

# RECLAMATION

*Managing Water in the West*

## Shasta Dam Fish Passage Evaluation

**John Hannon**



U.S. Department of the Interior  
Bureau of Reclamation

# **CVP/SWP Water Operations RPA Fish Passage Program**

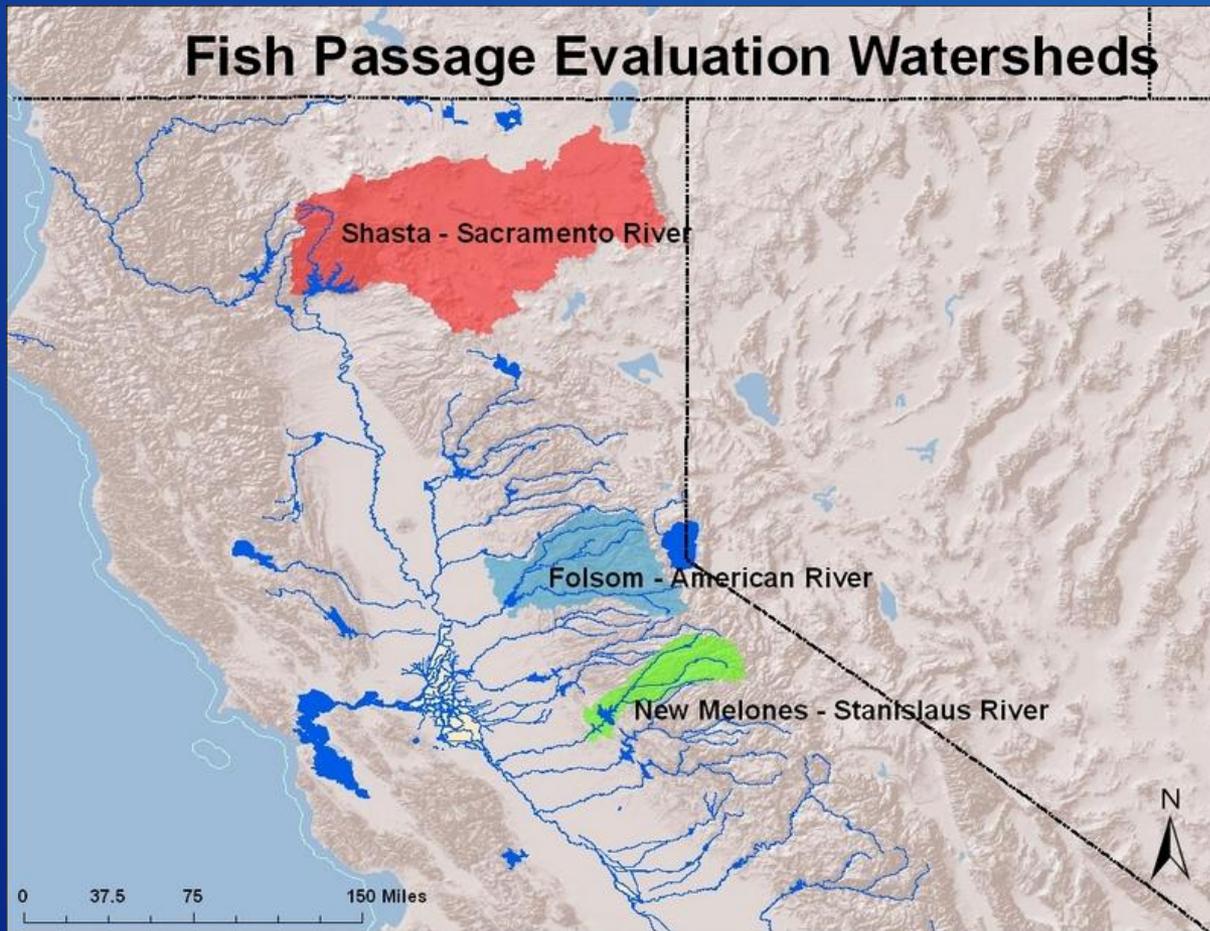
## **Near Term Actions (2010-2016)**

- **NF1. Interagency Steering Committee**
- **NF2. Evaluate Habitat**
- **NF3. Pilot Plan**
- **NF4. Pilot Reintroduction (7 actions)**
- **NF5. Comprehensive Fish Passage Report**

# NF 1 Fish Passage Steering Committee Formed in 2010

Agency	Members	
<b>Bureau of Reclamation</b>	John Hannon	David VanRijn
<b>National Marine Fisheries Service</b>	Jeff McLain	Alice Berg
<b>US Fish and Wildlife Service</b>	Jim Smith	Donnie Ratcliff
<b>Department of Fish and Wildlife</b>	Tom Schroyer	Mike Berry
<b>Department of Water Resources</b>	Randy Beckwith Ted Frink	Marc Commandatore
<b>US Forest Service</b>	Bill Brock	Michael Kellett
<b>Academic member</b>	Lisa Thompson	
<b>Water Board</b>	Amber Villalobos	

