

Science and Adaptive Management Committee Meeting

August 26, 2021

Meeting Materials:

Agenda

Minutes

Draft RGSM Population Research Ad Hoc Group Charge [read-ahead, draft]

Draft MRG HR Guidance Ad Hoc Group Charge [read-ahead, draft]

Draft HR Workshop Agenda [read-ahead, draft]

2021 HR Workshop Questionnaire Results [presentation]

Draft Peer Review Process [presentation]

Revised RGSM Population Research Ad Hoc Group Charge [follow-up]

Revised MRG HR Guidance Ad Hoc Group Charge [follow-up]



Middle Rio Grande Endangered Species Collaborative Program

Est. 2000

Science and Adaptive Management Committee (SAMC)

August 26, 2021
8:00 AM – 12:00 PM

Location: Zoom

<https://west-inc.zoom.us/j/8983593120?pwd=bU54V3NGeG93bXVlSjJFcElzceE9wZz09>

Meeting Agenda

Meeting Objectives:

- Discuss document peer review process for the Middle Rio Grande Endangered Species Collaborative Program (MRGESCP).
- Discuss using habitat restoration (HR) to inform adaptive management.
- Discuss the role of the SAMC at the August 31, 2021 HR Workshop.
- Discuss Science & Technical (S&T) Ad Hoc Group charges for Executive Committee-approved next steps from the SAMC memo on the Population Monitoring Work Group (PMWG) Summary Report.
- Evaluate SAMC progress and discuss expectations.

8:00 – 8:05	Welcome, Introductions, and Agenda Review Read-Ahead: <ul style="list-style-type: none"><input type="checkbox"/> Draft August 2021 Meeting Agenda✓ Decision: Approval of August 2021 Agenda	Catherine Murphy, Program Support Team (PST)
8:05 – 8:10	June Meeting Minutes and Actions Item Review Read-Ahead: <ul style="list-style-type: none"><input type="checkbox"/> Draft June 2021 Meeting Minutes✓ Decision: Approval of June 2021 Minutes	Catherine Murphy, PST
8:10 – 8:20	Update from July Executive Committee Meeting	Catherine Murphy, PST
8:20 – 8:40	Current Science & Technical Ad Hoc Group Updates <ul style="list-style-type: none">• Avian Conceptual Ecological Models (CEMs)• Rio Grande Silvery Minnow (RGSM) CEM• RGSM Integrated Population Model• RGSM Population Monitoring Work Group Summary Report	Catherine Murphy, PST
8:40 -8:50	Proposed Science & Technical Ad Hoc Groups <ul style="list-style-type: none">• RGSM Hypothesis Development (<i>per SAMC memo</i>)	Catherine Murphy, PST

- Guidance to address HR Workshop questions
- **Action Item:** PST will revise charges as necessary and convene approved S&T Ad Hoc Groups

Read-Aheads:

- Draft S&T Ad Hoc Group Charge for RGSM Population Research Questions Ad Hoc
- Draft S&T Ad Hoc Group Charge for Middle Rio Grande HR Guidance Ad Hoc

8:50 – 9:50	<p>Document Review Considerations</p> <ul style="list-style-type: none"> • Draft Internal and External Review Process • Citation standards and reviewer considerations for S&T Ad Hoc Group work products <p>➤ Action Item: SAMC members will provide PST additional considerations for a MRGESCP peer review process</p>	<p><i>Debbie Lee, PST</i> <i>Thomas Archdeacon, U.S. Fish and Wildlife Service</i></p>
9:50 – 10:00	<p>Break</p>	
10:00 – 11:00	<p>HR to Inform Adaptive Management</p> <ul style="list-style-type: none"> • Data Collection • Data Analysis and Interpretation • Modeling • Model Results and Interpretation • Thresholds/Recommendations for Action 	<p><i>Ari Posner, U.S. Bureau of Reclamation</i></p>
11:00 – 11:30	<p>HR Workshop: August 31, 2021</p> <ul style="list-style-type: none"> • Pre-workshop survey results • Role of SAMC members and PST • Next steps from HR Workshop <p>Read-Ahead:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Draft HR Workshop Agenda 	<p><i>Catherine Murphy, PST</i></p>
11:30 – 11:45	<p>“Collaboratory” Workshop</p> <ul style="list-style-type: none"> • Workshop overview and communication focus • Tying into MRGESCP adaptive management cycle 	<p><i>Debbie Lee, PST</i></p>
11:45 – 11:55	<p>SAMC Informal Evaluation</p> <ul style="list-style-type: none"> • Level of engagement • What is working? Not working? • Feedback and recommendations • MRGESCP Annual Evaluation 	<p><i>Catherine Murphy, PST</i> <i>Debbie Lee, PST</i></p>

11:55 – 12:00 **Action Items and Next Steps**

Catherine Murphy, PST

- **Next Meeting:** October 28, 2021 (possibly move to following week)

12:00 **Adjourn**



Middle Rio Grande Endangered Species Collaborative Program

Est. 2000

Science and Adaptive Management Committee (SAMC) Meeting Minutes

August 26, 2021; 8:00 AM–12:00 PM

Location: Zoom Meeting

Decisions:

- ✓ Approval of August 26, 2021 SAMC meeting agenda with amendments
- ✓ Approval of June 24, 2021 SAMC meeting minutes

Action Items:

WHO	ACTION ITEM	BY WHEN
Program Support Team (PST)	Send out a Doodle Poll to reschedule the next SAMC meeting for the week of November 1	8/31/2021
PST	Send out the Habitat Restoration (HR) Workshop agenda	8/27/2021
PST	Revise the HR Workshop presentation based on SAMC discussion	8/30/2021
PST	Send Rio Grande silvery minnow (RGSM) Hypotheses Development Ad Hoc Group and Middle Rio Grande (MRG) HR Guidance Ad Hoc Group(s) charges with revisions with the SAMC meeting follow-up	8/30/2021
SAMC	Suggest potential members for the RGSM Hypotheses Development Ad Hoc Group	9/3/2021
SAMC	Send any further revisions on the Science & Technical (S&T) Ad Hoc Group charges	9/3/2021
PST	Schedule MRG HR Guidance Ad Hoc Group(s) meeting(s)	9/16/2021
PST	Schedule RGSM Hypotheses Development Ad Hoc Group meeting	9/19/2021
SAMC	Provide additional considerations for the Middle Rio Grande Endangered Species Collaborative Program (MRGESCP) peer review process as outlined in the meeting presentation	9/3/2021

Next Meeting: First week of November

Meeting Summary

Welcome, Meeting Objectives, and Agenda Review

Catherine Murphy, PST Science Coordinator and SAMC Facilitator, opened the meeting and led introductions. Catherine M. reviewed the August 26, 2021 meeting agenda and objectives, and made the following amendments: remove the update from the Population Monitoring Work Group (PMWG) Summary Report Ad Hoc, as it was sunsetted, and remove Thomas Archdeacon from the peer review discussion, as he is not present due to a scheduling conflict. In addition, the guests invited by Ari Posner to speak on HR will not be present, so the SAMC will discuss HR amongst themselves.

