Potential LTEMP Experiments
Water Year 2020

Adaptive Management Work Group Meeting
February 13, 2020
LTEMP Experiments

“The overall approach attempts to strike a balance between identifying specific experiments and providing flexibility to implement those experiments when resource conditions are appropriate.”

“...rather than proposing a prescriptive approach to experimentation, an adaptive management-based approach that is responsive and flexible will be used to adapt to changing environmental and resource conditions...”
Communication and Consultation

Annual Reporting meeting
• Present learning from previous experiments
• Provide best available scientific information

Technical Work Group meeting
• Meet to discuss potential experimental actions for the year
Consultation
With Tribes, AZGFD, States, and UCRC as requested

1.4 COMMUNICATION AND CONSULTATION PROCESS FOR ALTERNATIVE D

DOI will also continue separate consultation meetings with the Tribes, AZGFD, the Basin States, and UCRC upon request, or as required under existing RODs.

6.5 Commitments to Tribes

- Traditionally Associated Tribes shall be notified at least 30 days in advance of planned experimental flows (including HFEs, TMFs, MPFs, and LSFs).

- The DOI is committed to finding beneficial uses with Traditionally Associated Tribes for nonnative fish that are mechanically removed as part of the LTEMP actions to the extent practicable.

- The DOI recognizes the opportunities for cooperative and collaborative partnerships with tribes in the management of Federal lands and resources related to the LTEMP as stated in Secretarial Order No. 3342.
Planning and Implementation

- Planning / Implementation team coordination
- Strives for consensus recommendation to DOI
- Secretary of the Interior makes decision

1.4 COMMUNICATION AND CONSULTATION PROCESS FOR ALTERNATIVE D

To determine whether conditions are suitable for implementing or discontinuing experimental treatments or management actions, the DOI will schedule implementation/planning meetings or calls with the DOI bureaus (USGS, NPS, FWS, BIA, and Reclamation), WAPA, AZGFD, and one liaison from each Basin State and from the UCRC, as needed or requested by the participants. The implementation/planning group will strive to develop a consensus recommendation to bring forth to the DOI regarding resource issues as detailed at the beginning of this section, as well as including WAPA’s assessment of the status of the Basin Fund. The Secretary of the Interior will consider the consensus recommendations of the implementation/planning group, but retains sole discretion to decide how best to accomplish operations and experiments in any given year pursuant to the ROD and other binding obligations.
# LTEMP Flow Experiments w/ 2020 Potential

<table>
<thead>
<tr>
<th>GCD Experimental Flow</th>
<th>Duration</th>
<th>Implementation Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring HFEΔ</td>
<td>up to 96 hours</td>
<td>March – April</td>
</tr>
<tr>
<td>Proactive Spring HFEΔ◊</td>
<td>24 hours**</td>
<td>April – June</td>
</tr>
<tr>
<td>Trout Management Flows</td>
<td>up to 3 cycles/month for 4 months</td>
<td>May – August</td>
</tr>
<tr>
<td>Macroinvertebrate Flows</td>
<td>target 2-3 replicates</td>
<td>May – August</td>
</tr>
<tr>
<td>Fall HFE</td>
<td>up to 96 hours</td>
<td>October - November</td>
</tr>
<tr>
<td>Extended Duration Fall HFE</td>
<td>97- 192* or 97-250 hours***</td>
<td>October - November</td>
</tr>
</tbody>
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* First test not to exceed 192 hours
** First test 24 hours
*** After first test, up to 250 hours

Δ no Spring HFE in same WY as extended duration Fall HFE
◊ no proactive Spring HFE in same WY as sediment-driven Spring HFE
High Flow Experiments

Spring HFE, sediment triggered
• Objective: Rebuild sandbars

Spring HFE, proactive
• Objective: Protect sand supply from equalization releases

Fall HFE, sediment triggered
• Objective: Rebuild sandbars
High Flow Experiment Timeline

Spring HFE, sediment triggered, 2020
• Sediment accounting: Dec 1 – June 30
• Implementation / Planning Team: late February
• Possible implementation: March-April

Spring HFE, proactive, 2020
• Equalization (GCD releases >= 10 maf)
• Planning Team: late February
• Possible implementation: April-June

Fall HFEs, sediment triggered, 2022
• Sediment accounting: July 1 – Nov 30
• Implementation / Planning Team: early September
• Possible implementation: October – November
Paria River Discharge & Sediment Inputs

Discharge
Paria River at Lees Ferry
(Dec 1, 2019 - Feb 10, 2020)

Cumulative Sand Load
Paria River at Lees Ferry
(Dec 1, 2019 - Feb 10, 2020)

Marble Canyon Sand Mass Balance

Upper Marble Canyon

Lower Marble Canyon


(Dec 1, 2019 – Jan 7, 2020)
Sand Budget Model Results

As of last week, not sufficient sediment to support an HFE.
Macroinvertebrate Flows

“Bug Flows” Objective: Improve food base productivity and abundance or diversity of mayflies, stoneflies, and caddisflies

- “Give bugs the weekends off”
- Weekend stable low flows from May-August
- Eggs laid on weekends never dry
Bug Flows Timeline

• 2018: Round 1, positive results
• 2019: Round 2, equivocal
• 2020: Round 3? To be determined...
  o March
    • Notification and Consultation
    • Convene Implementation / Planning Team
  o May-August
    • Implementation Window
Trout Management Flows

TMFs are a special type of fluctuating flow designed to reduce the recruitment of trout by disadvantaging YOY trout.

FIGURE 6 Example Implementation of a Two-Cycle TMF in June and July with Resumption of Normal Fluctuations between Cycles and Afterward (Monitoring for effectiveness would occur before and after each cycle. The horizontal line below the graph shows periods of normal fluctuation [blue] and TMFs [orange].)
Trout Management Flows Timeline

• Spring 2019
  • Stakeholders expressed concerns about the preparedness to implement LTEMP TMFs *should they be recommended.*

• Summer / Fall 2019
  • Two calls with DOI Federal Family technical representatives and two with TWG to discuss what has been done, what is currently planned, and what compliance we have.

• Winter / Spring 2020
  • GCMRC Annual Reporting summary
  • Triennial Work Plan development
  • Reclamation to initiate formal tribal consultation
  • Planning and Implementation Team: ~March
  • Implementation Window: May-August
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