

RECLAMATION

Managing Water in the West

Considerations for Seasonal Scheduling of High Flow Experiments (HFEs)

AMWG February 14-15, 2018



U.S. Department of the Interior
Bureau of Reclamation



Presentation Purpose

- Shared understanding of the challenges and concerns regarding scheduling a springtime HFE

HFE Decision Making Process

1. Planning Component

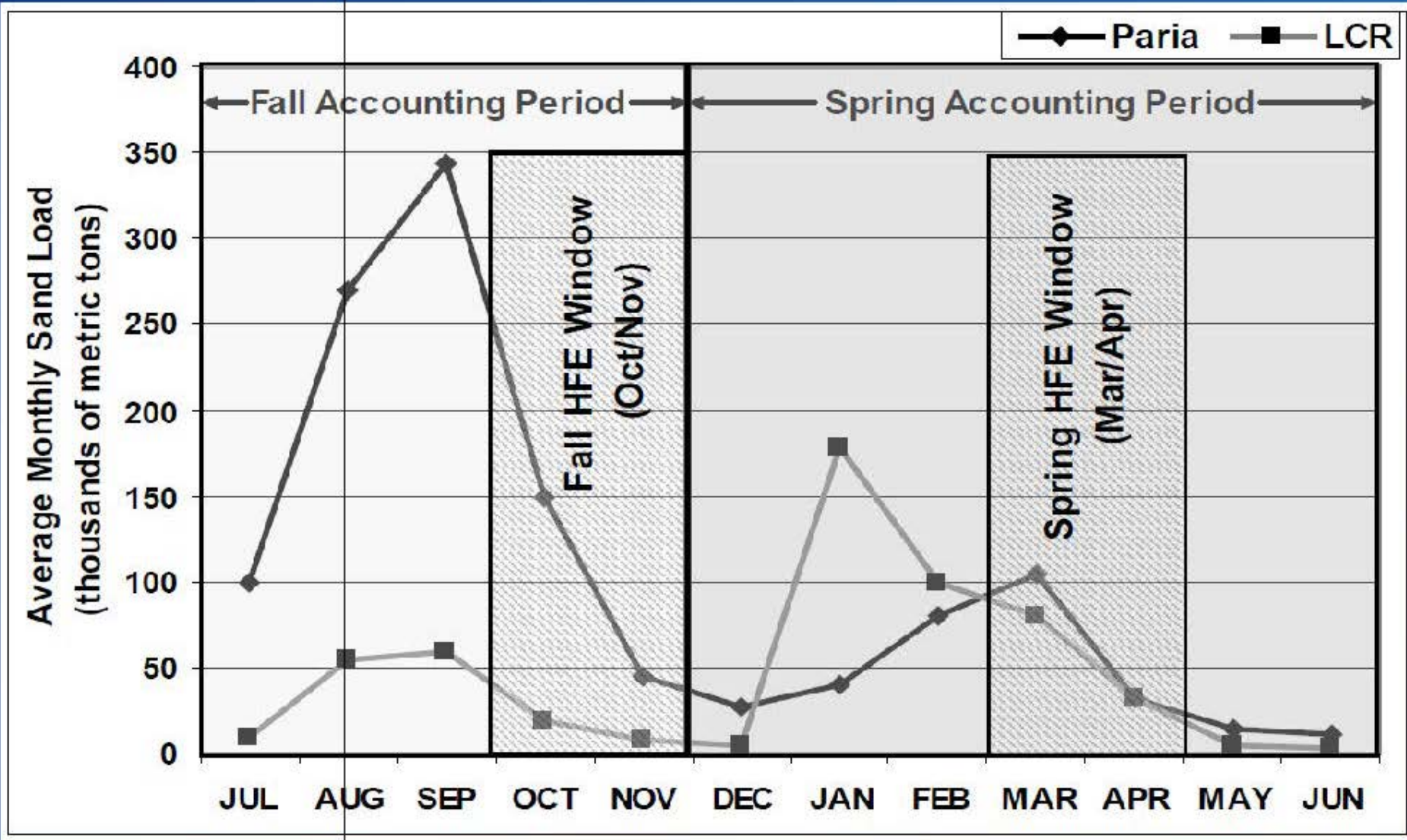
- Annual resource status assessment
 - Annual Agency Reporting
 - GCDAMP Budget and Work Plan Process