# Fish Passage Evaluation Watersheds

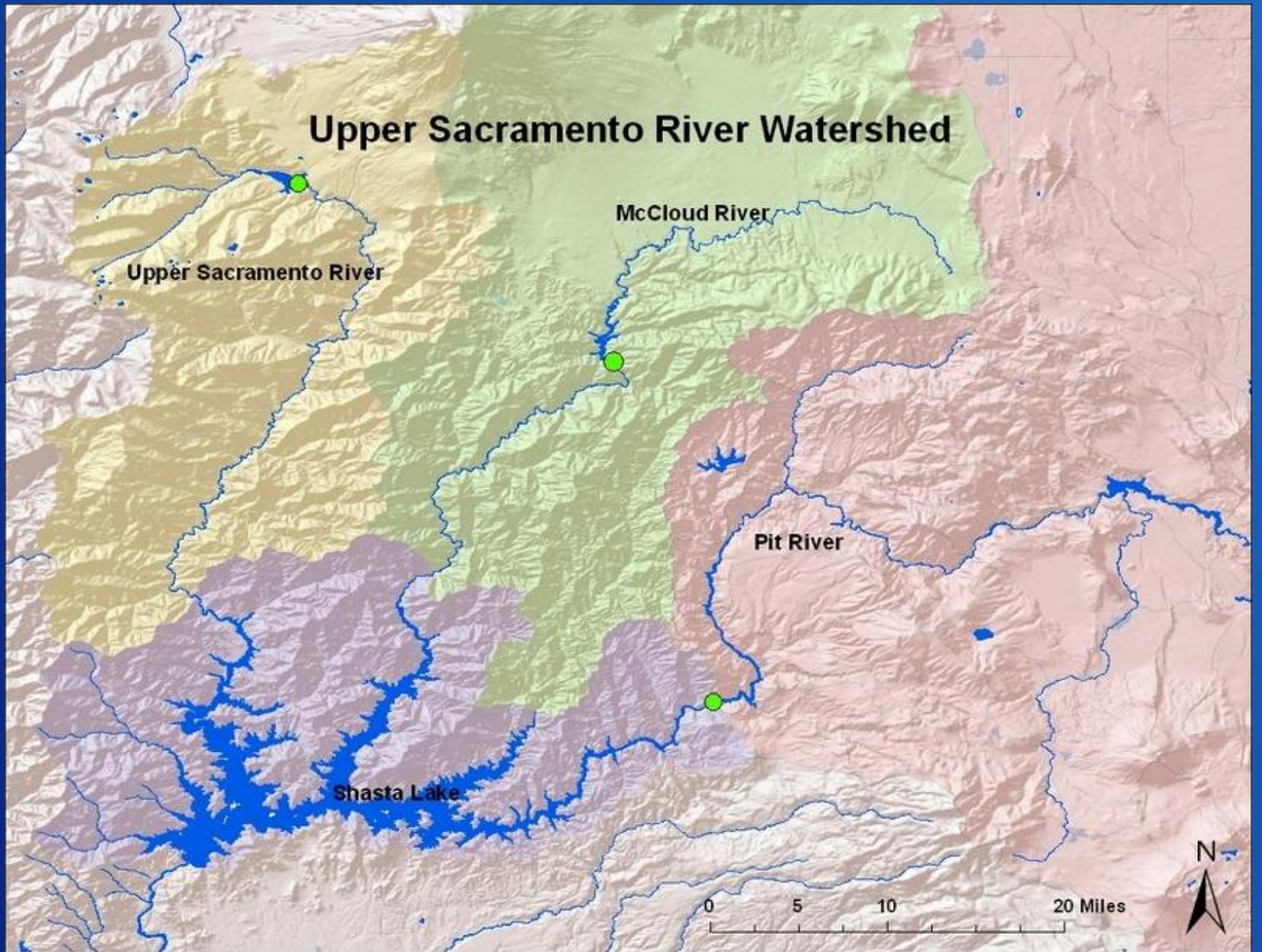


# 18 Month Contract to complete NF2 and NF3 at Shasta

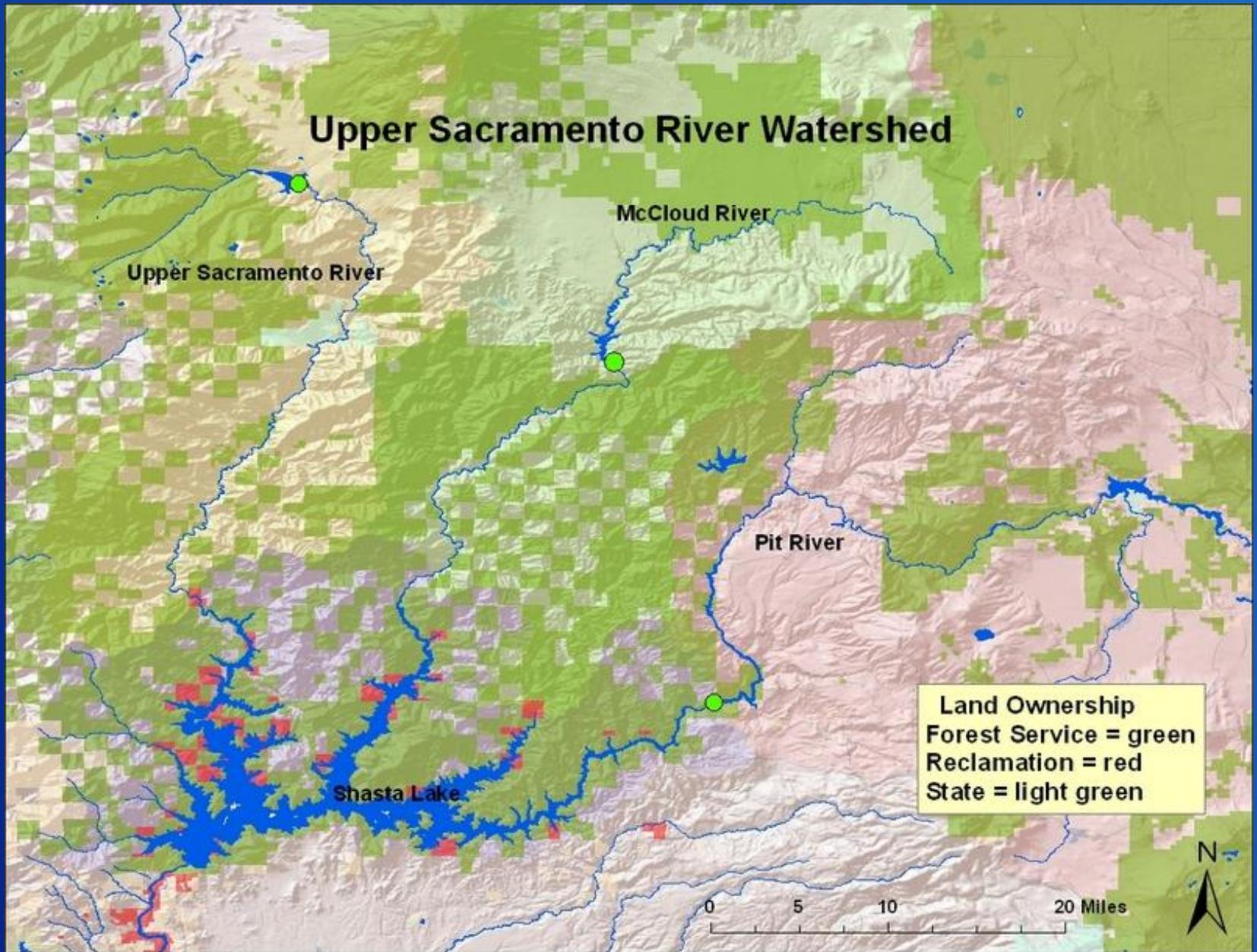
- **NF 2 – Evaluate spawning and rearing habitat**
- **NF3 – Three-year pilot plan**
  - Conduct outreach and scoping
  - Develop pilot studies
  - NEPA document
  - Permit applications
- **Steering committee participation throughout**
- **Technical Center developing engineering options**

# Schedule

- **May 1, 2013 – contractor onboard (MWH)**
- **2013-2014 – develop pilot studies and assess habitats**
- **2015 – initial pilot studies ready**
  - Three year study plan to be updated annually



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# Shasta Dam Fish Passage Pilot Implementation Plan

- Chinook salmon run for pilot
- Potential source populations
- Monitoring programs
- Potential facilities
- Potential hurdles to implementing pilot study

