

# Technical Work Group Chair Report

Adaptive Management Work Group Meeting

February 10, 2022

Seth Shanahan

TWG Chairperson

# Meetings

- Past
  - October 13-14, 2021
  - January 11-13, 2022 - TWG and AR
- Future
  - April 12-13, 2022

# Items Reported Elsewhere on AMWG Agenda

Updated: February 8, 2022

- Basin hydrology, operations, and water quality
- Program funding
- Science updates (SDF, bug flow, etc.)
- Temperature management and predicted effects (power generation in the bypass tubes)
- Incentivized harvest program

## Glen Canyon Dam Adaptive Management Program Adaptive Management Work Group Meeting, February 9-10, 2022

Wednesday, February 9, 2022

Day 1 Webinar Information:

Link: <https://rec.webex.com/rec/j.php?MTID=m2c4bb5a96cb62db32dbc28e2f608767e>

Telephone: 415-527-5035 Passcode: 2764 737 4054

### FINAL AGENDA

START TIME <sup>1</sup> (Duration)	Wednesday, February 9, 2022 Topic and Presenter and Purpose <sup>2</sup>
8:30 PST/ 9:30 MST (:45)	<b>Welcome and Administrative:</b> Wayne Pullan, Acting Secretary's Designee to the Adaptive Management Work Group <ul style="list-style-type: none"><li>▪ Introductions and Determination of Quorum (13 members)<ul style="list-style-type: none"><li>◦ Facilitator: Mike Harty and Kearns &amp; West team</li></ul></li><li>▪ Approval of <a href="#">August 2021 Meeting Minutes</a></li><li>▪ Review <a href="#">August meeting evaluation</a></li><li>▪ Administrative Updates<ul style="list-style-type: none"><li>◦ <a href="#">AMWG Charter</a></li><li>◦ <a href="#">AMWG Membership Status</a></li><li>◦ <a href="#">Action Item Tracking Report</a></li><li>◦ FY2022 Program Funding Status</li></ul></li></ul>
9:15 PST/ 10:15 MST (:45)	<b>Basin Hydrology and Operations:</b> Heather Patno, Hydraulic Engineer, Bureau of Reclamation <ul style="list-style-type: none"><li>▪ Presentation (30 minutes)</li><li>▪ Q&amp;A and discussion (15 minutes)</li></ul> <p><u>Additional Information:</u> 1) <a href="#">Current GCD operations</a> 2) <a href="#">24-Month Study</a> 3) <a href="#">CRMMS 2-Year Projections</a> 4) <a href="#">5-Year Projections</a> 5) <a href="#">Drought Response Operations</a></p> <p><u>Purpose:</u> To increase understanding of water supply, forecasted hydrologic conditions, and projected reservoir conditions and operations for the current and upcoming water years</p>
10:00 PST/ 11:00 MST (:15)	<b>BREAK</b>

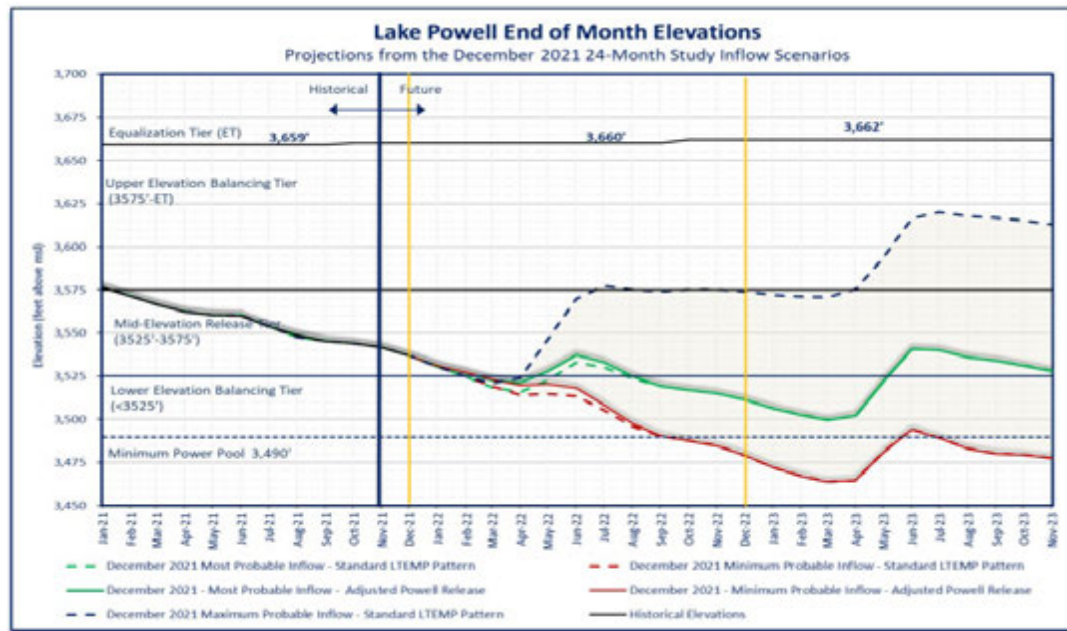
# Recent Themes at the TWG

(Seth's opinion)