2. Modeling Component

3. Decision and Implementation Component

- Review Modeling Component
- Review Status of Resources
- Consultation with agencies and tribes, AMWG and TWG input
- Staff Recommendation/DOI GCD Leadership Team Recommendation

Modeling Component



Two Types of Spring HFEs

TABLE 4 Implementation Criteria for Experimental Treatments of Alternative D

Experimental Treatment	Trigger ^a and Primary Objective	Replicates	Duration	Annual Implementation Considerations ^b	Long-Term Off-Ramp Conditions ^c	Action if Successful
<i>Sediment-Related Experiments^d</i>						
Spring HFE up to 45,000 cfs in Mar. or Apr.	Trigger: Sufficient Paria River sediment input in spring accounting period (Dec.–Jun.) to achieve a positive sand mass balance in Marble Canyon with implementation of an HFE Objective: Rebuild sandbars	Not conducted during first 2 years of LTEMP, otherwise implement in each year triggered, dependent on resource condition and response	≤96 hr	Potential short-term unacceptable impacts on resources listed in Section 1.3; unacceptable cumulative effects of sequential HFEs; sediment-triggered spring HFEs will not occur in the same water year as an extended-duration (>96 hr) fall HFE	Sediment-triggered spring HFEs are not effective in building sandbars; or long-term unacceptable adverse impacts on the resources listed in Section 1.3 are observed	Implement as adaptive treatment when triggered and existing resource conditions allow
Proactive spring HFE up to 45,000 cfs (Apr., May, or Jun.)	Trigger: High-volume year with planned equalization releases (≥10 maf) Objective: Protect sand supply from equalization releases	Not conducted during first 2 years of LTEMP, otherwise implement in each year triggered, dependent on resource condition and response	First test 24 hr; subsequent tests could be shorter, but not longer, depending on results of first tests	Potential short-term unacceptable impacts on resources listed in Section 1.3; unacceptable cumulative effects of sequential HFEs; will not be implemented in the same water year as a sediment-triggered spring HFE or extended-duration fall HFE	Proactive spring HFEs are not effective in building sandbars; or long-term unacceptable adverse impacts on the resources listed in Section 1.3 are observed	Implement as adaptive treatment when triggered and existing resource conditions allow

LTEMP ROD

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Sediment Triggered Spring HFE

- **Objective:** rebuild sandbars
- **Trigger:** Paria River sand input (Dec-Jun), that results in positive sand mass balance in Marble Canyon
 - uncertainty bounds, future inputs assumption
- **Timing:** Mar-April, starting in 2020, if triggered
- **Magnitude:** up to 45,000 cfs (powerplant capacity + full bypass)
- **Duration:** up to 96 hrs
- **Considerations:** status of resources, stakeholder input

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Proactive Spring HFE

- **Objective**: Protect sand supply from equalization releases
- **Trigger**: Projected annual release ≥ 10 maf
 - 24-Month Study model projected annual release
- **Timing**: April, May, Jun starting in 2020, if triggered
- **Magnitude**: up to 45,000 cfs (powerplant capacity + full bypass)
- **Duration**: 24 hrs first test (≤ 24 hrs, subsequent)
- **Considerations**: status of resources, stakeholder input

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LTEMP EIS projected # of HFEs in 20-year LTEMP period

# Fall HFEs	# Spring HFEs	Total HFEs
14.7	5.7	20.4

Planning Considerations

- Follow similar process for fall HFEs
- Decision: ~middle of month prior to implementation (e.g., mid-March for April HFE)
 - hydropower marketing
- Convene tech team in ~3 months prior
 - e.g., Dec-Mar for April HFE
- Tribal consultations, TWG/AMWG input

Planning Considerations (cont'd)

- Coordinate maintenance scheduling ~2 yrs out
 - maximize unit availability for possible HFEs (e.g., a week in late April for sed. triggered, and a couple days in May/June for proactive)
- Research and monitoring prior to, during, and after a spring HFE to get at key science questions
 - FY18-20 Workplan
- Other?