# Pilot Reintroduction Program Implementation (NF4)

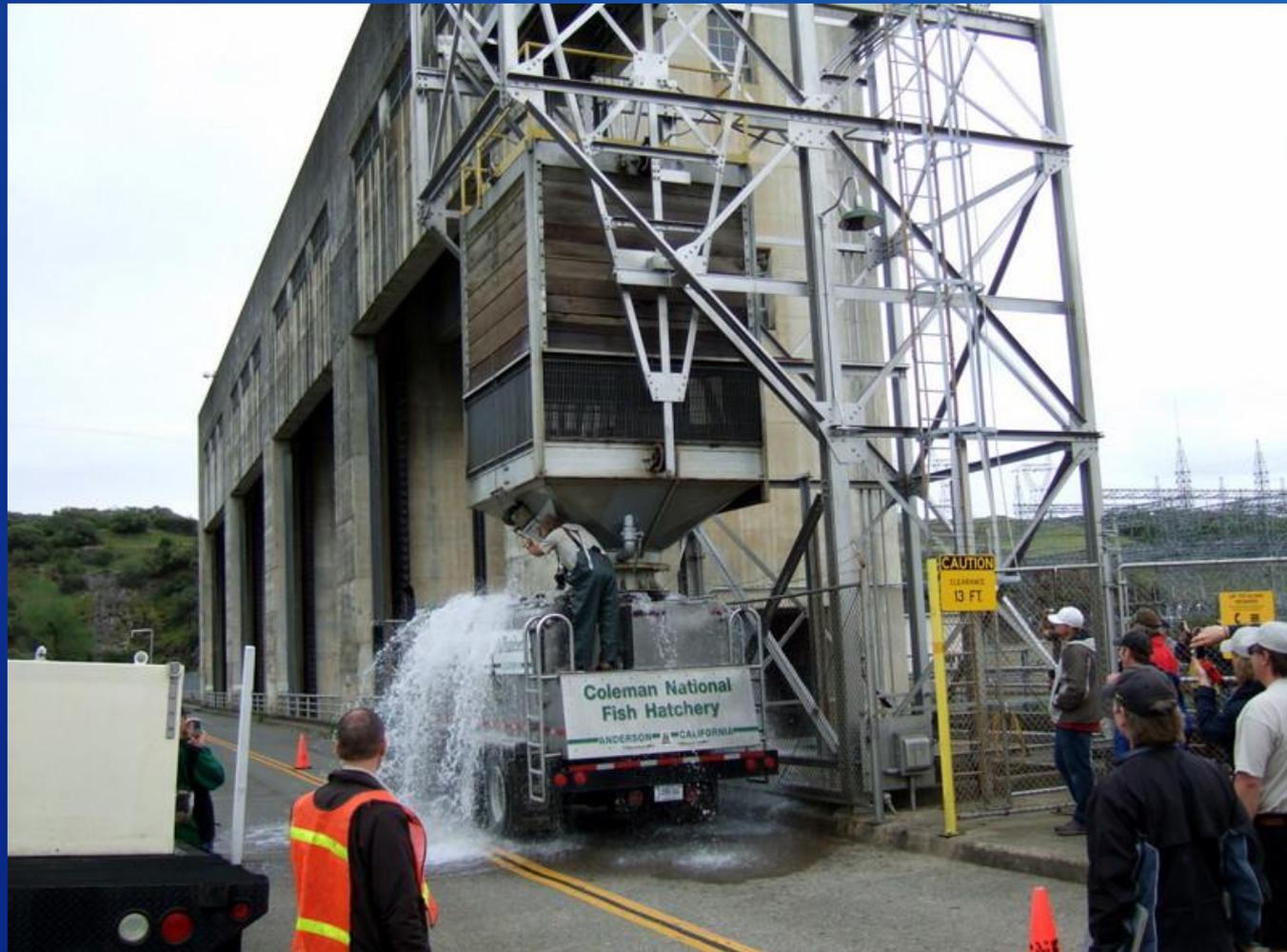
- Adult collection and handling
- Adult and juvenile release sites
- Capture and relocation of adults
- Interim downstream passage
- Juvenile collection prototype
- Effectiveness monitoring and evaluation

# Potential Pilot Test – Keswick Dam Adult Trap



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# Loading Adult Chinook At Keswick



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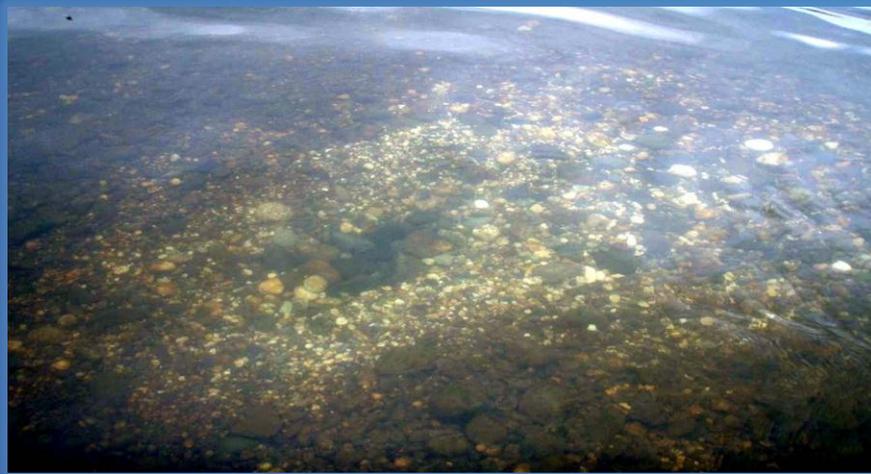
# Adult Release Example – South McKenzie River