- Satisfaction with roles and responsibilities
- Developing a common understanding about resource status and progress toward reaching goals
- Knowing when the evidence may suggest a different course of action
- Satisfaction with exploring ideas consistent (or not) with the LTEMP ROD
- Satisfaction with nimbleness

# The Question on Everyone's Mind

## Near-Term Hydrology



## Long-Term Hydrology



## Long-Term Hydrologic Projections for the Colorado River Basin and Methods for Considering Uncertainty

GCD Adaptive Management Plan  
October 13, 2021

James Prairie, PhD, Upper Colorado Basin Region

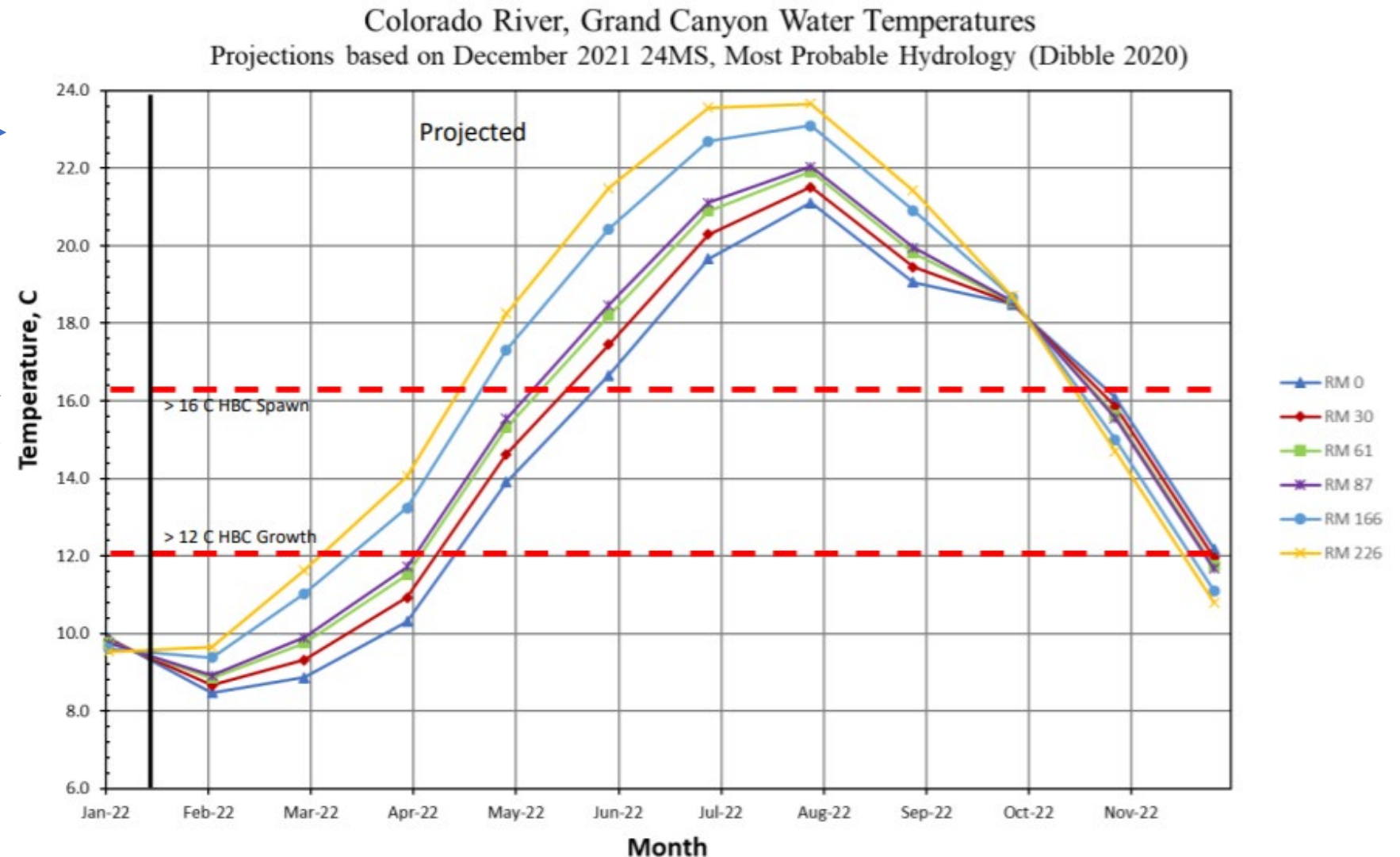
# Projected River Temperatures

Valdez et al. 2013

