External Review of GCDAMP FY2025-27 Triennial Budget and Work Plan Draft of May 28, 2024

Presentation to the Budget Ad Hoc Group

David P. Braun and Robert S. Unnasch, Sound Science LLC

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Presentation Outline

- Review purposes
- List of projects reviewed
- Reviewer selection and recruitment process
- Review contributors
- Reviewer instructions
- Overall review findings
- Individual review findings by project

Purposes of Review

- External, expert, independent, neutral-party peer review of draft triennial work plan and budget
  - Science Advisor Program frequently asked to review draft annual and triennial work plans and budgets
- Reclamation request to Science Advisor (Sound Science LLC as contractor):
  - "assemble, and coordinate, a multi-disciplinary group of independent scientists to perform a scientific and technical expert peer review of the FY25-27 Triennial Work Plan."

Projects Reviewed

A: Streamflow, Water Quality, and Sediment Transport and Budgeting in the Colorado River Ecosystem

B: Sandbar and Sediment Storage Monitoring and Research

C: Riparian Vegetation Monitoring and Research

D: Effects of Dam Operations and Experimental Vegetation Management for Archaeological Sites

E: Controls on Ecosystem Productivity: Nutrients, Flow, and Temperature

F: Aquatic Invertebrate Ecology

G: Humpback Chub Population Dynamics Throughout the Colorado River Ecosystem

H: Salmonid (Trout) Research and Monitoring Project

I: Nonnative Aquatic Species Monitoring and Research

J: Socioeconomic Research

K: Geospatial Science, Data Management and Technology Project

L: Overflight Remote Sensing in Support of GCDAMP and LTEMP

N: Native Fish Population Dynamics

Reviewer Selection Criteria

- Well-established, demonstrated topical expertise
- Demonstrated ability as independent, neutral reviewer
- Ability to review multiple related projects preferred
- Experience in or based in CRB or surrounding states
- Has not reviewed a previous TWP
- No existing or potential conflicts of interest
  - *Can be challenging: GCMRC scientists collaborate widely*

Reviewer Recruitment Process

- Draft master list based on professional knowledge; literature (incl. cross-references); suggestions from Reclamation, GCMRC, TWG (*new*), previous reviewers
- Draft master list also reviewed by Reclamation, GCMRC for potential conflicts
- Potential reviewers for each project ranked based on master selection criteria
- Top three potential reviewers identified for each project
- Reclamation final approval of short list
- Invitees contacted; provided with prospectus on background, purposes, expectations, timeline of review, link to OMB guidelines on federal peer reviews

Reviewers

- ***Anne Chin**, Ph.D., University of Colorado-Denver*
  (Projects A, B)
- ***Lisa Eby**, Ph.D., University of Montana*
  (Projects E, F)
- ***Corrinne Knapp**, Ph.D., University of Wyoming*
  (Project J)
- ***Jason Karl**, Ph.D., University of Idaho*
  (Projects K, L)
- ***Jane Rogosch**, Ph.D., Texas Tech University*
  (Projects H, N)
- ***Jon Spurgeon**, Ph.D., University of Nebraska*
  (Projects G, I)
- ***Andrew Wilcox**, Ph.D., University of Montana*
  (Projects C, D)

Five Review Foci

Specified in reviewer instructions:

- Clarity and scientific quality of proposal consistent with goals established in 2016 LTEMP Record of Decision and the need to assess resource status and trends, the effects of experimental and management actions, and potential other drivers and constraints
- Feasibility of accomplishing the stated three-year goals and elements of each project.
- Relative priorities and funding levels proposed for different project elements and opportunities to improve cost effectiveness.
- Contributions to the adaptive management of the resources and the experimental and management actions prioritized in 2016 LTEMP Record of Decision (as subsequently expanded to include other methods for controlling invasive species).
- Likely readiness of project to undergo a comprehensive review of its accomplishments and design after the FY 2025–2027 work cycle, *a requirement mandated in the LTEMP ROD of 2016*.

GCMRC kept informed

- GCMRC provided raw reviews as they came (*new*)
  - Helps address short timeline for next draft
  - Allows project teams consider responses to reviews in preparation for today's BAHG call
  - *(GCMRC requested in light of short timeline; Reclamation approved)*

Review Findings Overall

- Two projects with few concerns or suggestions about any review focal topics
  - A, C
- Seven projects with (low-moderate) concerns or suggestions about 1-2 review focal topics
  - B, D, G, H, K, L, N
- Three projects with (low-moderate) concerns or suggestions about >2 review focal topics
  - E, F, I
- One project with moderate-high concerns or suggestions about all five review focal topics
  - J

Project A

Streamflow, Water Quality, and Sediment Transport and Budgeting in the Colorado River Ecosystem

- Clear and consistent with 2016 LTEMP ROD, *but with concerns about lack of testable hypotheses for 3-year cycle*
- Feasible
- Relative priorities appear appropriate
- Contributions are important to adaptive management of resources and experimental and management actions prioritized in 2016 LTEMP ROD
- Likely to be ready for comprehensive review after FY 2025–2027 work cycle

Project B

Sandbar and Sediment Storage Monitoring and Research

- Clear and consistent with 2016 LTEMP ROD
- Feasible with concerns about unfunded elements
- Priorities appropriate with concerns about unfunded elements
- Contributions are important to adaptive management of resources and experimental and management actions prioritized in 2016 LTEMP ROD
- Likely to be ready for comprehensive review after FY 2025–2027 work cycle