USACE Photo

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# Adult Salmon Tracking



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# Juvenile Habitat Use And Productivity



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# Head of Shasta Reservoir



**Sacramento River**



**McCloud River**



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# Survival through the rest of the system?



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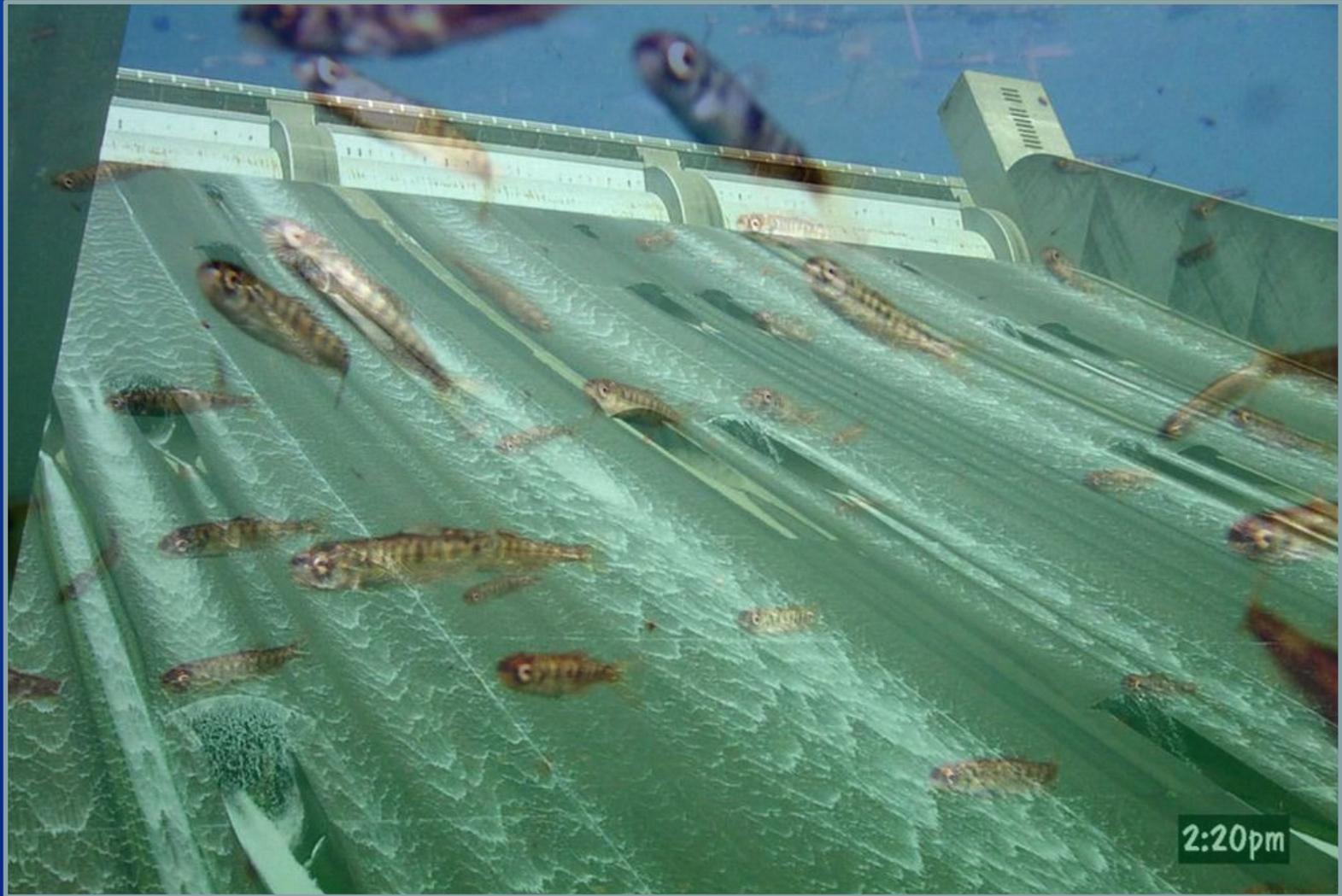
# Questions for Pilot Studies