SMB Opt. Growth - 23 →

SMB Opt. Ovulation - 16 →

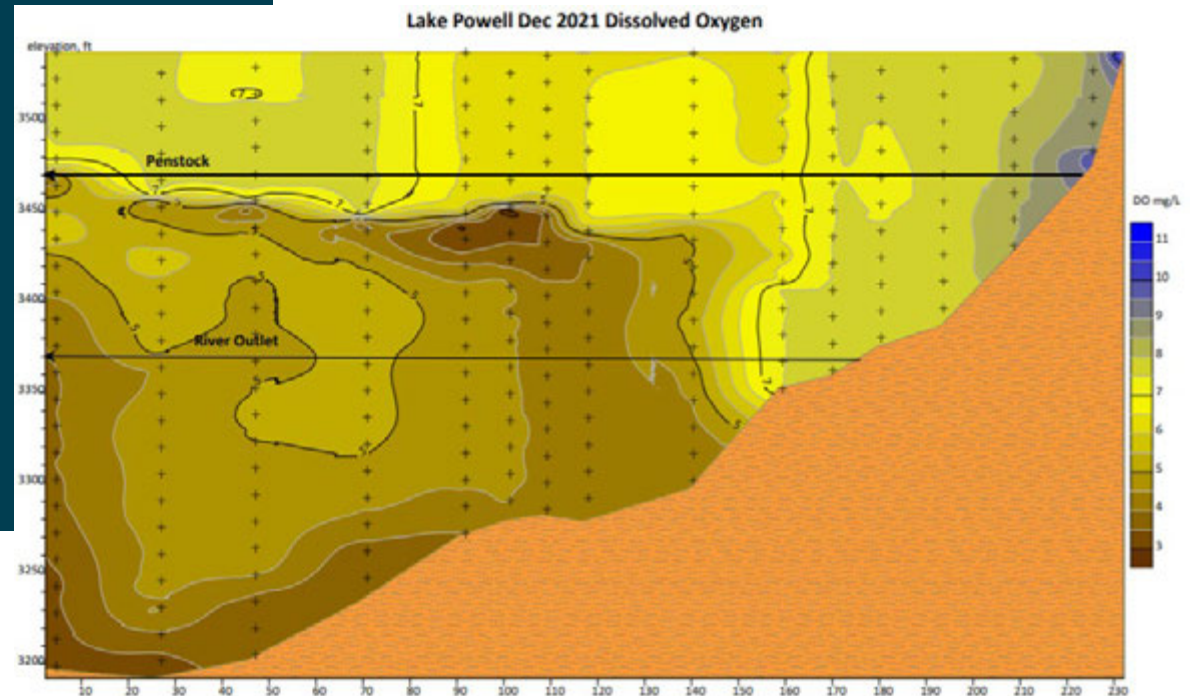
SMB Opt. Incubation - 15 →



# Dissolved Oxygen

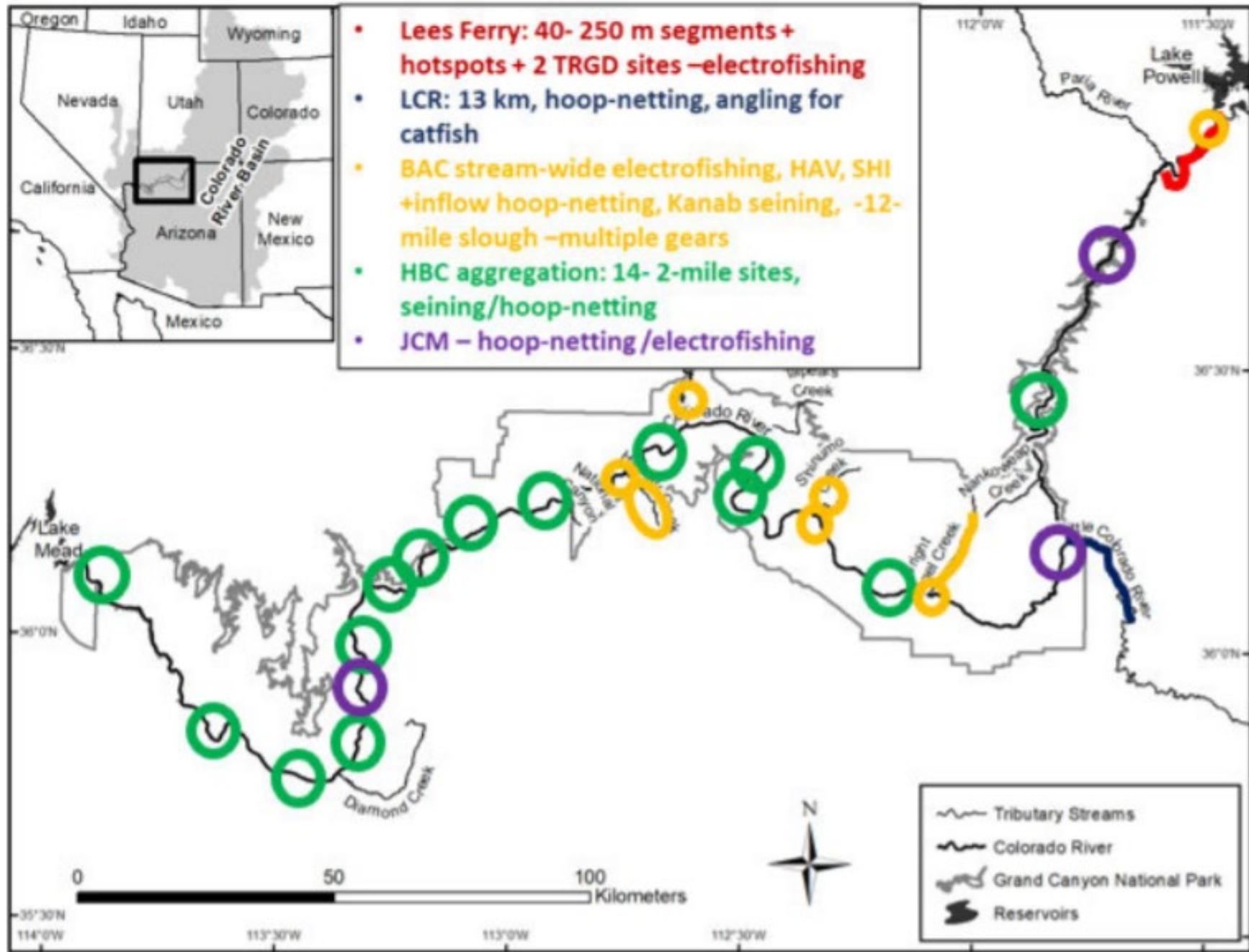
## Scope of Investigation

1. A synthesis or literature review of low DO issues at other Reclamation and non-Reclamation facilities (USACE, TVA, etc.).
2. An assessment of current monitoring methodology and infrastructure at Lake Powell.
3. Risk analysis to resources downstream.
4. Potential tools for addressing low D.O. events at GCD.





# Non-Native Fish





# Incidental Take Parameters – Tier 1 Action Initiation Triggers

Tier 1 – Early Intervention	Trigger	2019	2020	2021	3-year average
Combined adult (>200 mm) humpback chub (HBC) in the mainstem Little Colorado River (LCR) aggregation and LCR	$\leq 9,000$	12,000	11,000	TBD	Not applicable. Trigger for adults based on annual population estimate
OR					
Recruitment of sub-adult HBC (150-199 mm) does not equal or exceed estimated adult mortality					
1) Sub-adult population estimate in LCR in spring	$\leq 1,250$ for 3 years	2,600	1,000 *	TBD	TBD but likely to be above trigger
OR					
2) Sub-adult population estimates in mainstem in Juvenile Chub Monitoring (JCM) Reach in fall	$\leq 810$ for 3 years	500	200	TBD	<i>TBD but likely below trigger</i>

Model estimates for adults are rounded to the nearest 1,000 and to the nearest 100 for sub-adults.

