**

**Parent Committee**

Science and Adaptive Management Committee.

**Ad Hoc Group Charge**

Review, translate and refine recommendations from the RGSM Population Monitoring Work Group (PMWG) status report (Valdez 2021) into specific questions with clear and testable hypotheses. If a hypothesis cannot be generated, provide an explanation and cite relevant literature.

**Membership**

**A. *Criteria for membership***

- Knowledge of RGSM life history and ecology within the Middle Rio Grande (MRG);
- Familiarity with MRG Fish Monitoring Program (FMP);
- Group should include a diverse range of perspectives, beyond those of the original Population Monitoring Workgroup.

**B. *Member List (confirmed)***

**Andy Dean (Lead), U. S. Fish & Wildlife Service**

Eric Gonzales, U.S. Bureau of Reclamation

Matthew Wunder, N.M. Department of Game & Fish

Michael Porter, U.S. Army Corps of Engineers

Nathan Schroeder, Pueblo of Santa Ana

Stephen Zipper, SWCA Environmental Consultants

Kim Eichhorst, Bosque Ecosystem Monitoring Program

**Iterative Task Development**

**Background**

The recent report entitled, “Review of the Middle Rio Grande Fish Monitoring Program” (Valdez 2021) summarizes the findings that resulted from activities of the RGSM PMWG from 2012-2020 and provides eight recommendations. The report concludes that the MRG Fish Monitoring Program, in its current form, fulfills its intended purposes, but that use of the data outside of those purposes should be assessed separately. To that end, in July 2021 the MRGESCP Executive Committee (EC) approved additional scientific review and, where justified, further refinement of the report’s recommendation statements, listed here:

1. *Continue to implement FMP, as conducted during 2017-2020 that includes the recommendations of the Hubert et al. (2016) science panel.*
2. *Evaluate the use of other fish sampling gears, in addition to beach seines, to inform and possibly supplement the current FMP.*
3. *Re-evaluate the relationship of CPUE to total abundance of RGSM.*

4. *Characterize the physical parameters of principal mesohabitat types to inform fish population models and hydraulic habitat models.*
5. *Refine the current monitoring plan to optimize precision and representation of the October CPUE at acceptable program costs.*
6. *Evaluate and compare other analytical methods against the mixture model and determine if other methods are more suitable for computing RGSM CPUE.*
7. *Develop and regularly evaluate integrated population models to help identify and reconcile complex influences on monitoring.*
8. *Draft a clear and concise MRG Fish Monitoring Plan for review and approval by the SAMC and the EC.*

The Valdez (2021) summary report serves as a starting place for the tasks detailed below. Additional resources and support will be provided by the MRGESCP Program Support Team, as needed, to expedite this work.

***The SAMC requests that you review the draft tasks, deliverables and schedule below and provide feedback and questions to begin the iterative process of task development.***

## **Tasks and Deliverables**

### **Task 1: Translate recommendation statements into specific questions with clear and testable hypotheses.**

Translate each recommendation statement into a clearly articulated research hypothesis. Clarify and refine the language used, if needed. Some statements may warrant multiple hypotheses. If a hypothesis cannot be generated, provide a brief explanation and cite relevant literature.

#### **Objective of Task 1:**

Clearly articulated research hypotheses will help to identify important influences, as well as key response metrics and steps needed to design studies and communicate findings effectively.

#### **Deliverable:**

List of research hypotheses generated from each recommendation statement, or brief justification for no hypothesis. Provide all relevant citations of literature, where applicable.

### **Task 2: Review each hypothesis from Task 1 for scientific validity, technical accuracy, and management relevance.**

Review of each statement should include an updated literature review (i.e., beyond that provided in the summary report, if applicable). Cite any relevant evidence supporting or refuting the need for additional investigation of the topic. As part of this review, include any study considerations required to scope a project to address the hypothesis.

#### **Objective of Task 2:**

A thorough and current review of each recommendation ensures that the best available science will be applied at all decision points. This supports adaptive management as outlined in the MRGESCP Long-Term Plan for Science and Adaptive Management (WEST 2022).

**Deliverable:**

Completed review comment matrix for the hypotheses generated from report recommendation statements selected in Task 1 (form provided by PST).

**Timeline and Reporting Scheduling**

<b>Task</b>	<b>Subtask</b>	<b>Deliverable</b>	<b>To Be Completed By</b>
Task 1: Translate recommendation statements into specific questions with clear and testable hypotheses	Progress updates to SAMC	List of research hypotheses generated from the recommendation statements	TBD
Task 2: Review each hypothesis from Task 1 for scientific validity, technical accuracy, and management relevance	NA	Completed review comment matrix	TBD
		Presentation to SAMC	TBD

**References:**

Valdez, R. A. 2021. Review of the Middle Rio Grande Fish Monitoring Program: Status Report of The Population Monitoring Workgroup, Richard A. Valdez, Ph.D. Workgroup Chair (2019-2020). Prepared for the Executive Committee of The Middle Rio Grande Endangered Species Collaborative Program, Albuquerque, New Mexico. Final. July 20, 2021. 63pp.

Western EcoSystems Technology, Inc. 2022. Middle Rio Grande Endangered Species Collaborative Program Long-Term Plan for Science and Adaptive Management, v. 2.0. Approved by the Executive Committee of the Middle Rio Grande Endangered Species Collaborative Program, March 23, 2022, Albuquerque, NM. 88 pp.