

CSAMP Policy Group meeting

Shasta Temperature Management Update

National Marine Fisheries Service and
U.S. Bureau of Reclamation

November 6, 2017

Background

- 2011 amended RPA provides for adaptive management
- NMFS perspective on why an adjustment/adaptive management is needed:
 - Recent multiple years of drought conditions
 - New science and modeling
 - Data demonstrating low population levels of winter-run and spring-run
 - Potential for increased flexibility & predictability

Framing the Temperature Management Season

- Seasonal planning in the current RPA:
 - February forecast
 - Summer temperature management
 - Fall storage/conservation

Draft Proposed Shasta RPA Amendment

Feature	2009 BiOp RPA	Draft Proposed RPA Amendment	WY 2017 Operation Study
Temperature Compliance Location	Between Balls Ferry and Bend Bridge	Clear Creek gage	Clear Creek gage
Temperature metric	Daily average temperature (DAT)	Seven day average daily maximum temperature (7DADM) or DAT surrogate	DAT surrogate
Temperature criterion	≤56°F DAT	≤53.0°F to ≤56.0°F DAT, depending on yeartype	≤53.0°F DAT (Wet year target)
End-of-September storage targets?	YES	Revised	N/A
Yeartype specific temp-dependent mortality objectives?	NO	YES	N/A
April/May storage requirements?	NO	YES	N/A

Australian Model Framework

	CRITICAL	DRY	BELOW NORMAL	ABOVE NORMAL & WET
Objective	PROTECT	MAINTAIN	RECOVER	ENHANCE
Temperature-dependent mortality objective	<30%	<8%	<3%	<3%
Associated temperature criterion (at Clear Greek gage)	≤56°F DAT	≤54.0°F DAT	≤53.0°F DAT	≤53.0°F DAT

Map of Current and Proposed Temperature Compliance Point

Proposed:

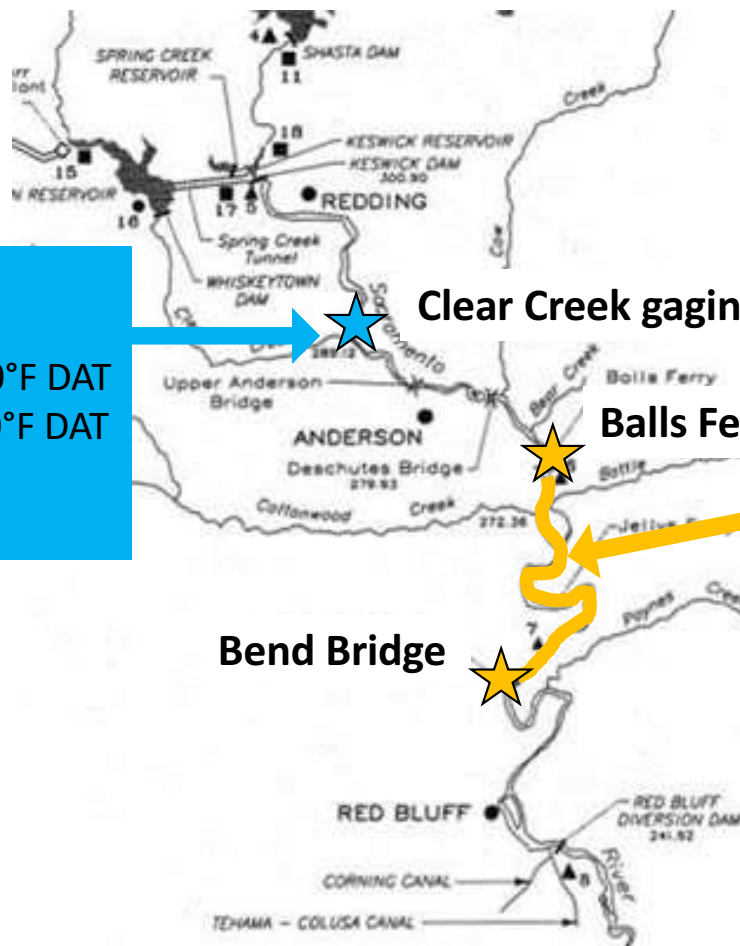
Wet: $\leq 53.0^{\circ}\text{F DAT}$

Above Normal: $\leq 53.0^{\circ}\text{F DAT}$

Below Normal: $\leq 53.0^{\circ}\text{F DAT}$

Dry: $\leq 54.0^{\circ}\text{F DAT}$

Critical: $\leq 56.0^{\circ}\text{F DAT}$



Clear Creek gaging station (CCR)

Balls Ferry

Current: $\leq 56^{\circ}\text{F DAT}$

Bend Bridge

Background (cont'd)

- Purposes as defined by NMFS:
 - Sets interim operational changes that are necessary at this time,
 - Phased approach, provides a bridge between current RPA and completion of the reinitiation of consultation (estimated at 3-5 years)

Draft Proposed Shasta RPA Amendment Process

- January 2017: NMFS issued the draft
- March 2017: Reclamation issued formal response
 - Concerns on:
 - Feasibility
 - More restrictive operations
 - Science of new objectives
 - Applicability under adaptive management process as opposed to reconsultation
 - Other elements
- Agency interactions provided for plan to allow for analysis of draft proposal while also conducting an operational study given suitable hydrologic conditions in 2017

Draft Proposed Shasta RPA Amendment Process

- Structured stakeholder engagement process:
 - Workshop #1: seek input on the initial science and modeling workplan
 - Workshop #2: seek input on draft temperature pilot plan components and modeling
 - Workshop #3: review final 2017 temperature management pilot plan and status report on system-wide modeling
 - Workshop #3.5: update on science workplan and system-wide modeling
 - Workshop #4: seek input on science workplan, system-wide modeling results

Draft Proposed Shasta RPA Amendment Process

- System-wide modeling:
 - Focus of workshops #2 and 3
 - Evaluates operation of Shasta Reservoir and the CVP with the imposition of end-of-April and end-of-September storages, and required Keswick release schedules
 - Temperature and biological modeling currently underway

Science and monitoring plan

- Purposes:
 - Identify near-term monitoring, modeling, and analysis and synthesis needs to improve fish and water management decision-making
 - Reduce uncertainty on the conditions necessary to achieve desired fish and water management goals
 - Will be distributed to the stakeholders for input
- Includes:
- conceptual models of early life history stages of winter-run and potential stressors to those life stages
 - management questions to direct the necessary scientific studies to the most relevant issues for decision making

Next Steps/Involvement

- Draft Shasta RPA Amendment Workshop #4: date TBD
 - Objectives: seek input on science workplan, system-wide modeling results
- LOBO review: December 5-7, 2017
- NMFS/Reclamation decision in January on whether to extend the operational study to 2018
- February forecast