- ✓ **Decision:** Approval of the August 26, 2021 SAMC meeting agenda with amendments

June Meeting Minutes and Actions Item Review

Catherine M. and Debbie Lee, PST, reviewed the June 24, 2021 meeting minutes and action items.

- ✓ **Decision:** Approval of the June 24, 2021 SAMC meeting minutes

Update from July Executive Committee Meeting

Catherine M. and Debbie L. gave an update on the July 28, 2021 Executive Committee (EC) meeting. Summary points are below:

- There were 10 decision points and all were approved by the EC.
- Rich Valdez, SWCA Environmental Consultants, presented on the findings and recommendations from the PMWG Summary Report. The EC approved the next steps proposed in the SAMC's memo. The SAMC will form S&T Ad Hoc Groups to carry out next steps.
 - Repeating the Population Estimation Program (PEP) was proposed in the SAMC memo. Catherine M. asked Rob Dudley, American Southwest Ichthyological Researchers and Museum of Southwestern Biology (Fishes), UNM, about the PEP at his Collaborative Seminar on RGSM population monitoring. If the PEP was repeated, Rob D. believes the population estimate would track the estimate from the Population Monitoring Program. The PEP is unlikely to be repeated, but it is an available tool, should future resources be allotted to address the uncertainty of abundance estimates.
- The EC approved the HR Workshop.
- The EC approved the revised By-Laws. There will be minor changes made to the SAMC Charter to reflect revisions.

Current Science & Technical Ad Hoc Group Updates

Catherine M. gave an update on the current S&T Ad Hoc Groups. Summary points are below:

- S&T Ad Hoc Groups have been given flexibility in their timelines, but it is important they finish their work in a timely manner. Catherine M. suggests the deadlines stated in the charges apply to either finishing a deliverable or giving a progress report to the SAMC. Based on the progress report, the SAMC can decide if an S&T Ad Hoc Group should continue or sunset.
- Avian Conceptual Ecological Model (CEM) Ad Hoc – The group filled in the level of uncertainty in relationships between variables in the avian CEMs. The group is now adding information such as which relationships are important for HR and for answering life questions. The group also generated additional references, which adds scientific validity. There will be a summary of the group's deliverable at the next SAMC meeting.

- RGSM Genetics/CEM Ad Hoc – The group is adding genetics/captive propagation components to the RGSM CEM model. They have completed approximately half of their tasks. Wade Wilson (lead), U.S. Fish & Wildlife Service (USFWS), will give a progress report at the next SAMC meeting.
- RGSM Population Model Ad Hoc – Charles Yackulic (lead), U.S. Geological Survey, continues to work on the Integrated Population Model and is incorporating the information from the expert elicitation group exercise. How he will present progress on the model within the terms of his contract is currently being determined.

Proposed Science & Technical Ad Hoc Groups

Catherine M. discussed the proposed S&T Ad Hoc Groups (see draft RGSM Population Research Questions Ad Hoc Charge and MRG HR Guidance Ad Hoc Charge). Summary points are below:

- RGSM Hypotheses Development Ad Hoc (name changed from RGSM Population Research Questions Ad Hoc) – Proposed in the SAMC memo on the PMWG Summary Report. The group will review, translate, and refine recommendations from the PMWG Summary Report into specific questions with clear and testable hypotheses. New people are encouraged to join the group to bring in fresh perspectives, in addition to former PMWG members, who are most familiar with the topics.
 - Suggestions for members: Beck Bixby (University of New Mexico), Andy Dean (USFWS), Eric Gonzales (U.S. Bureau of Reclamation [Reclamation]), Matt Wunder (New Mexico Department of Game & Fish), and Joel Lusk (Reclamation).
 - The membership criteria were revised to state, “Seeking a diverse range of perspectives, including individuals with an outside perspective to the original PMWG.”
 - The PMWG Summary Report has a list of four findings and eight recommendations (Valdez 2021). Not all recommendations need to be developed into hypotheses.
 - RE: Evaluating recommendations for hypothesis development
 - Some recommendations need robust reasoning for completing (ex. #6). Recommendations need to be evaluated based on research potential and reasoning provided if they are not recommended for further development.
 - If a recommendation cannot be addressed, it is best left open, so it can be addressed in the future, should resources and/or new approaches become available.
 - RE: Communication with the SAMC
 - The group will give regular progress reports for SAMC input.
 - RE: Tasks 1 and 2 in the Ad Hoc Charge
 - Task 1 prescreens the recommendations before hypotheses are formed in Task 2. Reorder Tasks 1 and 2, so that developing hypotheses for the recommendations will inform the screening process. New Task 1 will be to translate all recommendations into questions with hypotheses. New Task 2 will be to review each hypothesis and outline any study considerations needed to scope a project to address it, where appropriate.
 - RE: Task deadlines
 - The group will give an update on hypotheses after Task 1 and the SAMC will assign a deadline for Task 2, based on the list from Task 1.
- MRG HR Guidance Ad Hoc – *Discussion moved to later in meeting.*

- **Action Item:** The PST will send RGSM Hypotheses Development Ad Hoc Group and MRG HR Guidance Ad Hoc Group(s) charges with revisions with the SAMC meeting follow-up
- **Action Item:** The SAMC will suggest potential members for the RGSM Hypotheses Development Ad Hoc Group
- **Action Item:** The SAMC will send any further revisions on the S&T Ad Hoc Group charges
- **Action Item:** The PST will schedule MRG HR Guidance Ad Hoc Group(s) meeting(s)
- **Action Item:** The PST will schedule RGSM Hypotheses Development Ad Hoc Group meeting

Document Review Considerations

Debbie L. presented on a proposed peer review process (see Draft Peer Review Process presentation).