- Fish Health and Disease
- Survival through handling and transporting
- In-river/lake survival (eggs, fry, juveniles, emigration)
- Timing of lifestages – fish behavior
- Juvenile to adult return rates
- Ability to collect juveniles



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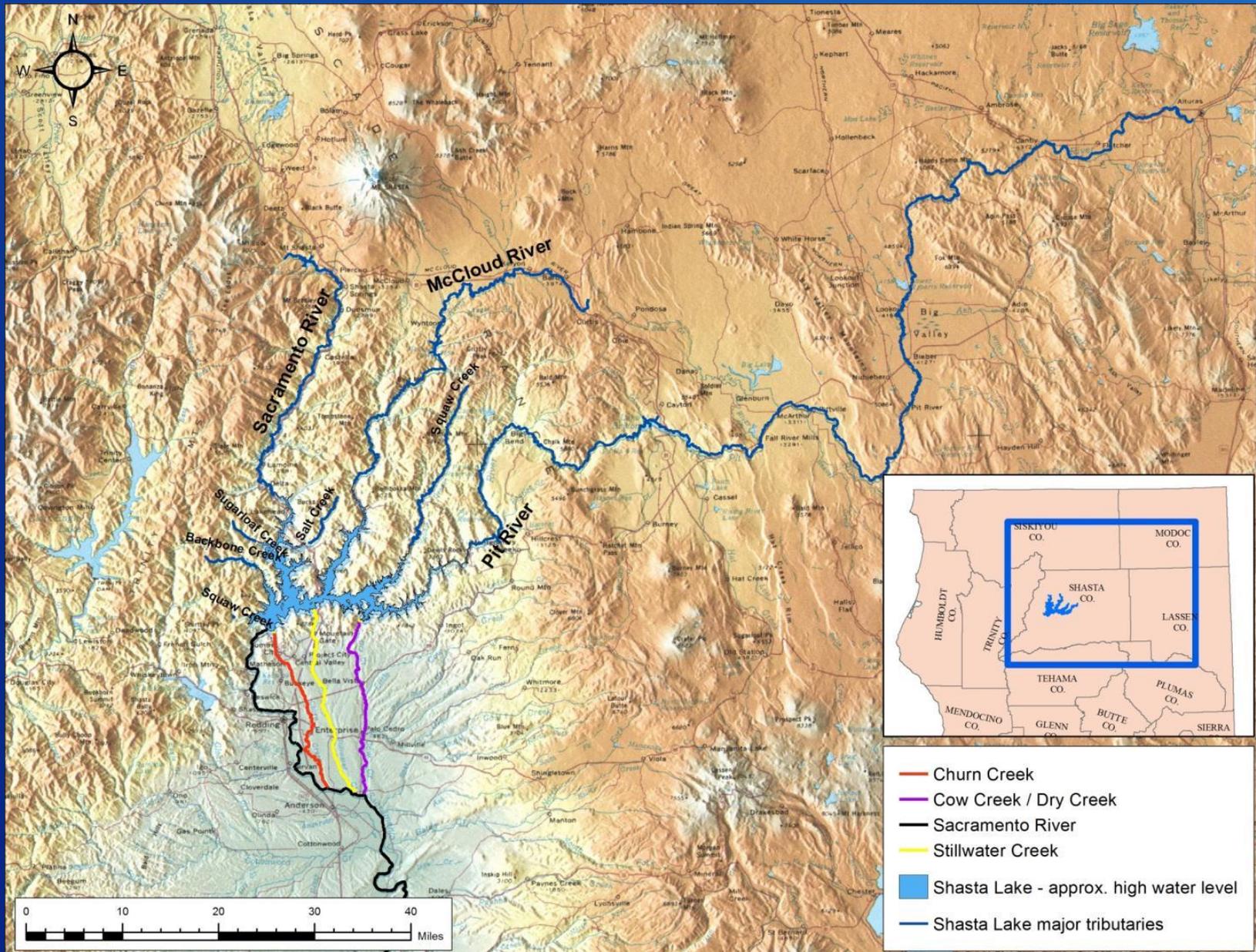
# Questions?



