



— BUREAU OF —
RECLAMATION

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

1.4 COMMUNICATION AND CONSULTATION PROCESS FOR ALTERNATIVE D

In implementing the processes described in Section 1.3 and the associated decision process shown in Figures 4 and 5, the DOI will exercise a formal process of stakeholder engagement to ensure decisions are made with sufficient information regarding the condition and potential effects on important resources. As an initial platform to discuss potential future experimental actions, the DOI will hold GCDAMP annual reporting meetings for all interested stakeholders; these meetings will present the best available scientific information and learning from previously implemented experiments and ongoing monitoring of resources. As a follow-up to this process, the DOI will meet with the TWG to discuss the experimental actions being contemplated 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 Tribes³ 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

GCD Experimental Flow	Duration	Implementation Window
Spring HFE ^Δ	up to 96 hours	March – April
Proactive Spring HFE ^{Δ◇}	24 hours ^{**}	April – June
Trout Management Flows	up to 3 cycles/month for 4 months	May – August
Macroinvertebrate Flows	target 2-3 replicates	May – August
Fall HFE	up to 96 hours	October - November
Extended Duration Fall HFE	97- 192* or 97-250 hours ^{***}	October - November

* 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

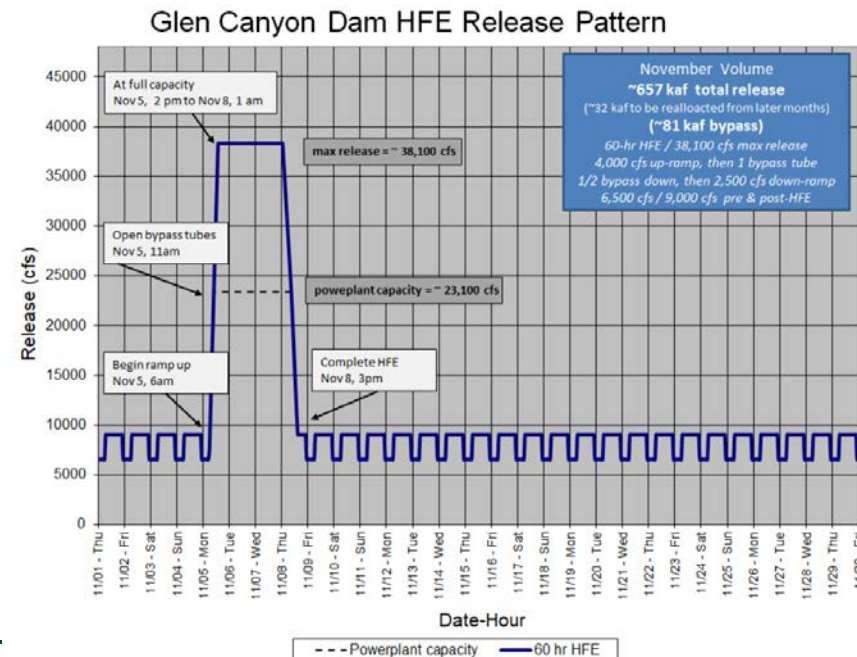
- Sediment accounting: Dec 1 – June 30
- Implementation / Planning Team: late February
- Possible implementation: March-April