Summary points are below:

- Peer review is a spectrum; there are different categories and types of peer review to meet different needs. Types include statistical, editorial, contextual, and programmatic. Categories are listed below:
 - Internal Administrative Review – For MRGESCP documents (ex. By-Laws, Long-Term Plan). Reviewed by signatories. Low time commitment and low cost.
 - Internal Scientific Review – For S&T Ad Hoc Group work products and science & adaptive management (AM) tools (ex. CEMs, scopes of work). Needs expert reviewers, which can include the SAMC or external reviewers. Low time commitment and low cost.
 - External Expert Review – For important administrative/scientific documents and models with medium-to-high level of contention (ex. Science & AM Plan, population viability analysis). SAMC recommends reviews and the EC approves. Requires expert reviewers that are external to the MRGESCP and paid. Reviews are generally remotely administered. The result could be individual comment forms or a panel report. Medium cost and time commitment.
 - Independent Science Panel (ISP) – For important scientific issues with high level of contention that need programmatic review (ex. Hubert panel, Noon panel). SAMC recommends reviews and the EC approves. Needs expert reviewers that are external and paid. Reviews are in-person and multi-day. The result is a panel report. High cost and greatest time commitment.
- The processes for internal and external scientific review and panel report next steps are laid out in the Draft Peer Review Process presentation (slides 7-11).
- The PST will write a section on peer review for the Science & Adaptive Management (S&AM) Plan, with more details in an appendix.

Summary points for questions/comments/responses are below:

- RE: Presenting panel recommendations and findings
 - The full MRGESCP should be included when presenting panel recommendations and findings, such as with a public seminar.
- RE: Reviewing MRGESCP comments on panel reports
 - In step 8 of the Panel Report Next Steps (slide 11 of the Draft Peer Review Process presentation), the panel contractor documents MRGESCP comments. There may need to be another step for the MRGESCP to review and accept changes. There needs to be documented justification for accepting or rejecting comments.
 - It is not always possible to satisfy every comment on a document. That is the reason a public comment review matrix has been used for S&T Ad Hoc Groups.

- There could be an intermediary SAMC review before the full MRGESCP sees a panel report. The SAMC can identify areas of high contention or potential confusion and coordinate with the ISP on revisions.
 - The PST will add a step into the peer review process for the SAMC to do the first contextual review of panel reports.
 - RE: Internal versus external reviews
 - Internal reviews are much more nimble, responsive, and low cost. External expert reviews can cost between \$3,000-7,000 per reviewer. An ISP can cost between \$75,000-100,000. There should be a high bar for ISPs.
 - The cost difference between the review categories should be more apparent on the comparison chart. Dollar signs could be added to each category or Debbie L. could add cost ranges.
 - RE: External experts
 - If we consistently need to look outside the MRGESCP for expert review, that is a red flag that we need additional expertise in the MRGESCP (ex. New Mexico Meadow jumping mouse expert).
 - RE: PMWG Summary Report addendum
 - For the PMWG Summary Report, when there was a lack of consensus, the report moved forward with differing opinions reflected in an addendum. The report carries more weight than an addendum. It may be better to include differing opinions in the report.
 - We have moved away from standing workgroups and the S&T Ad Hoc Group tasks are more specific, so there are fewer areas of disagreement.
- **Action Item:** The SAMC will provide additional considerations for the MRGESCP peer review process as outlined in the meeting presentation

HR Workshop: August 31, 2021

Catherine M. opened discussion on the HR workshop and reviewed the event agenda (see Draft HR Workshop Agenda and 2021 HR Workshop Questionnaire Results presentation). Summary points are below:

- The HR Workshop is scheduled for August 31, 2021 from 1:00 – 4:00 PM.
- The objectives of the HR Workshop are to discuss defining restoration goals and success, documenting HR project success, and choosing metrics for measuring success.
 - These may not be covered fully at the HR Workshop, but a list of questions and issues will be generated for the MRG HR Guidance Ad Hoc Group to address.
- The HR Workshop will start with a presentation on defining HR success, which includes results from the pre-workshop questionnaire, before moving to break out groups, and closing with report outs from the break out groups.
- Break Out Groups:
 - SAMC members will moderate break out rooms and PST members will record notes. Discussions in break out rooms will be summarized for presentation to the entire HR Workshop.
 - The SAMC will use the set of questions below to moderate break out room discussion. Participants will answer round-robin style.
 1. Name, affiliation, and role in HR.
 2. How do you define success/performance for HR?

3. What do you measure to document success/performance?
 4. Is anything preventing you from collecting the data you want?
 5. Share a positive or negative experience with HR.
- Pre-Workshop Questionnaire results are summarized on the 2021 HR Workshop Questionnaire Results presentation. Respondents were asked to answer all questions with respect to their organization's most recent HR project.
 - The outcome of the HR Workshop will be a list of questions, issues, and challenges to send to the MRG HR Guidance Ad Hoc Group. The group will match them up with available resources or recommend next steps for addressing them.
 - This upcoming HR Workshop is set up to be the first in a series. Future iterations of HR Workshops could form around more specific topics, such as habitat for individual species.
 - After the HR Workshop, the MRG HR Guidance Ad Hoc Group Charge will be updated.
 - During the break out groups, the PST will note any participants who contribute heavily to discussions and would be good nominees for the MRG HR Guidance Ad Hoc Group.

Summary points for questions/comments/responses are below:

- RE: HR workshop schedule
 - It would be better to hold off on the HR success presentation until after the break out groups to prevent bias in responses. The results from the Pre-Workshop Questionnaire can still be presented early, but save topics like the Bosque Ecosystem Monitoring Program resources for the end of the HR Workshop.
- RE: Combining organization members into the same break out groups
 - People may learn less if they are in break out groups with people they work with. Spreading them out can help share different perspectives.
- RE: Dividing break out groups by species
 - The purpose of the HR Workshop is to define restoration goals and success, but not for a specific project or species. The conversation should stay broad.
 - Reclamation's MRG Width Maintenance Program combines riparian and aquatic issues. It would be helpful for others to discuss their projects in a broad, overlapping way.
- RE: Broad HR questions
 - Examples of broad questions: How many times should we be sampling? Are we using metrics that make sense?
 - How success of a project is defined should determine the metrics used and frequency of data collection.
 - When it comes to HR monitoring, researchers look for species presence at the site and any impact on population.
- RE: Changes to break out room questions
 - Remove the question on sharing a positive or negative experience. Responses could get too negative.
 - In Question 4, suggestion to ask where the water for HR is coming from.
 - This would be too contentious.
 - Change Question 3 to "What is your approach to project design?" to elicit information on monitoring, site selection, data collection, duration, etc.
 - Change Question 4 to "What support or resources would help you measure success?" to keep discussion positive.
 - Focus on expectations and how we can help meet them.

