Attachment B, Scoping Meeting Materials

Shasta Dam Fish Passage Evaluation
Reintroduction of Anadromous Salmonids above Shasta Dam

ABSTRACT

The Shasta Dam Fish Passage Evaluation is an effort to evaluate the feasibility of reintroducing Chinook salmon and steelhead to tributaries above Shasta Lake. The evaluation is being developed by representatives from Reclamation, National Marine Fisheries Service, U.S. Fish and Wildlife Service, U.S. Forest Service, California Department of Water Resources, California Department of Fish and Wildlife, and the California State Water Resources Control Board.

Limitations to Anadromous Fish Migration

Anadromous salmonids have been blocked from approximately 80 percent of their historic habitat in California's Central Valley rivers and have not accessed the habitat above Shasta Dam for over 70 years.

The Central Valley supports steelhead and 4 runs of Chinook salmon. Winter-run Chinook salmon were listed as endangered in 1993. Spring-run Chinook salmon were listed as threatened in 1999. Steelhead were listed as threatened in 2006.

STUDY NEED

In 2009, NMFS issued a jeopardy decision in the Biological Opinion for the long-term operations of the CVP and State Water Project. The Biological Opinion and the Draft Recovery Plan for Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead, identified the need to reintroduce winter-run and spring-run Chinook salmon and steelhead into their historic habitat above the CVP dams. The ultimate goal is to increase the number of viable populations.

NMFS Biological Opinion Reasonable and Prudent Alternative Action V:
Fish Passage at Shasta, Folsom and New Melones Dams

- Near-term fish passage actions:
  Develop and implement a fish passage pilot plan and associated pilot studies that would result in recommendations for the implementation of a long-term reintroduction of the target species.

- Long-term goal:
  Increase abundance, productivity, and spatial distribution, and to improve the life history, health, and genetic diversity of the target species.

NEXT STEPS, SHASTA PILOT STUDY

Completed Activities

- Habitat Assessments of the McCloud and Sacramento rivers
- Draft Pilot Study Implementation Plan
- Preliminary Draft Environmental Assessment
- Resident Fish Health Testing
- Hatchery Water Treatment Study
- Captive Broodstock Established

CONCLUSION

If the Pilot Study results show that Chinook salmon reintroduction is feasible, then a long-term reintroduction of the target species will be established.
2009 Biological Opinion on Long Term Operation of the Central Valley Project and State Water Project Shasta Fish Passage Evaluation

Form Steering Committee (Step 1) → Habitat Assessment (Step 2)

2010 → 2014

Pilot Plan (Step 3)

• Draft Pilot Plan
• Shasta Dam Fish Passage Evaluation Environmental Impact Statement

You are Here

Long-term Fish Passage Plan and Program

If the Comprehensive Fish Passage Report indicates that long-term fish passage is feasible and desirable, Reclamation shall develop a plan and implement a Long-Term Fish Passage Program.

Completion of Pilot Plan (Step 4)

YEAR 1

• Juveniles
• Efficiency
• Location
• Transport/release
• Survival
• Types of passage

YEAR 2

• Eggs
• Survival
• Types of passage

YEAR 3

• Adults
• Recruitment
• Distribution
• Types of passage

YEAR 4-5*

*Potential Year 4-5
• Additional studies

Comprehensive Fish Passage Report (Step 5)

Legend:
- Completed actions
- Ongoing actions
- Future actions
- Potential Long-term Plan
Federal agencies must take into account the effect of their undertakings on historic properties, in consultation with the Advisory Council on Historic Preservation, the State Historic Preservation Officer, Indian tribes, and interested parties.

