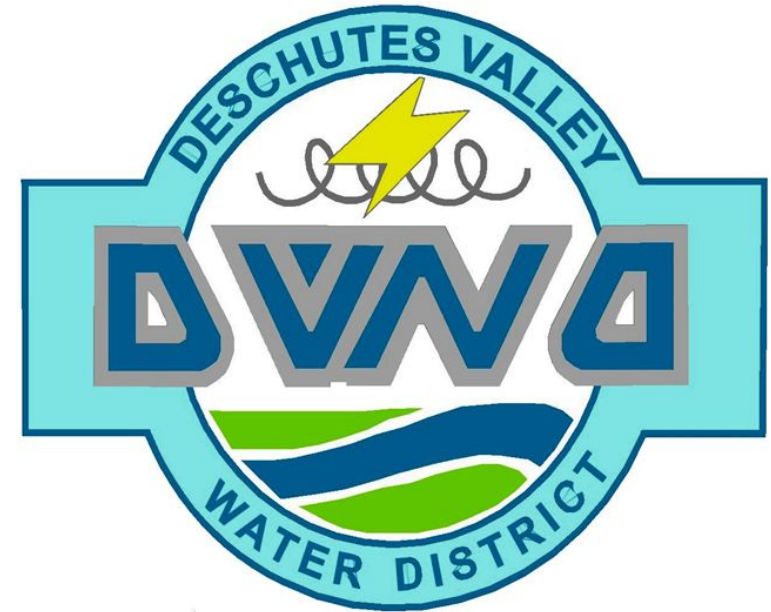


# Opal Springs Fish Passage Update

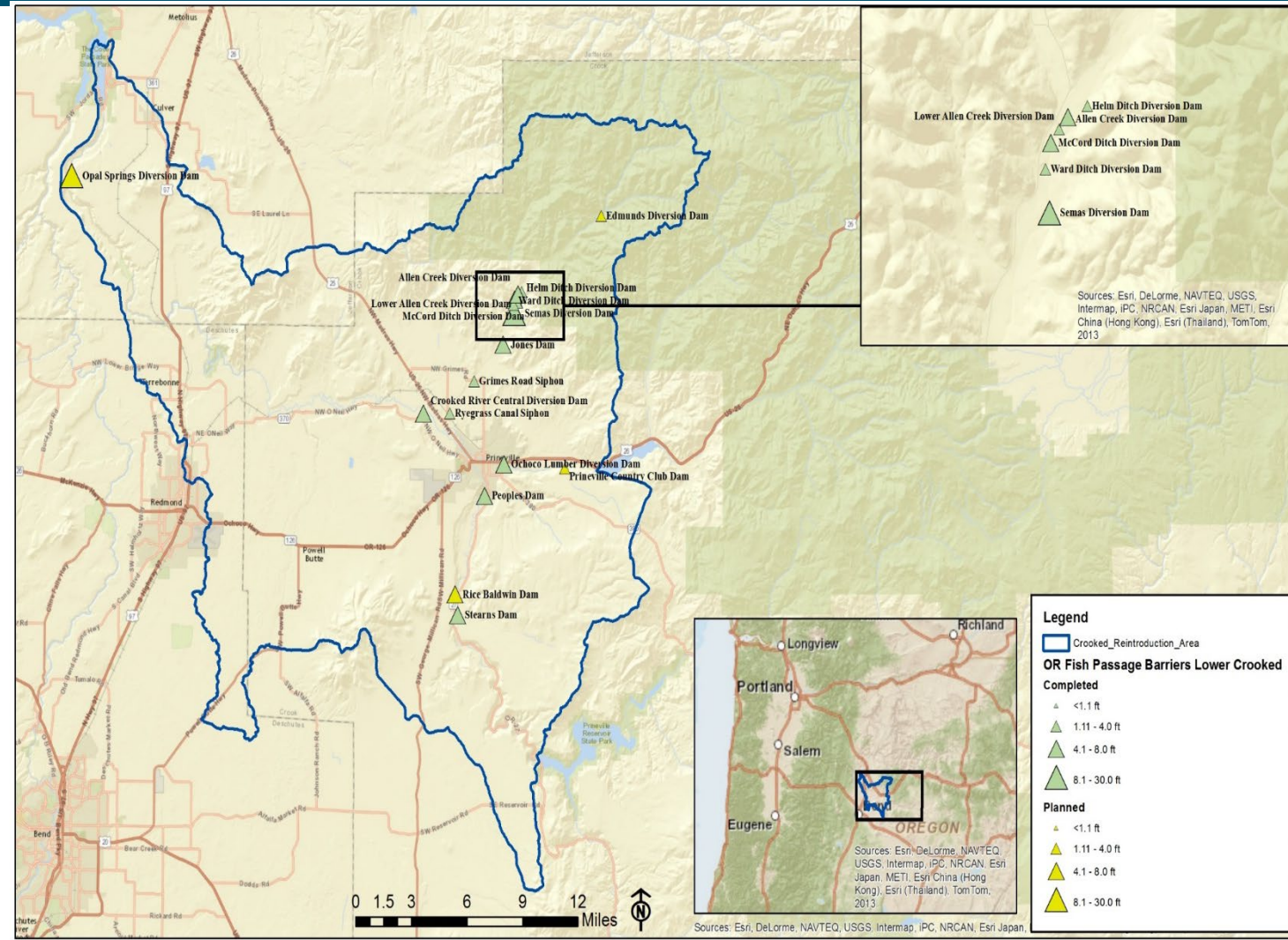
***Kleinschmidt***



# Project Overview

## Fish Passage at Opal Springs– The Missing Link:

- Not addressed as part of Pelton Round Butte relicensing or associated reintroduction plans
- Fish passage not a requirement of Opal Springs License
- License expiration in 2032
- Long been identified as a top priority for ODFW



1999 – Early conversations with Deschutes Valley Water District –

Focus on Bulltrout and potential ESA listing

2004 – Pelton Round Butte Settlement Agreement

2005 – Pelton Round Butte Settlement License Order

2008 – DVWD Fish Passage Work Group Formed

2008 – Fry and smolt release into Crooked River

2009 – Selective Water Withdrawal and Fish Transfer Facility  
Complete

2010 – Feasibility Report – Pool Raise / Fish Passage Facilities

2011 – Settlement Agreement providing path forward including  
milestones for completing design and acquiring license amendment  
(offramps in case funding unable to be acquired)

2012 – Temporary Passage Provided at Opal Springs; first adult  
returns

2015 – License Amendment Submitted

2016 – Construction contracting, costing (whoops!)

2017 – FERC Abeyance to allow time to redesign (value engineer)  
and seek additional funding

2018 – Secure remaining funding, FERC Order Amending License,  
commence construction

2019 – Projected fish passage by November!