Spring HFE, proactive, 2020

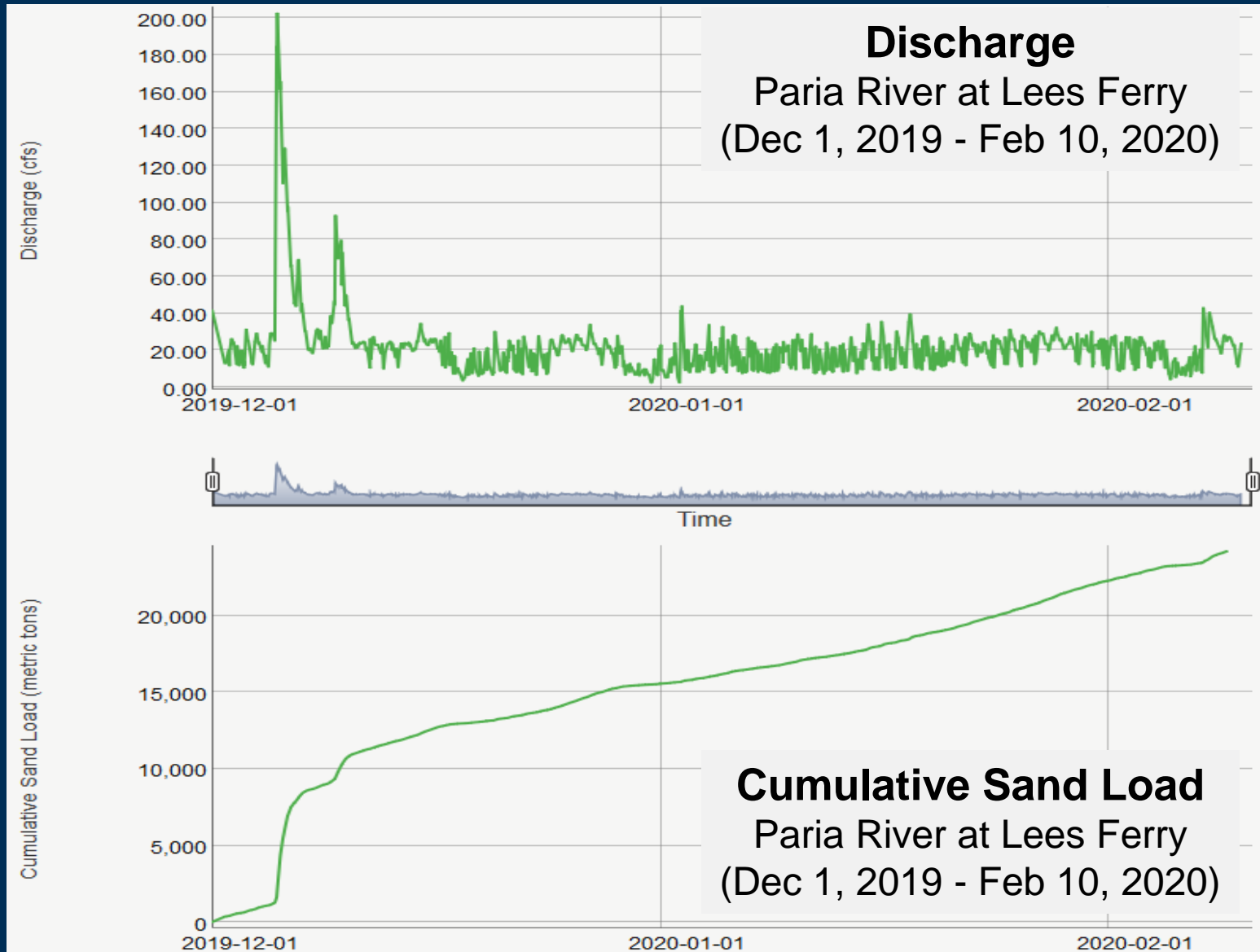
- Equalization (GCD releases ≥ 10 maf)
- Planning Team: late February
- Possible implementation: April-June