- **Action Item:** The PST will send out the HR Workshop agenda
- **Action Item:** The PST will revise the HR Workshop presentation based on SAMC discussion

HR to Inform Adaptive Management

Ari Posner discussed HR that informs AM. Summary points are below:

- The ideal format for exploring HR that informs AM is an S&T Ad Hoc Group. Related issues may rise out of the HR Workshop, and the SAMC can task an S&T Ad Hoc Group with addressing them.
- The MRG HR Guidance Ad Hoc Charge includes a task for reaching out for related HR resources. It may be more fruitful to synthesize what is being done in the MRG.
 - The task was not intended to exclude or ignore data resources within the MRG. Catherine M. will revise the charge to make this clear.
- The August newsletter will include a section on conservation and planning support tools. There will also be a Resources page on the Portal with links to these tools and any other provided.

“Collaboratory” Workshop

Debbie L. discussed the proposed Collaboratory Workshop for inclusion in the S&AM Plan operating schedule. Summary points are below:

- MRGESCP participants want to make sure the science being done is management relevant and timely. The PST developed an idea for a biennial workshop to relate scientific results/findings to management needs.
- Participants at the workshop can also bring awareness to any ongoing or upcoming projects that may have been omitted from discussions.
- At the workshop, participants will discuss the MRGESCP’s focus for the next two years corresponding to managers’ needs. Feedback gained through workshop discussions will be used to revise the MRGESCP’s science objectives and strategies.
- The Collaboratory Workshop and Science Symposium will alternate every year. The Science Symposium will help document scientific progress, and the Collaboratory Workshop will strengthen management relevance of the science program.

SAMC Informal Evaluation

Catherine M. discussed the SAMC evaluation. Summary points are below:

- The EC approved an annual self-evaluation for the MRGESCP. Evaluation is an important part of AM.
- The SAMC members will evaluate their own experience and participation on the SAMC, as well as the support provided by the PST. Feedback will help improve both the SAMC and MRGESCP.
- The formal evaluation will be implemented after the EC approves the process. This is currently projected to be in October.

Closing Items

- The next SAMC meeting was originally scheduled the same week as the next EC meeting. Therefore, the October SAMC meeting will be rescheduled for the first week of November.
- **Action Item:** The PST will send out a Doodle Poll to reschedule the next SAMC meeting for the week of November 1

Meeting Participants

Alan Hatch	EC <i>Ex Officio</i> Member
Ara Winter	Statistics/Modeling Expert
Ari Posner	Geomorphology Expert
Catherine Murphy	Program Support Team, SAMC Facilitator
Dale Strickland	Program Support Team
Debbie Lee	Program Support Team
Meaghan Conway	Ecosystem Function Expert
Megan Friggens	Climate Science Expert
Michelle Tuineau	Program Support Team
Mo Hobbs	Aquatic Ecology Expert
Ryan Gronewold	Hydrology Expert

Middle Rio Grande Endangered Species Collaborative Program (MRGESCP)
Science & Technical (S&T) Ad Hoc Group Charge
Rio Grande Silvery Minnow Population Research Questions Ad Hoc

Approved by Science and Adaptive Management Committee (SAMC) on *August 26, 2021*.

Parent Committee

Science and Adaptive Management Committee.

Ad Hoc Group Charge

Review, translate and refine recommendations from the Rio Grande Silvery Minnow (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).

B. *Member List*

_____, **(Lead) Affiliation,**
_____, Affiliation,
_____, Affiliation,
_____, Affiliation,
_____, Affiliation.

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) status 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: Review each recommendation statement 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 status report, if applicable). Cite any relevant evidence supporting or refuting the need for additional investigation of the topic.

Objective of Task 1:

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 Science and Adaptive Management Plan (WEST 2020).

Deliverable:

1. Completed review comment matrix for the eight report recommendation statements (form provided by PST).

Task 2: Translate all recommendation statements that are deemed valid, accurate and relevant from Task 1 into specific questions with clear and testable hypotheses.

Using the context and evidence garnered in Task 1 regarding each uncertainty, 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 2:

Clearly articulated research hypotheses designate important influences and identify key response metrics, steps necessary for designing studies and communicating effectively.

Deliverable:

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

Timeline and Reporting Scheduling

Task	Subtask	Deliverable	To Be Completed By
Task 1: Review each recommendation statement for scientific validity, technical accuracy, and management relevance	NA	Completed review comment matrix	TBD
Task 2: Translate all recommendation statements that are deemed valid, accurate and relevant from Task 1 into specific questions with clear and testable hypotheses	NA	List of research hypotheses generated from each recommendation statement	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. 2020. Middle Rio Grande Endangered Species Collaborative Program Science and Adaptive Management Plan. Prepared for the Executive Committee of the Middle Rio Grande Endangered Species Collaborative Program, Albuquerque, NM. 98 pp.

**Middle Rio Grande Endangered Species Collaborative Program (MRGESCP)
Science & Technical (S&T) Ad Hoc Group Charge
*Middle Rio Grande Habitat Restoration Guidance Ad Hoc***

Approved by Science and Adaptive Management Committee (SAMC) on *August 26, 2021*.

Parent Committee

Science and Adaptive Management Committee.

Ad Hoc Group Charge

Review the challenges and questions that resulted from breakout group discussions during the recent Middle Rio Grande (MRG) habitat restoration workshop, identify resources to address each and provide guidance on best practices, where applicable.

Membership

A. *Criteria for membership*

- Knowledge of the ecology, dynamics and habitat features of the MRG;
- Familiarity with habitat restoration planning, construction, monitoring and maintenance.

B. *Member List*

_____, **(Lead) Affiliation,**
_____, Affiliation,
_____, Affiliation,
_____, Affiliation,
_____, Affiliation.

Iterative Task Development

Background

On August 31, 2021, the MRGESCP hosted a workshop to initiate discussions about the variety of approaches to habitat restoration within the reaches of the Middle Rio Grande. The workshop focused on linking site performance to restoration goals and specified the following objectives:

- Discuss how to define success around HR projects.
- Discuss how to document HR project success.
- Discuss metrics for measuring HR project success

The workshop involved facilitated breakout discussions, which identified differences in approaches, common elements among approaches, and most importantly, a list of challenges and questions with which participants requested guidance. Challenges and questions from the breakout groups were consolidated by workshop moderators and listed here:

- *Challenge 1*
- *Challenge 2*
- *Question 1*
- *Question 2*

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: Identify resources and provide guidance for each of the challenges and questions from habitat restoration workshop breakout group discussions.

Identify resources with regionally relevant best practices and effective metrics for demonstrating habitat restoration site performance. Review the challenges and questions from the habitat restoration workshop breakout discussions and match each with the appropriate resources.

Objective of Task 1:

Matching questions and challenges related to habitat restoration efforts in the MRG with available resources will help to identify novel questions that may require independent investigation (i.e., those for which existing resources are insufficient).