Project C

Riparian Vegetation Monitoring and Research

- Clear and consistent with 2016 LTEMP ROD; presentation needs better integration with Project D
- Feasible, allowing for uncertainties in what HFEs will occur
- Relative priorities appear appropriate
- Contributions appropriate to adaptive management of resources and experimental and management actions prioritized in 2016 LTEMP ROD
- Likely to be ready for comprehensive review after FY 2025–2027 work cycle, with some suggestions

Project D

Effects of Dam Operations and Experimental Vegetation Management for Archaeological Sites

- Consistent with 2016 LTEMP, with suggestions to clarify proposal
- Feasible
- Relative priorities appear appropriate
- Contributions appropriate to adaptive management of resources and experimental and management actions prioritized in 2016 LTEMP ROD
- Likely to be ready for comprehensive review after FY 2025–2027 work cycle, with some suggestions

Project E

Controls on Ecosystem Productivity: Nutrients, Flow, and Temperature

- Consistent with 2016 LTEMP, with suggestions to clarify proposal
- Feasible but with a caution about uncertainties in E4
- Suggested changes in relative priorities among elements
- Contributions appropriate to adaptive management of resources and experimental and management actions prioritized in 2016 LTEMP ROD *with suggested changes in element priorities*
- Likely to be ready for comprehensive review after FY 2025–2027 work cycle, with some suggestions

Project F

Aquatic Invertebrate Ecology

- Consistent with 2016 LTEMP, with suggestions to clarify proposal
- Elements F1-F3 judged fully feasible; concerns about F4
- Relative priorities appear appropriate
- Contributions appropriate to adaptive management of resources and experimental and management actions prioritized in 2016 LTEMP ROD
- Likely to be ready for comprehensive review after FY 2025–2027 work cycle, but a work-in-progress with many questions under investigation

Project G

Humpback Chub Population Dynamics Throughout the Colorado River Ecosystem

- Clear and consistent with 2016 LTEMP ROD
- Feasible
- Relative priorities appear appropriate, but concerns about unfunded elements and relative priorities
- Contributions appropriate to adaptive management of resources and experimental and management actions prioritized in 2016 LTEMP ROD with suggested changes in element priorities
- Likely to be ready for comprehensive review after FY 2025–2027 work cycle, but a work-in-progress affected by variability in several factors

Project H

Salmonid (Trout) Research and Monitoring Project

- Consistent with 2016 LTEMP, with suggestions to clarify proposal
- Feasible, allowing for uncertainties in what routine & experimental releases will occur
- Suggested changes in relative priorities among elements
- Contributions appropriate to adaptive management of resources and experimental and management actions prioritized in 2016 LTEMP ROD with suggested changes in element priorities
- Likely to be ready for comprehensive review after FY 2025–2027 work cycle, with some suggestions

Project I

Warm-water Native and Non-Native Fish Monitoring and Research

- Consistent with 2016 LTEMP, with questions and suggestions to clarify proposal
- Feasible, allowing for uncertainties in what routine & experimental releases will occur
- Priorities look appropriate, with concerns about eDNA
- Contributions appropriate to adaptive management of resources and experimental and management actions prioritized in 2016 LTEMP ROD, with suggested changes in element priorities
- Likely to be ready for comprehensive review after FY 2025–2027 work cycle, but a work-in-progress with many questions under investigation

Project J

Socioeconomic Research

- Consistent with 2016 LTEMP if J3 given higher priority; other questions and suggestions to clarify proposal
- Concerns about J1 feasibility and J3 seems under-resourced
- Suggests changes in element priorities: Raise J3 priority, lagging in resourcing; lower J1 priority in this TWP cycle
- All elements potentially appropriate to adaptive management of resources and experimental and management actions prioritized in 2016 LTEMP ROD, but question relative priorities in this TWP cycle
- Not likely to be ready for comprehensive review after FY 2025–2027 work cycle due to lack of progress on J3

Project K

Geospatial Science, Data Management and Technology Project

- Clear and consistent with 2016 LTEMP ROD
- Feasible
- Relative priorities appear appropriate, with questions
- Contributions appropriate to adaptive management of resources and experimental and management actions prioritized in 2016 LTEMP ROD, with questions
- Likely to be ready for comprehensive review after FY 2025–2027 work cycle

Project L

Overflight Remote Sensing in Support of Long-Term Monitoring and LTEMP

- Clear and consistent with 2016 LTEMP ROD
- Feasible
- Relative priorities appear appropriate, with questions
- Contributions appropriate to adaptive management of resources and experimental and management actions prioritized in 2016 LTEMP ROD
- Likely to be ready for comprehensive review after FY 2025–2027 work cycle

Project N

Native Fish Population Dynamics (New Project)

- Clear and consistent with 2016 LTEMP ROD
- Feasible, allowing for uncertainty of data integration and differences in element progress
- Priorities appropriate but with concerns about under-funded elements
- Contributions appropriate to adaptive management of resources and experimental and management actions prioritized in 2016 LTEMP ROD
- Likely to be ready for comprehensive review after FY 2025–2027 work cycle, but a work-in-progress with many questions under investigation

Final Discussion