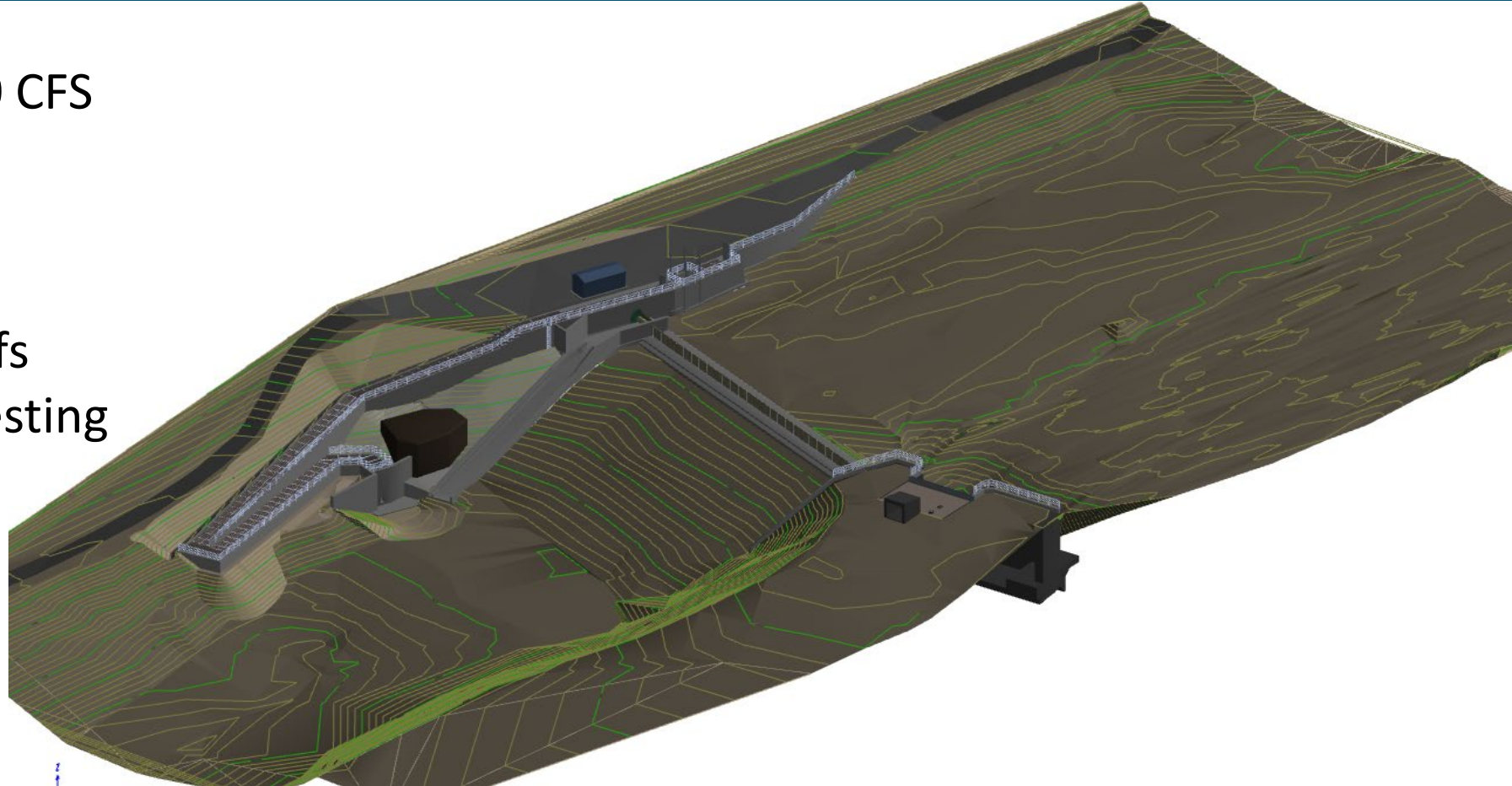
# Project History

## It's a marathon, not a sprint!



# Ladder Configuration

- Ladder discharge = 30 CFS
- Vertical Slot
- 9" steps
- 38 cells
- Attraction flow = 20 cfs
- Temporary Trap for Testing and Verification
- Fish counter for enumerating use



# Year 1 Objective: Implement Water Bank

Bypass Flow Accrual Account (BFAA) to be used for improving conditions for upstream and downstream passage:

- Calculated as a percentage of turbine discharge
- “Credits” accrue as acre-feet of water
- Managed by ODFW
- Mechanism to increase rate of accrual depending need
- Currently working on automation to track credits based on penstock measurements of discharge, and flow of water through the Obermeyer gate



# Year 1 Objective: Develop Monitoring Approach

## Upstream Fish Passage

- Monitor Fish Ladder Use (term of license)
- Assess Delay (first 5 years)
- Fish Passage Performance on 5-year intervals (Standard = 90%; goal =97% passage effectiveness)

## Downstream Passage

- Assess diurnal, seasonal, and annual variation in relative abundance and timing of juvenile outmigration
- Fish Passage Performance on 5-year intervals (Standard = 90%; goal =97% passage effectiveness)



# Year 1 Objective: Re-Activate Fish Passage Work Group (FPWG)

- Oversee development of annual flow allocation plan
- Review annual reports and monitoring results
- Problem solving-- agree on any adaptive management measures
- Approve necessary monitoring plans, designs, etc.

Requiring Article	Description	Reporting Frequency
Article 47	Bypass Flow Accrual Account Annual Allocation Plan	Every year
Article 48	Upstream fish passage monitoring results (steelhead, Chinook salmon, bull trout)	Every year
Article 48	Fish delay indication survey results	Every year for 5 years, after the release of adult steelhead or Chinook salmon upstream of the Pelton Round Butte Project
Article 49	Downstream fish passage monitoring results	Every year
Article 51	Adaptive management monitoring reports	Every year
Article 51	Adaptive management 5-year assessment	Every 5 years
Articles 48, 49, and 51	Fish Passage Performance Objectives status report	Every 5 years

# Key Takeaways

1. This agreement and FERC amendment are really unique

- Major facilities improvements for FERC projects are done in association with relicensing
- Because it was unique, we were able to try some different things as far as identification of protective measures, approach to design and funding



# Key Takeaways

## 2. There will be more that needs to be done at Opal Springs

- Robust Agreement and active FPWG provides opportunities for incremental improvement until 2032
- Amount of monitoring and evaluation data will be substantial and should lead to informed discussions at relicensing



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