Deliverable:

1. Completed review/guidance matrix for the workshop challenges and questions (form provided by PST).

Timeline and Reporting Scheduling

Task	Subtask	Deliverable	To Be Completed By
Task 1: Identify resources and provide guidance for each of the challenges and questions from habitat restoration workshop breakout group discussions	NA	Completed review/guidance matrix	TBD
		Presentation to SAMC	TBD



Middle Rio Grande Endangered Species Collaborative Program

Est. 2000

Habitat Restoration (HR) Workshop

August 31, 2021

1:00 PM – 4:00 PM

Location: Zoom

<https://west-inc.zoom.us/j/8983593120?pwd=bU54V3NGeG93bXVISlJFcElzcE9wZz09>

DRAFT Workshop Agenda

Workshop Objectives:

- Discuss how to define success around HR projects.
- Discuss how to document HR project success.
- Discuss metrics for measuring HR project success.

1:00 – 1:10	Welcome, Introductions, and Agenda Review <ul style="list-style-type: none">• Ground Rules• Workshop objectives	<i>Catherine Murphy, Program Support Team (PST)</i>
1:10 – 1:25	Presentation: Defining HR Success <ul style="list-style-type: none">• Results of pre-workshop questionnaire• What to expect when you're restoring: Setting multiple restoration endpoints• True measures of success: Choosing informative indicators• Resources and best practices from the Bosque Ecosystem Monitoring Program (BEMP)	<i>Catherine Murphy, PST Ara Winter, UNM</i>
1:25 – 1:30	Introduction to Break Out Groups <ul style="list-style-type: none">• Zoom logistics• Questions for break out group discussions	<i>Catherine Murphy, PST</i>
1:30 – 3:00 (with break)	Break Out Groups <ul style="list-style-type: none">• How do you define success for your HR projects?• What do you measure to document success?• What are your data collection constraints?	<i>Facilitated discussions</i>
3:00 – 3:50	Report Out from Break Out Groups <ul style="list-style-type: none">• Different strokes for different folks• Common threads• Challenges, questions and considerations	<i>Break out group notetakers Facilitated discussion</i>
3:50 – 4:00	Next Steps <ul style="list-style-type: none">• SAMC Science & Technical Ad Hoc Group(s)	<i>Catherine Murphy, PST</i>
4:00	Adjourn	

Middle Rio Grande Endangered Species Collaborative Program

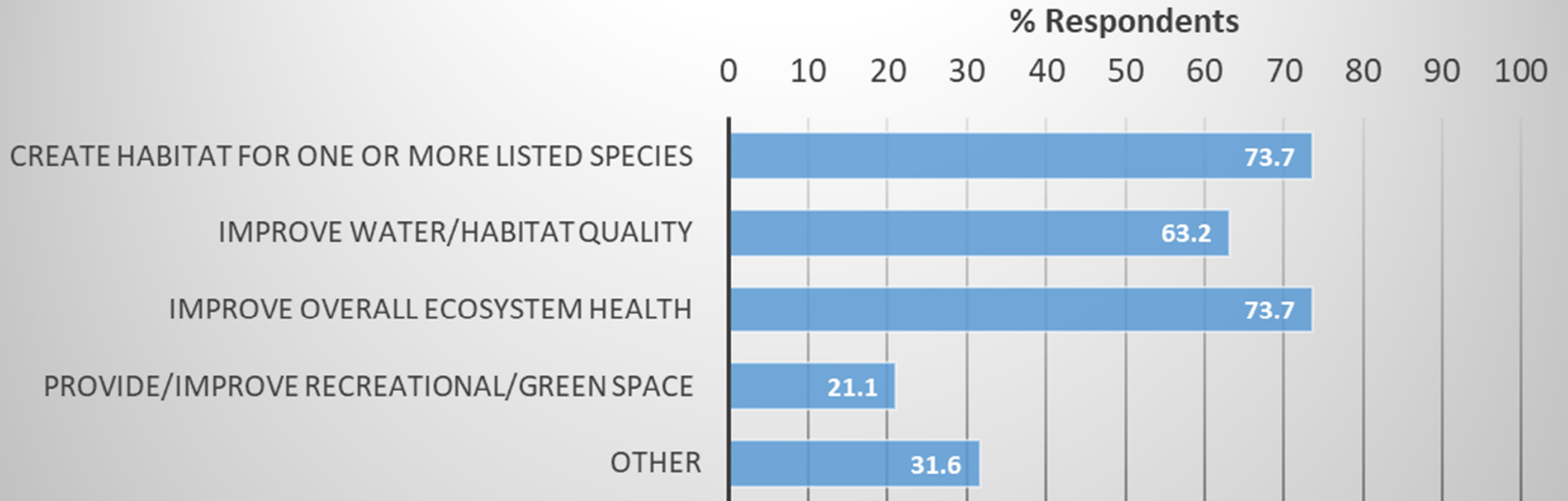


2021 Habitat Restoration Workshop Questionnaire Results

Pre-workshop Questionnaire Results Summary

With respect to your agency's most recent habitat restoration project...

Q1: What were the restoration goals for your HR project?