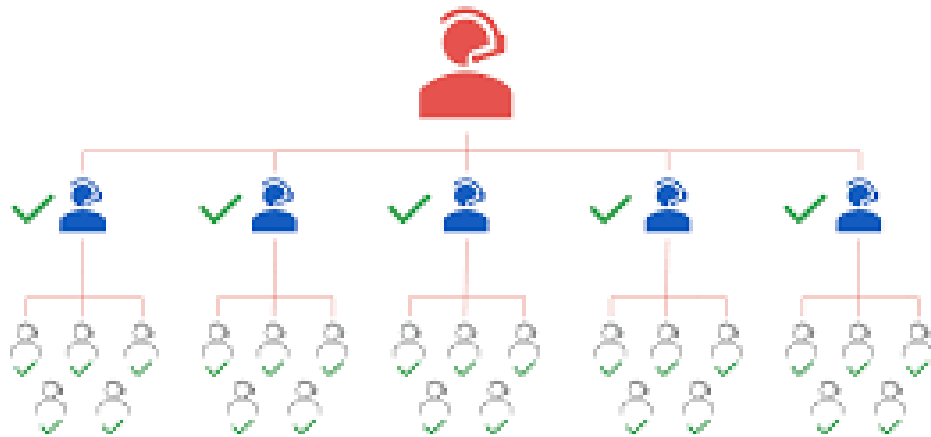
\*No estimate was obtained for sub-adults in LCR in spring 2020 due to COVID-19 restrictions. The 2020 number was estimated by using data collected and abundance estimated from fall 2019.