- Identify participants in the Section 106 process
- Identify historic properties
- Assess effects of the undertaking on historic properties
- Resolution of adverse effects

Other Federal Laws

- Archaeological Resources Protection Act
- Native American Graves Protection and Repatriation Act
- Executive Order 13007 Indian Sacred Sites
Cultural Resources


## Shasta Dam Fish Passage Evaluation - Pilot Study

### Environmental Compliance

### Proposed Timeline

**National Environmental Policy Act**

**National Historic Preservation Act Section 106 (NHPA)**

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NOTE: If long-term reintroduction moves forward, additional environmental analysis and compliance will be conducted.
Near Term Actions
June 2017
Agenda

• Introduction and Meeting Guidelines
• Overview, Objectives, and Purpose
• Project Background
• Environmental Compliance
• Public and Stakeholder Engagement
• Action V Near-term Activities
• Pilot Plan Studies
• ESA 10(j) Experimental Population
• Cultural Resources
• Schedule and Next Steps
Overview

• In 2009, NMFS issued a BO on the Long-Term Operation of the CVP and SWP

• The BO includes RPA actions that would allow the CVP and SWP to operate the projects in compliance with the ESA

• RPA Action V includes an evaluation of the potential reintroduction of Federally-listed Chinook salmon and steelhead to historical habitats
Overview Continued

• Action V is separated into near-term and long-term actions

• The near-term of Action V is to increase the geographic distribution and abundance of listed fish

• The near-term actions of Action V includes development of a Shasta Fish Passage Pilot Plan and associated Pilot Studies to determine the feasibility of reintroducing winter-run Chinook salmon above Shasta Dam to historical habitats

• This EIS is an effort to analyze and disclose impacts associated with implementing the Shasta Fish Passage Pilot Plan – Pilot Studies
EIS Pilot Studies Purpose and Need

NEED

• Construction of Keswick and Shasta dams limited winter-run Chinook salmon to the mainstem downstream of the dams and has resulted in the decline of coldwater habitat below the dams.

• Projections of further incidences of temperature related impacts and reduction of coldwater habitat is expected to further exacerbate the imperiled status of winter-run and spring-run Chinook salmon.

PURPOSE

• Evaluate the feasibility of establishing self-sustaining populations of listed anadromous fish above Shasta Lake to make a well-informed decision about initiating a long-term fish passage program
Meeting Purpose

• Gather information to support the preparation of an EIS on the implementation of Pilot Studies
• Obtain suggestions on the scope of alternatives and issues to be addressed in the EIS
• Identify important issues raised by the public related to the development and implementation of the proposed action
Environmental Compliance

- Habitat Assessment – 2014
  - Description of habitat availability and conditions

- Draft Pilot Implementation Plan - 2016
  - Framework and guide for evaluating potential reintroduction

- Draft Preliminary EA - 2017
  - Analysis of three alternatives
    - No Action
    - reintroduction in McCloud River and Sacramento River at the same time
    - reintroduction in those locations in different years

- Preparation of an EIS on implementing Pilot Studies included in the Draft Pilot Plan- 2017
  - Initial EA analysis conducted indicated uncertainties associated with the resources analyzed
Background

• Public and Stakeholder Engagement
• Action V Near-term Activities
• Pilot Plan Studies
Participating Agencies

- Bureau of Reclamation
- National Marine Fisheries Service
- CA Department of Water Resources
- CA Department of Fish and Wildlife
- Fish and Wildlife Service
- CA State Water Board
- US Forest Service
- US Geological Survey
Public and Stakeholder Engagement

- Public Meetings
- Stakeholder Questionnaire
- Project Update Webinars
- Habitat Assessment Webinar
- McCloud River CRMP
- Siskiyou Co. Board of Supervisors
- CalTrout Water Talk
- Local timber managers
- Winnemem Wintu
- Sweetbriar Cabin Owners
- California Board of Forestry
- Fishing Groups
Near-term Pilot Fish Passage (Action V)

- Habitat Assessment
  - Completed August 2014
- Biological Productivity
- Technical Feasibility of Pilot Juvenile Collectors
  - Head of Reservoir
  - In-River
- Feasibility Determination
- Fall Run: 33 mm
- Spring Run: 40 mm
- Winter Run: 81 mm
- Late-Fall Run: 130 mm
- *O. mykiss*: 162 mm
Springs provide year round cold water needed by salmon
Habitat Assessment