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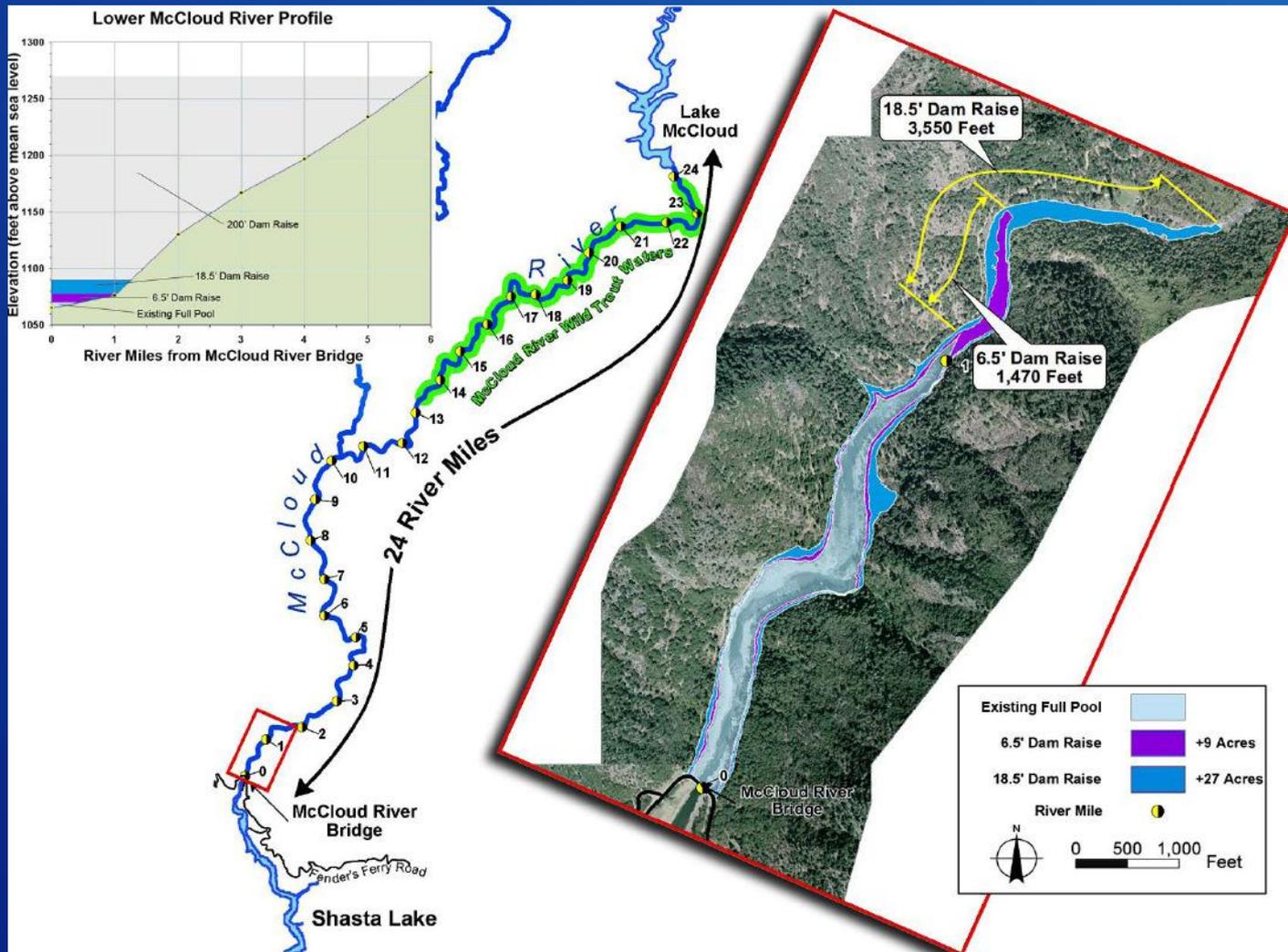
# Extra Slides

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# Relationship to Shasta Raise