Fall HFEs, sediment triggered, 2022

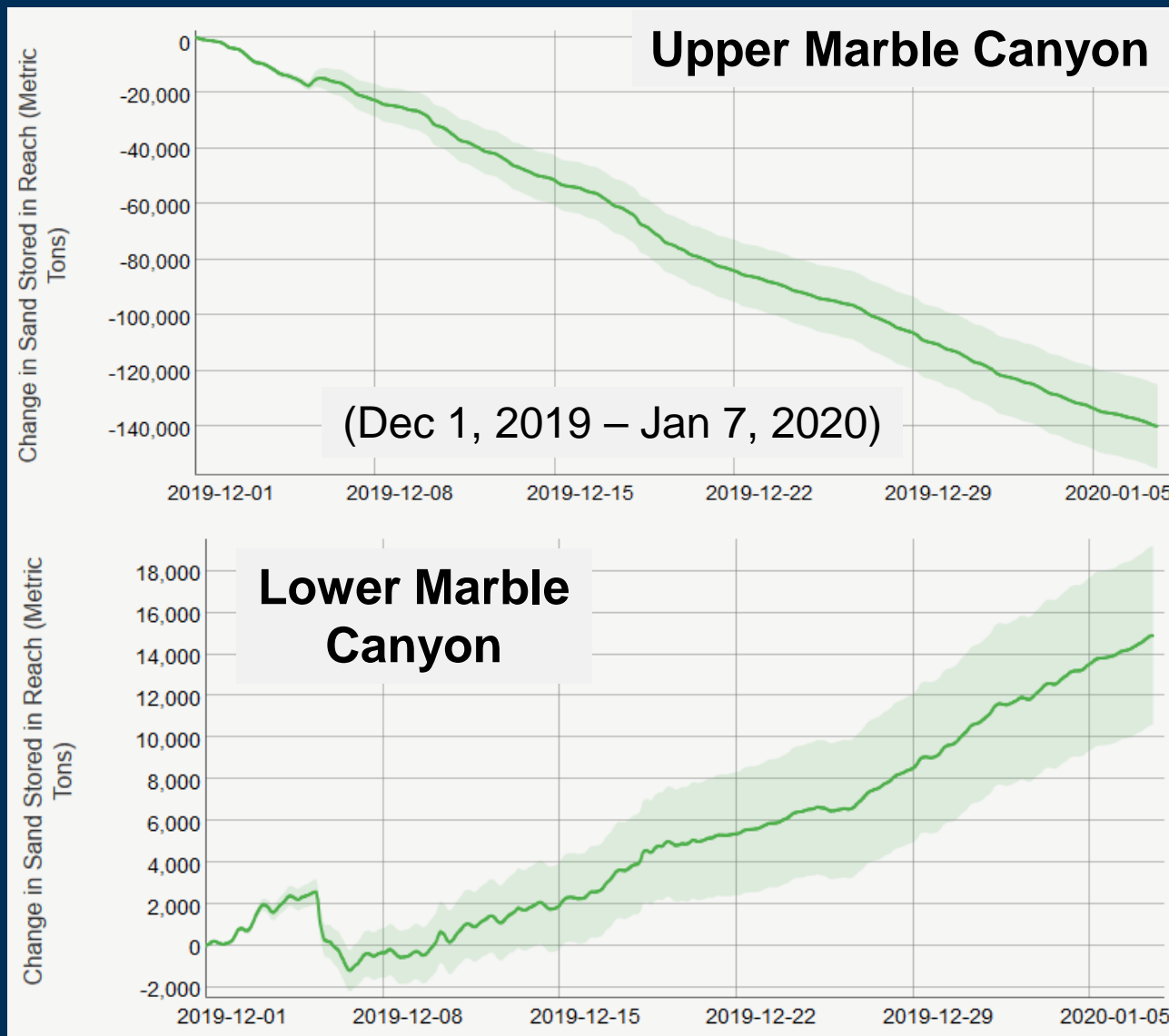
- Sediment accounting: July 1 – Nov 30
- Implementation / Planning Team: early September
- Possible implementation: October – November



Paria River Discharge & Sediment Inputs



Marble Canyon Sand Mass Balance



USGS Preliminary Data, 2020. Do Not Cite.

