

# 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

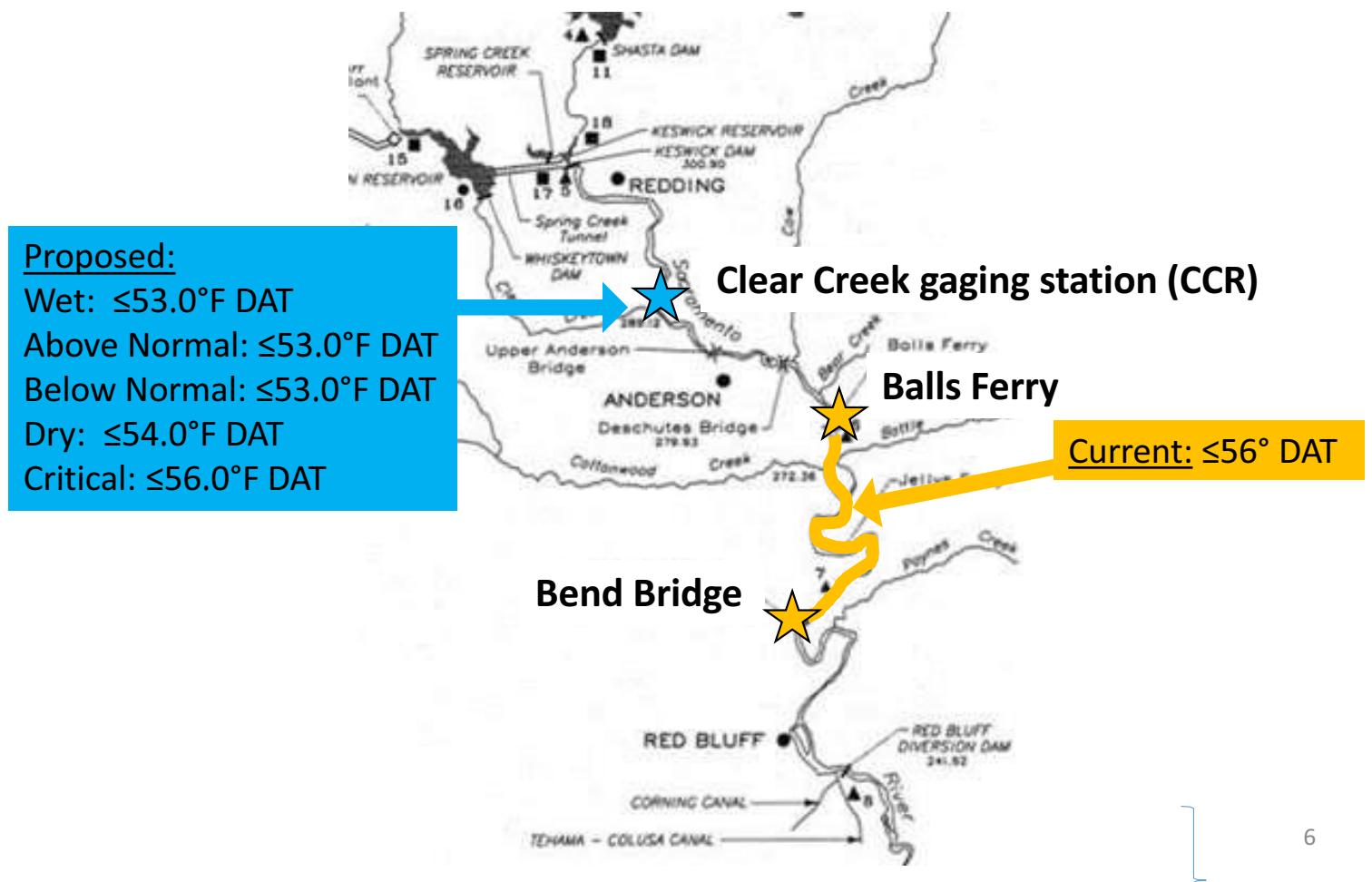
# Draft Proposed Shasta RPA Amendment

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



## 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