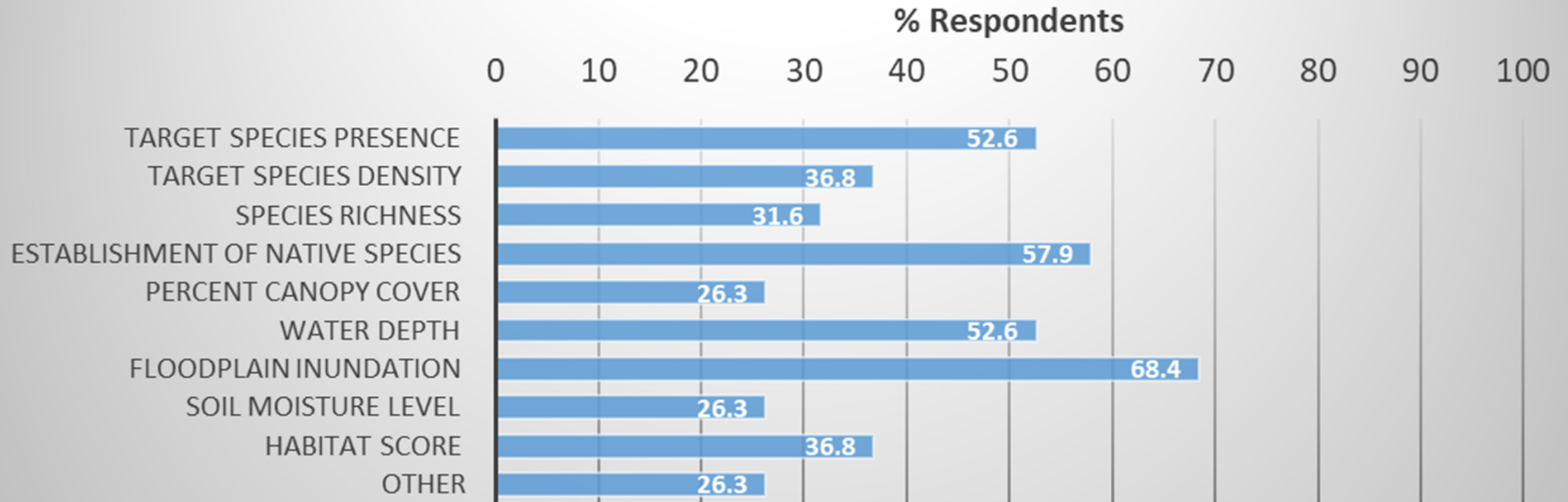


Other: Create overwintering habitat for native fish; Quantify habitat quality and restoration site performance; Improve water flow or efficiency; Create overwintering habitat for native fish; Long-term monitoring; Improve floodplain connectivity for flood mitigation

Pre-workshop Questionnaire Results Summary

With respect to your agency's most recent habitat restoration project...

Q2: What were the metrics of success for the restoration goals?

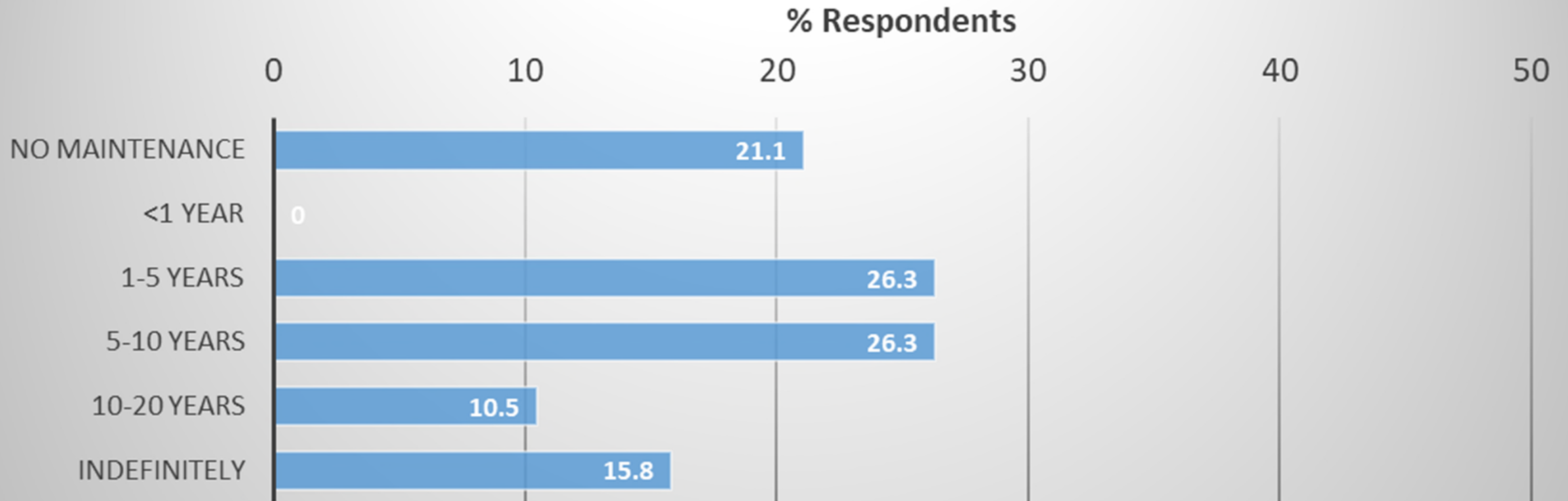


***Other:** Increase in habitat complexity; Spatial/Temporal duration of inundation; Good vs. bad habitat; Improved food resources for grazers; Water velocity; Water quality with wetland filtration; Discharge during inundation; Non-native plant cover*

Pre-workshop Questionnaire Results Summary

With respect to your agency's most recent habitat restoration project...

Q3: How long do you expect the HR site to be maintained?



Pre-workshop Questionnaire Results Summary

With respect to your agency's most recent habitat restoration project...

Q4. Please characterize how data were collected for your HR project:

a. What variables were measured pre-construction?

<i>AVIAN</i>	<i>VEG</i>	<i>CHANNEL</i>	<i>FLOODPLAIN</i>	<i>WATER</i>
# Nests	Sp. richness	Geomorphology	Inundation area	Water table depth
Sp. richness	Canopy cover/diameter	Hydraulics	Topography	Temperature
Surveys	Canopy layer	Profile	Hydraulics	Water quality
Community	Native/Non	Thalweg	Habitat features	Bathymetry
<i>OTHER</i>	Aerial cover	Slope		
Invertebrates	Survival	Stream bed		
Algae	Presence	Habitat features		
T&E Species	Height	Sand bank height		

Pre-workshop Questionnaire Results Summary

With respect to your agency's most recent habitat restoration project...

Q4. Please characterize how data were collected for your HR project:

b. What variables were measured post-construction?

Hydraulics + Hydrology;

Channel geomorphology;

River braiding;

Change in topography/bathymetry;

Depth, velocity, substrate, cover, inundation flow;

Establishment of native plants;

Use of wetland/pond by dragonflies;

Algal parameters, invertebrate parameters;

Fish presence;

Same as pre-construction (for direct comparison);

Pre-workshop Questionnaire Results Summary

With respect to your agency's most recent habitat restoration project...

Q4. Please characterize how data were collected for your HR project:

c. How many measurements/samples were taken and from where?

Pre = Post; Multiple during inundation; Enough to characterize changes;

Cross sections across/adjacent to site; Cross sections at bends and riffles;

Topographic surveys around features; Measurements from selected sites;

Numerous measurements for all variables made within project footprint using a GPS;

Divided individual project sites into discreet “map units” based habitat features

Throughout site: 2 point count routes, 30 veg transects, 12 piezometers, 6 hemispheric photo stations;

>3 Profiles within treatment area;

Pre-workshop Questionnaire Results Summary

With respect to your agency's most recent habitat restoration project...

Q4. Please characterize how data were collected for your HR project:

d. How frequently were measurements/samples taken and for how long?