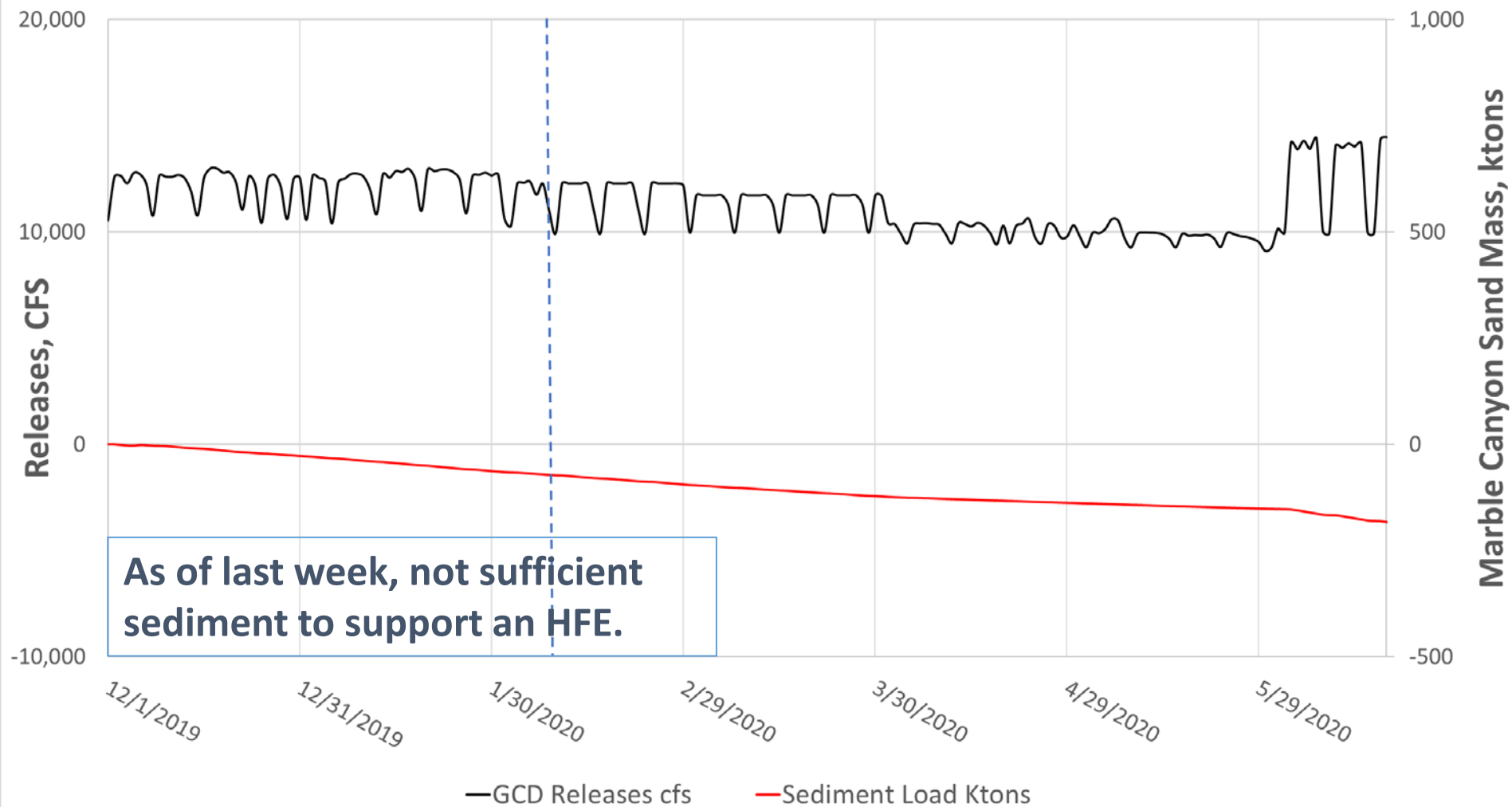
(https://www.gcmrc.gov/discharge_qw_sediment/reach/GCDAMP/09380000/09383050,
https://www.gcmrc.gov/discharge_qw_sediment/reach/GCDAMP/09383050/09383100)

Feb. 13, 2020

Sand Budget Model Results

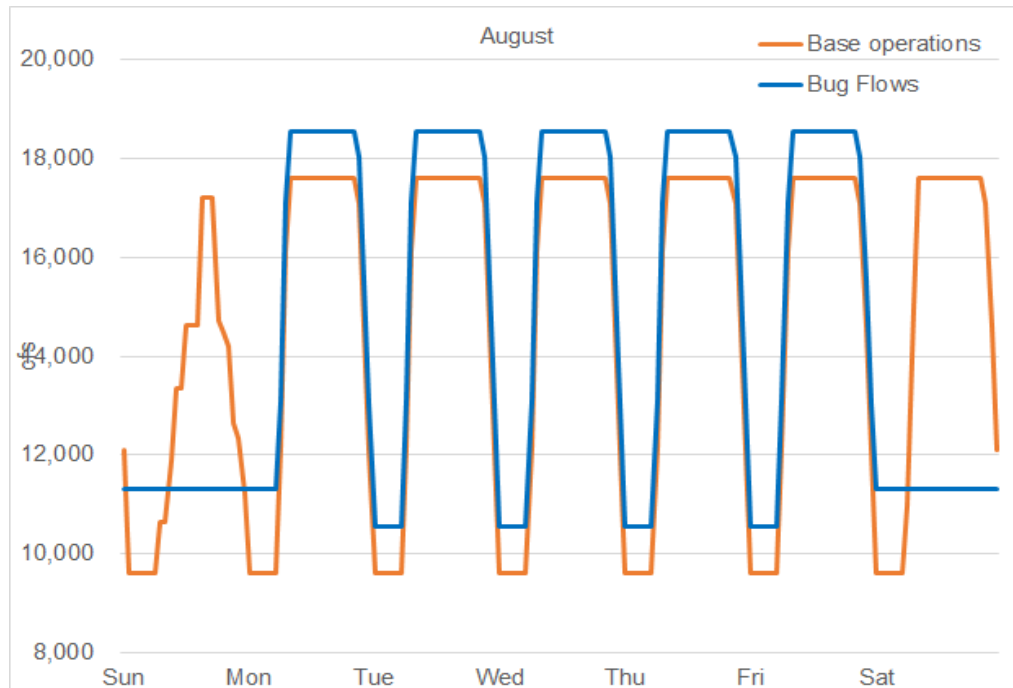
Actual Flow as of 2/7/2020 00:00
Actual Sediment data as of 2/7/2020 5:00
Graph Updated 2/7/2020 15:45
GCMRC's most recent Lab Results of
Suspended Sediment as of 9/4/2019