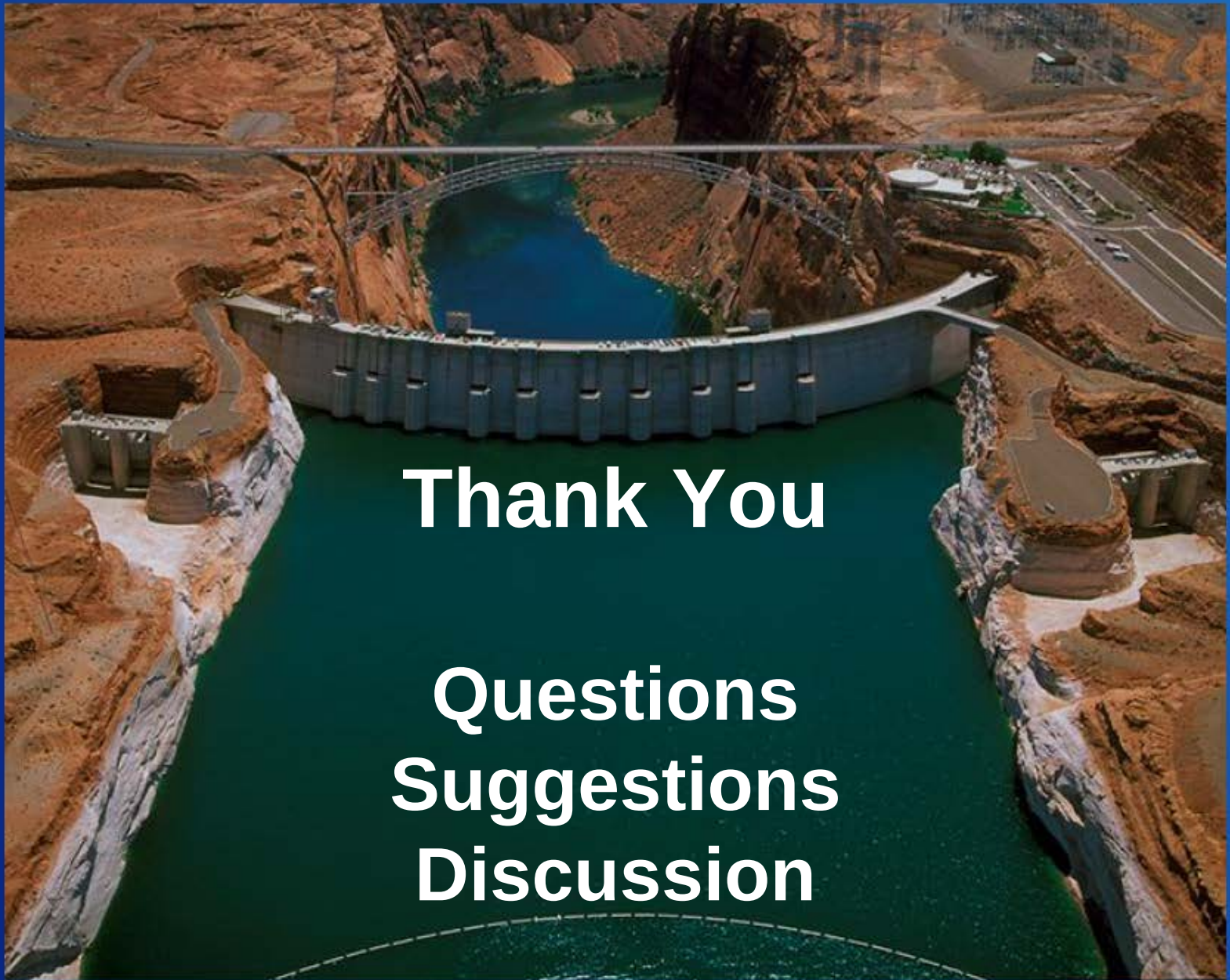
Glen Canyon Power Plant Planned Unit Outage Schedule for Water Year 2019

Unit Number	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019
1												
2												
3												
4												
5												
6												
7												
8												
Units Available	6	8	6	6	6	4/6	6	7	8	8	8	6
Capacity (cfs)	20,600	28,100	20,500	20,500	20,500	13,100	20,500	24,600	28,100	28,100	28,100	20,500
Capacity (kaf/month)	1,350	1,670	1,290	1,260	1,140	1,220	1,280	1,590	1,670	1,730	1,730	1,260
Max (kaf) ¹	640	640	720	1,170	1,030	1,100	980	970	1,020	1,150	1,230	924
Most (kaf) ²	640	640	720	860	750	800	710	710	750	850	900	670
Min (kaf) ¹	640	640	720	860	750	800	710	710	750	850	850	639

¹ Projected release, based on Jan 2018 Min and Max Probable Inflow Projections and 24-Month Study model runs
² Projected release, based on Feb 2018 Most Probable Inflow Projections and 24-Month Study model runs

(updated 2-13-2018)

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Thank You

Questions
Suggestions
Discussion

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