Annually, multiple measurements over similar discharge; Annually for XX years;

Annually as required by permits; Yearly after spring runoff;

1-2 times per year (depending on hydrology) for XX years; Quarterly for at least XX years;

Monthly; Weekly during May and June;

After runoff events (spring and/or monsoon); Measurements are seasonal and depend on inundation;

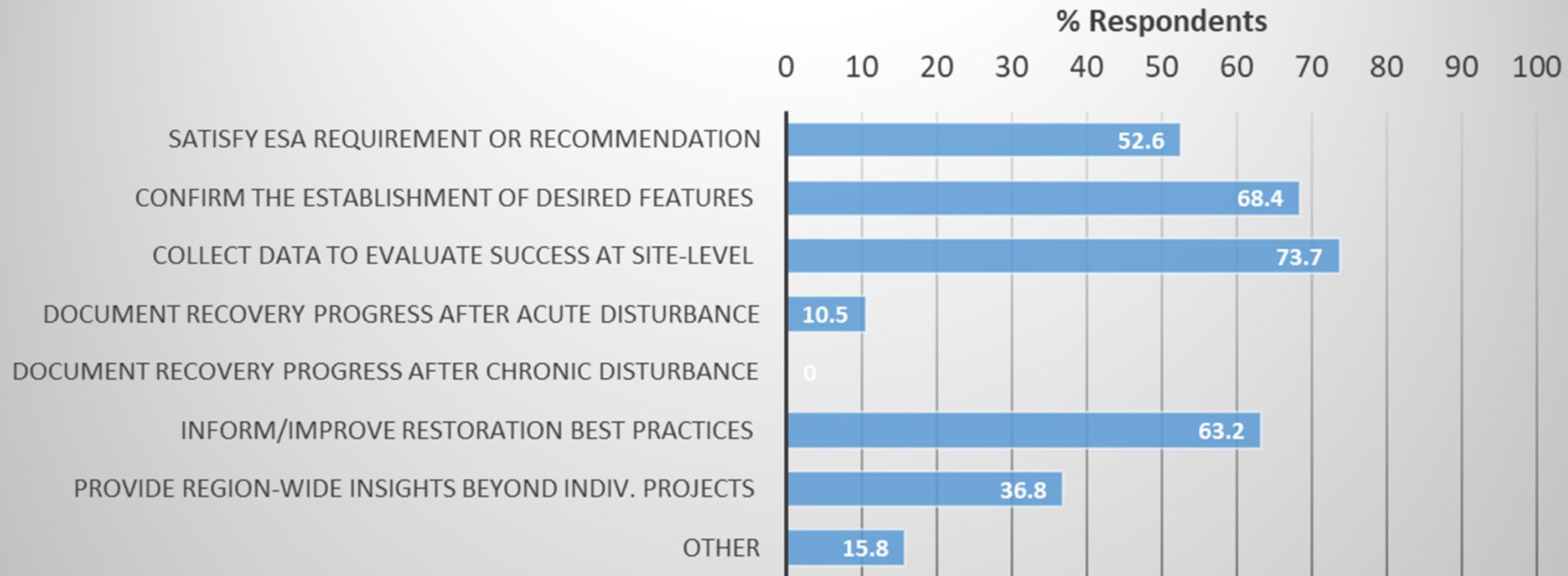
Before/After treatment;

Minimum for statistically important information

Pre-workshop Questionnaire Results Summary

With respect to your agency's most recent habitat restoration project...

Q5: What are the monitoring goals?



Other: Compare HR projects; Provide quantitative metrics for A.M. decision-making at site; Describe and document habitat used by fish species, esp. RGSM (depth, velocity, substrate, cover)

Pre-workshop Questionnaire Results Summary

With respect to your agency's most recent habitat restoration project...

Q6. Please list questions or issues you have regarding your HR project:

Issues:

...the same restoration approach is applied in widely divergent habitats

...need more consistent monitoring and long-term maintenance of projects

...site longevity

...lack of ongoing funding

...community's knowledge of modeling limitations and best practices

...best techniques to use for the suite of listed species

...scale of projects relative to scale of ecological impacts

Pre-workshop Questionnaire Results Summary

With respect to your agency's most recent habitat restoration project...

Q6. Please list questions or issues you have regarding your HR project:

Questions:

What type/degree of change at a site triggers maintenance/re-working?

How long does it take to establish an "egg bank" in a newly excavated site for invertebrates?

Is it possible to excavate more sites that inundate at <1,000 cfs?

What is the relative contribution of the site to RGSM habitat within the reach?

Draft Peer Review Process

Science & Adaptive Management Committee

August 26, 2021

Categories and Types of Peer Review

Types of Peer Review

- ▶ Statistical review
- ▶ Editorial review
- ▶ Contextual review
- ▶ Programmatic review

Categories of Peer Review

- ▶ Internal Administrative Review
- ▶ Internal Scientific Review
- ▶ External Expert Review
- ▶ Independent Science Panel

Types of Review

REVIEW TYPE	DEFINITION
Content Review	Checking a document for completeness and accuracy of the content
Statistical Review	Evaluating study or sampling design and appropriateness of statistical methods
Editorial Review	Evaluating a document s style, grammar, formatting, and references
Contextual Review	Evaluating a document s relevance to the Collaborative Program and/or management
Programmatic Review	Evaluating the entirety of a program with respect to effectiveness, efficiency, and relevance

Categories of Peer Review: Internal

	BEING REVIEWED	EXAMPLES	CONSIDERATIONS
Internal Administrative Review	<ul style="list-style-type: none"> • MRGESCP-authored documents • Governance documents 	<ul style="list-style-type: none"> • By-Laws • Annual Report • Long-Term Plan • Science & Adaptive Management Plan 	<ul style="list-style-type: none"> • Reviewed by all signatories • Contributes to MRGESCP operations • Individual comment forms
Internal Scientific Review	<ul style="list-style-type: none"> • S&T Ad Hoc Group work products • Science and AM tools • Organization's request for MRGESCP review 	<ul style="list-style-type: none"> • Conceptual ecological models • Scientific reports • Scopes of work • Study plans 	<ul style="list-style-type: none"> • Expert reviewers • May be done by the SAMC • May include external reviewers if additional expertise is needed • Individual comment forms

Categories of Peer Review: External

	BEING REVIEWED	EXAMPLES	CONSIDERATIONS
External Expert Review	<ul style="list-style-type: none"> • Important document or model • Medium-to-high level of contention • May be administrative or scientific review 	<ul style="list-style-type: none"> • Science & Adaptive Management Plan • Population viability analysis 	<ul style="list-style-type: none"> • SAMC recommends & EC approves • Expert reviewers • Administered remotely • Individual comment forms or a panel report
Independent Science Panel	<ul style="list-style-type: none"> • Big, important issues • High level of contention • Programmatic review • May be administrative or scientific review 	<ul style="list-style-type: none"> • Hubert panel • Noon panel • Fraser panel 	<ul style="list-style-type: none"> • SAMC recommends & EC approves • Expert reviewers • In person, multi-day • Presentations from MRGESCP experts • Panel report