# Improve Communication and Coordination

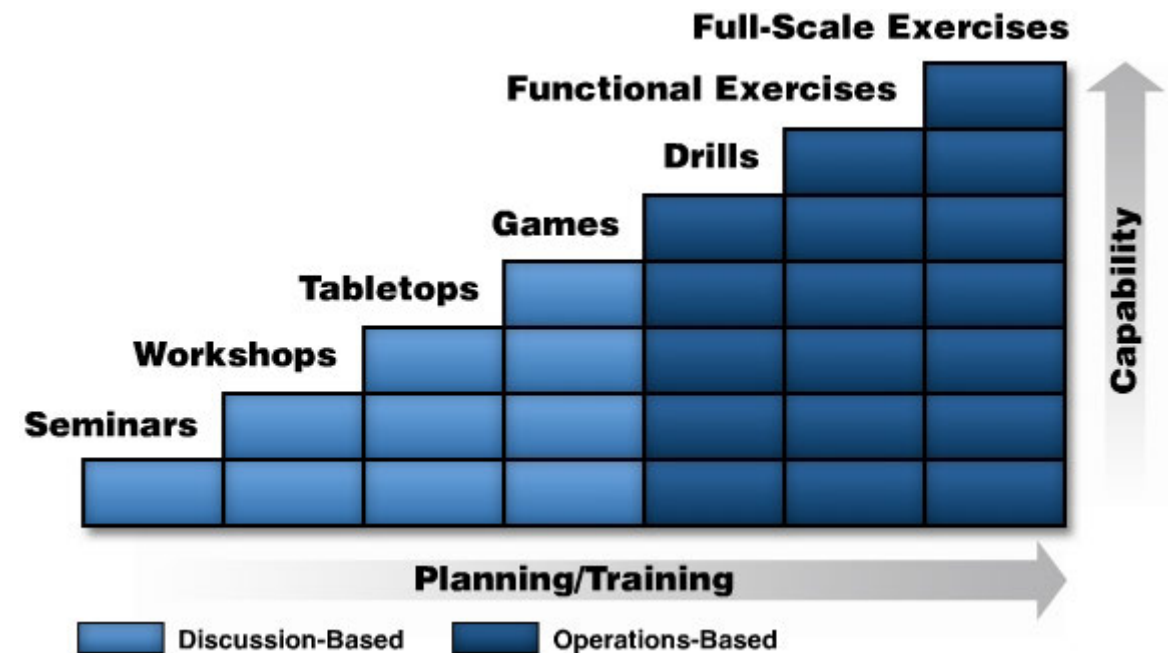
## Expanded SCAHG charge

- Emerging issues notifications



## Tabletop exercise concept

- Possible Science Advisors Program role

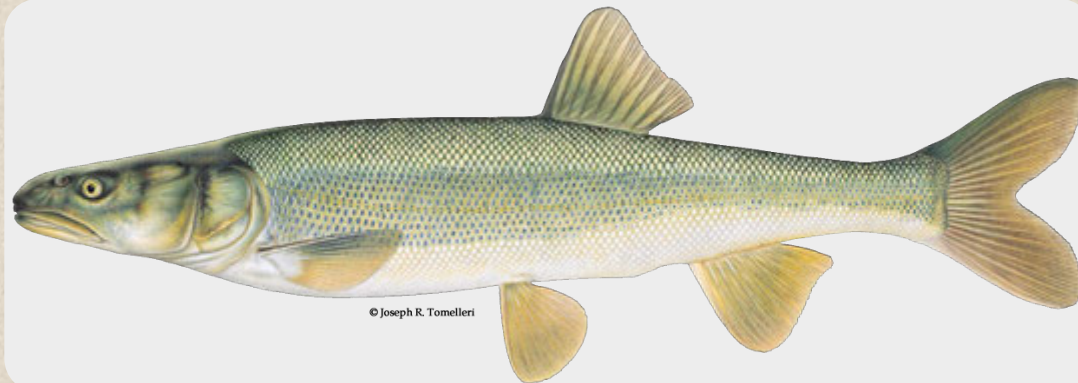


# Informational Updates

## What & How?

### Phased Conceptual Approach:

- Phase 1 Pikeminnow Viability/Feasibility Assessment



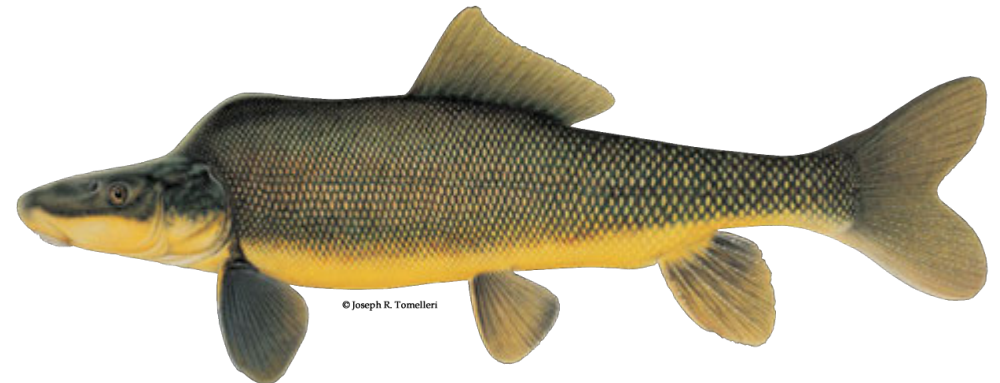
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Preliminary/Draft; do not cite

- White Paper in development
- Tribal consultation ongoing

Mariah Giardina, USGS GCMRC  
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Scott Wright, USGS  
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U.S. Department of the Interior  
U.S. Geological Survey



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Razorback Sucker Expert Panel



# Other Items

- Establish informational webinar dates for potential experiments
- AZGFD concern over RBT numbers in Lees Ferry
- Aquatic vegetation removal to disadvantage BNT


**Projected Climate and Geomorphic Changes in the Little Colorado River Watershed and Potential Links to Humpback Chub Habitat**  
*With Emphases on Vegetation, Hydrology, and Sediment Transport*

David J. Dean<sup>1</sup> and Joel Unema<sup>2</sup>  
<sup>1</sup>U.S. Geological Survey, Southwest Biological Science Center, Grand Canyon Monitoring and Research Center, Flagstaff, AZ  
<sup>2</sup>U.S. Geological Survey, Arizona Water Science Center, Flagstaff, AZ

Little Colorado River, 1927



**Update on 5-year Review of Management Triggers for Humpback Chub**  
Technical Work Group Meeting  
October 14, 2021  
Kerri Pedersen, Bureau of Reclamation & Kirk Young, U.S. Fish & Wildlife Service



National Park Service  
U.S. Department of the Interior  
Grand Canyon National Park and  
Glen Canyon National Recreation Area

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**Long Term Experimental and Management Plan**  
**Riparian Vegetation Project Plan**

# LTEMP Metrics Project

- **Focus is on defining metrics for Effectiveness Monitoring (“Phase 1”)**
  - “To assess effectiveness of policy . . .” and
  - “ track progress towards achieving management objectives . . .”
- **LTEMP defines 11 specific goals**
  - How do we know if the goals are being achieved?  
**Need to define performance metrics!**
  - Performance metrics tell us “achieved/ not achieved” -  
- but not why
- **NOT a Core Monitoring Plan**

# Future TWG Agenda Items

- FY 2023 budget and workplan recommendation
- Monitoring metric next steps
- Monitoring and reporting conditions, e.g., non-native fish passage, DO, temp., declining lake levels
- Tabletop exercises
- Potential FLAHG charge