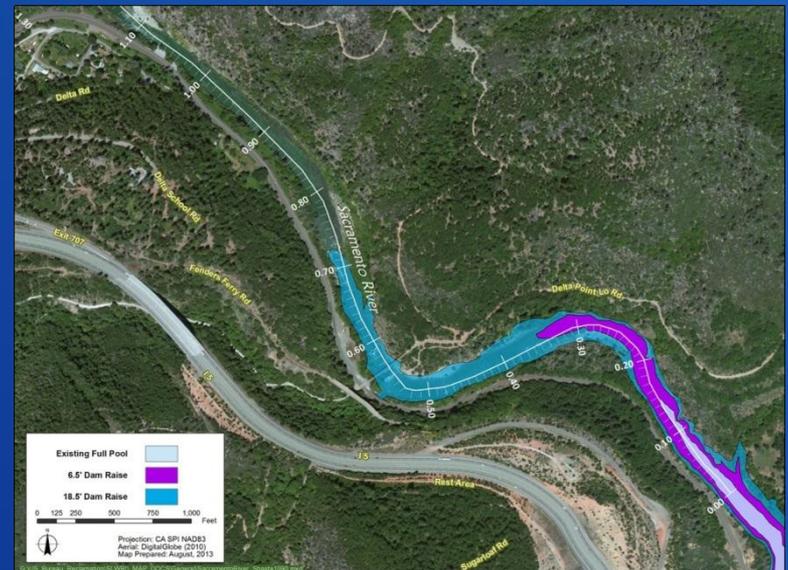
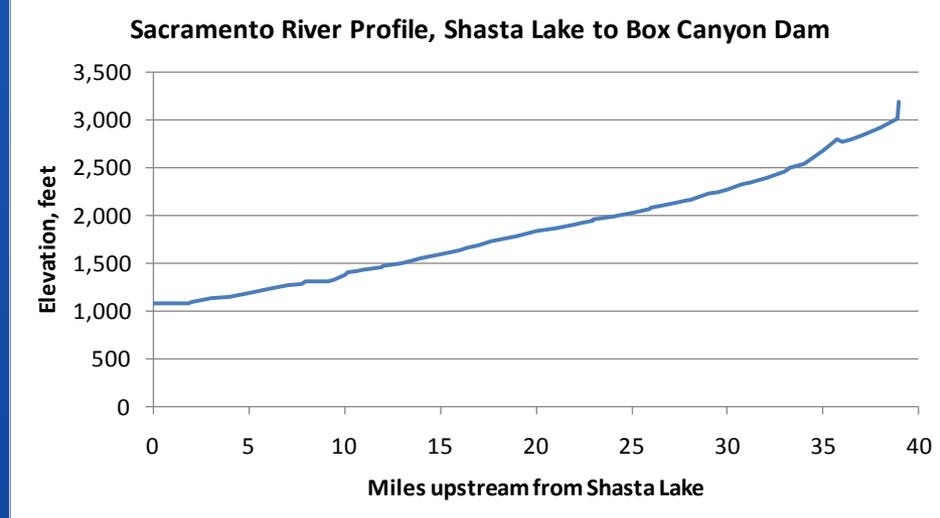
18' raise inundates 3,550' of McCloud at full Shasta pool



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# Relationship to Shasta Raise

- 18' raise inundates less than one mile (3,062 feet) of Sacramento River at full pool
- Cold water habitat is far upstream and would not be affected
- Inundated area is warmer water
- Juvenile collection will need to consider water surface elevation changes.
- Volitional passage option will need to account for lake elevations
- Little effect on adult truck and haul options

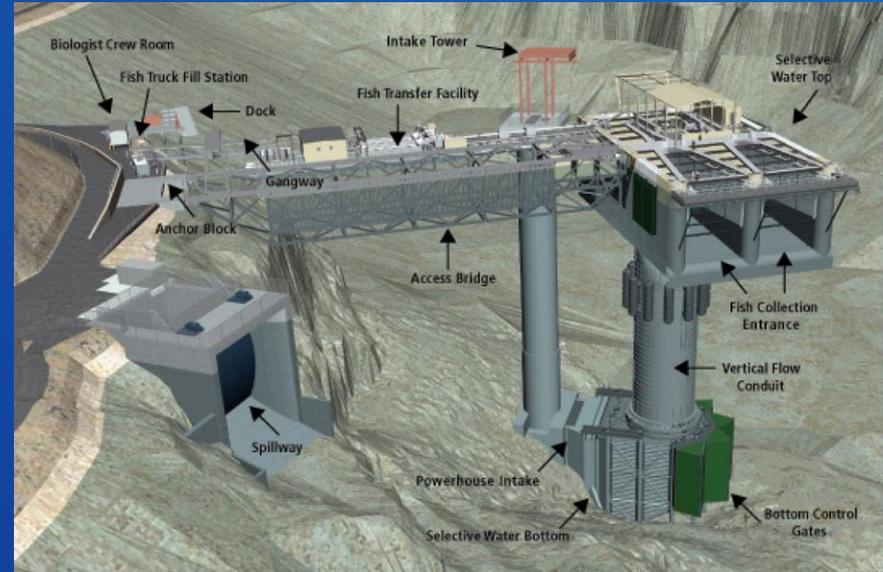


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# Juvenile Collector Examples

Pelton Round Butte, OR

Floating juvenile collector coupled with hydroelectric generation



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# Juvenile Collection Examples

Baker River, WA – 2 floating surface structures



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# Juvenile Collection Examples

Cowlitz River, OR - Louvers



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# Juvenile Collection Examples

- Clackamas River, OR
- Old louvered surface collection
- 7 mile juvenile pipe
- 2 new surface collectors
- Spending \$170 million



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