Comparing Categories of Review

	INTERNAL ADMINISTRATIVE REVIEW	INTERNAL SCIENTIFIC REVIEW	EXTERNAL EXPERT REVIEW	INDEPENDENT SCIENCE PANEL
Time commitment	Low	Low	Medium	High
Clear charge to reviewers	X	X	X	X
Expert reviewers		X	X	X
External reviewers		If needed	X	X
SAMC recs & EC approves			X	X
Paid reviewers			X	X
Contracting needs			X	X
Panel report			If needed	X
In-person				X

Internal Scientific Review Process

Internal Scientific Review Process

1. SAMC tasks a S&T Ad Hoc Group
 - Include need for deliverable review in group's charge, with proposed reviewers
2. PST undertakes a citation and reference review
3. *(If need for deliverable review)* Reviewers are given their charge for the review, including what type of review
 - Review comments with justification are documented, including how addressed or responded to by S&T
4. SAMC review
 - Next steps
 - Documents consensus/non-consensus with scientific justification
5. Input into SAMIS
 - Findings
 - Evidence-based disagreements are noted as scientific uncertainties
6. If appropriate, recommendations to the EC with scientific justifications

External Scientific Review Process

External Scientific Review Process

1. The SAMC recommends a topic or work product to the EC for an external expert review or ISP, with justification
 - ▶ All SAMC members agree on the need, or documents non-consensus
 - ▶ *To be developed: a decision support matrix*
 - ▶ SAMC communicates to the FPC on the need for a budget estimate and funding options
 - ▶ Presents a proposed written charge to the EC for consideration and approval
2. EC agrees on the need, and approves holding an external expert review or ISP
3. Funding entity contracts review/ISP
4. Contractor works with SAMC to identify and vet reviewers
 - ▶ *To be developed: Process for determining reviewer qualifications and vetting process*
5. Contractor carries out review/ISP

Panel Report Next Steps

6. Panel provides comment forms (external expert review only) or develops draft report
7. Comment period for draft panel report open to MRGESCP experts
8. Contractor documents MRGESCP comments and how they are addressed
9. Panel finalizes draft report
10. Presentation of recommendations and findings to the MRGESCP
 - *To be determined:* Who should the audience be for the presentation? SAMC? EC? Both? Open to the full MRGESCP?
11. The SAMC synthesizes the findings from the panel report, and submits a cover memo to the EC with its recommended next steps.
12. Findings, recommendations, and comments documented in SAMIS

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

Revised by Science and Adaptive Management Committee (SAMC) on *August 26, 2021*.

Parent Committee

Science and Adaptive Management Committee.

Ad Hoc Group Charge

Review, translate and refine recommendations from the Rio Grande Silvery Minnow (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. Nominee List

_____ (Lead) Affiliation,

Becky Bixby, University of New Mexico, nominated,

Andy Dean, U. S. Fish & Wildlife Service, nominated,

Eric Gonzales, U. S. Bureau of Reclamation, nominated,

Matt Wunder, New Mexico Dept. of Game and Fish, nominated,

Joel Lusk, U. S. Bureau of Reclamation, nominated.

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) status 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 all 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 necessary for designing studies and communicating findings effectively.

Deliverable:

1. 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 status 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 Science and Adaptive Management Plan (WEST 2020).

Deliverable:

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

Timeline and Reporting Scheduling

Task	Subtask	Deliverable	To Be Completed By
Task 1: Translate all 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. 2020. Middle Rio Grande Endangered Species Collaborative Program Science and Adaptive Management Plan. Prepared for the Executive Committee of the Middle Rio Grande Endangered Species Collaborative Program, Albuquerque, NM. 98 pp.

Middle Rio Grande Endangered Species Collaborative Program (MRGESCP)
Science & Technical (S&T) Ad Hoc Group Charge
Middle Rio Grande Habitat Restoration *General* Guidance Ad Hoc

Revised by Science and Adaptive Management Committee (SAMC) on *August 26, 2021*.

Parent Committee

Science and Adaptive Management Committee.

Ad Hoc Group Charge

Review the challenges and questions that resulted from breakout group discussions during the recent Middle Rio Grande (MRG) habitat restoration workshop, identify resources to address each and provide guidance on best practices, where applicable.

Membership

A. *Criteria for membership*

- Knowledge of the ecology, dynamics and habitat features of the MRG;
- Familiarity with habitat restoration planning, construction, monitoring and maintenance.

B. *Member List*

_____, **(Lead) Affiliation,**
_____, Affiliation,
_____, Affiliation,
_____, Affiliation,
_____, Affiliation.

Iterative Task Development

Background

On August 31, 2021, the MRGESCP hosted a workshop to initiate discussions about the variety of approaches to habitat restoration within the reaches of the Middle Rio Grande. The workshop focused on linking site performance to restoration goals and specified the following objectives:

- Discuss how to define success around habitat restoration projects.
- Discuss how to document habitat restoration project success.
- Discuss metrics for measuring habitat restoration project success

The workshop involved facilitated breakout discussions, which identified differences in approaches, common elements among approaches, and most importantly, a list of challenges and questions with which participants requested guidance. Challenges and questions from the breakout groups were consolidated by workshop moderators and listed here:

- *Challenge 1*
- *Challenge 2*
- *Question 1*
- *Question 2*

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: Identify resources and provide guidance for each of the challenges and questions from habitat restoration workshop breakout group discussions.

- a. Synthesize habitat restoration work conducted within the MRG and translate findings into guidance.**
- b. Identify resources with regionally relevant best practices and effective metrics for demonstrating habitat restoration site performance.**
- c. Review the challenges and questions from the habitat restoration workshop breakout discussions and match each with the appropriate resources.**

Objective of Task 1:

Matching questions and challenges related to habitat restoration efforts in the MRG with available resources will help to identify novel questions that may require independent investigation (i.e., those for which existing resources are insufficient).

Deliverable:

- 1. Completed review/guidance matrix for the workshop challenges and questions (form provided by PST).

Timeline and Reporting Scheduling

Task	Subtask	Deliverable	To Be Completed By
Task 1: Identify resources and provide guidance for each of the challenges and questions from habitat restoration workshop breakout group discussions	NA	Completed review/guidance matrix	TBD
		Presentation to SAMC	TBD