- Inform locations to focus initial pilot studies
- **Estimated**
  - Spawner Capacity
  - Rearing Habitat Quality
Keswick Dam, 118 ft. Hydraulic height

Shasta Dam, 523 ft. Hydraulic height

Shasta Temperature Control Device

Hatchery

10 miles

Keswick Trap

Keswick Dam, 118 ft. Hydraulic height
Pilot Plan - Year 1: Fry/Juveniles

Key questions focused on:

• Migration within lake
• Survival rates
• Juvenile collection efficiency
• Collection location and method
• Transport method/release location
• Timing of migration
• Size and distribution (growth rates)
• Differences in productivity between the tributaries
• Competition/predation with trout
Juvenile/Fry Introduction
Year 2: Fry/Juveniles and Instream/Streamside Egg Incubation

Questions from Year 1 plus:

- Survival of swim-up fry to emigrant reaching lake
- Method for egg transplant
- Location for egg incubation/planting
Egg Introduction

Eggs are placed in top of the Whitlock-Vibert boxes

Schematic of the Fridge Streamside Incubator

Eggs are placed in the top compartment

Boxes with eggs are placed within the frige’s ‘channels’

Brian Ashton photo
Year 3: Fry/Juveniles, Instream/Streamside Egg Incubation, and Adults

Questions from Y1 and Y2 plus:

- Prespawn mortality rates
- Release location
- Juveniles reaching lake per adult female
- Sufficient holding and spawning habitat
- Distribution of holding and spawning adults
In-River Juvenile Collection System

In-River Collection System Concept

- Trap
- Guidance Net
- Debris Boom
- Pool
- River

NORTH

Scale is approximate

100 feet

Randy Beckwith, DWR

RECLAMATION
In-River Juvenile Collection System
Head of Reservoir Juvenile Collection
Temperature Curtain Concept
NMFS ESA 10(j)

Experimental Population
ESA Section 10(j) – Experimental Population

• Allows for reintroductions of Threatened & Endangered (T&E) species as “experimental populations” into suitable habitat outside the species current natural range but within probable historic range

• Primary purpose is to promote recovery of T&E species in the face of regulatory concern

• 10(j) actions must:
  • further the conservation of species
  • be determined “essential” or “nonessential”
  • be wholly separate from non-10(j) populations.
Environmental Compliance
ESA Section 10(j)

- Draft EA – Winter 2017
  - Will include Sacramento winter-run Chinook and Central Valley spring-run Chinook
- Draft 10(j) rule
  - The rule is proposed to remain until species are delisted
- Draft 4(d) rule
  - Allows regulatory flexibility
Cultural Resources: Prehistoric and historical sites, buildings, structures, objects, districts, cultural landscapes, sacred sites, and traditional cultural properties.
Cultural Resources

• **Archaeological Sites**
  Generally Native American

• **Historical Sites**
  Generally post-dating Euro-American arrival to the region

• **Traditional Cultural Properties (TCPs)**
  Places rooted in a community’s history and important in maintaining cultural continuity
Cultural Resources Compliance

National Historic Preservation Act Section 106 (Title 54 U.S.C. §306108)

- Federal agencies must take into account the effect of an undertaking on any historic property, in consultation with interested parties.
- Historic Property: a cultural resource that is eligible for listing or listed on the National Register of Historic Places. Resource meets significance criteria at 36 CFR §60.4.
Project Timeline

- Public Scoping Meetings: Summer 2017
- Scoping Report: August 2017
- Public Draft EIS: Winter 2017
- Final EIS: Early Spring 2018
- Record of Decision: Late Spring 2018
- 10(j) Designation: Late Spring 2018
- Permitting: 2017-2018
- Pilot Studies Initiated: 2018
- Monitoring Studies: 2018
- Fish Passage Report: 2021
For Additional Information

• **Program website:**
  http://www.usbr.gov/mp/BayDeltaOffice/Documents/Shasta_Fish_Passage/index.html

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