Sand Budget Model Results: Dec 1, 2019 - Jun 30, 2020 Release and Calculated Sediment Load in Colorado River, Marble Canyon



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



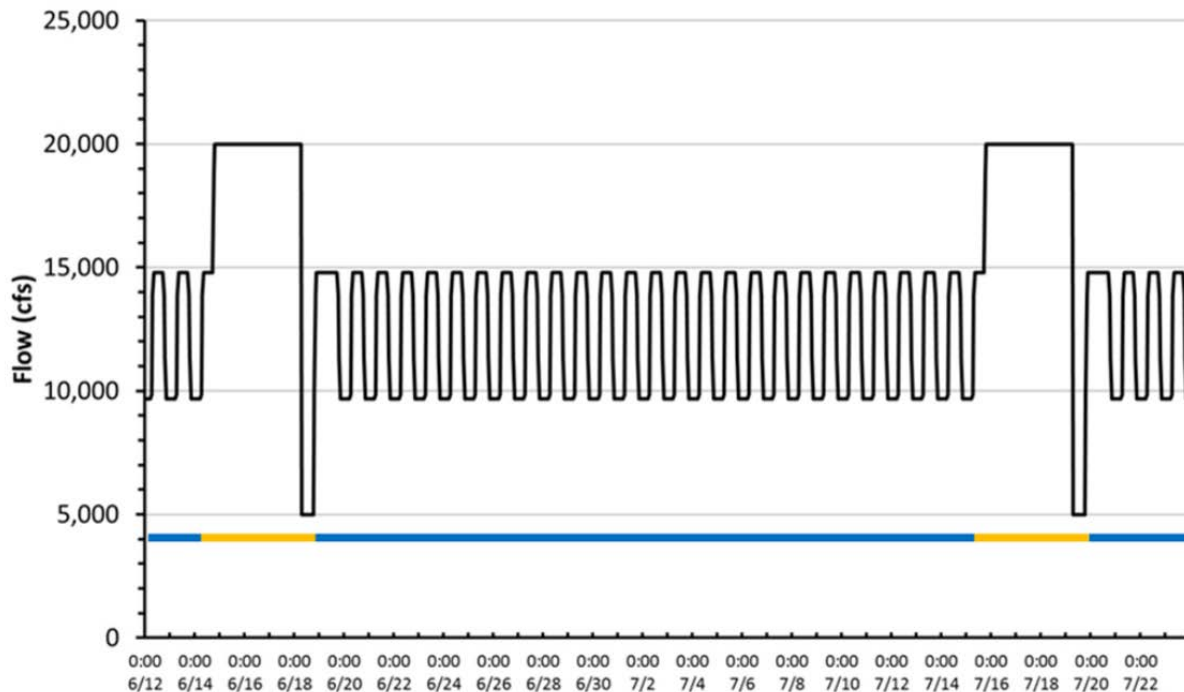
Bug Flows Timeline

- 2018: Round 1, positive results
- 2019: Round 2, equivocal
- 2020: Round 3? To be determined...
 - March
 - Notification and Consultation
 - Convene Implementation / Planning Team
 - 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



Example implementation of a two-cycle TMF in June and July with resumption of normal fluctuations between cycles and afterward

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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