

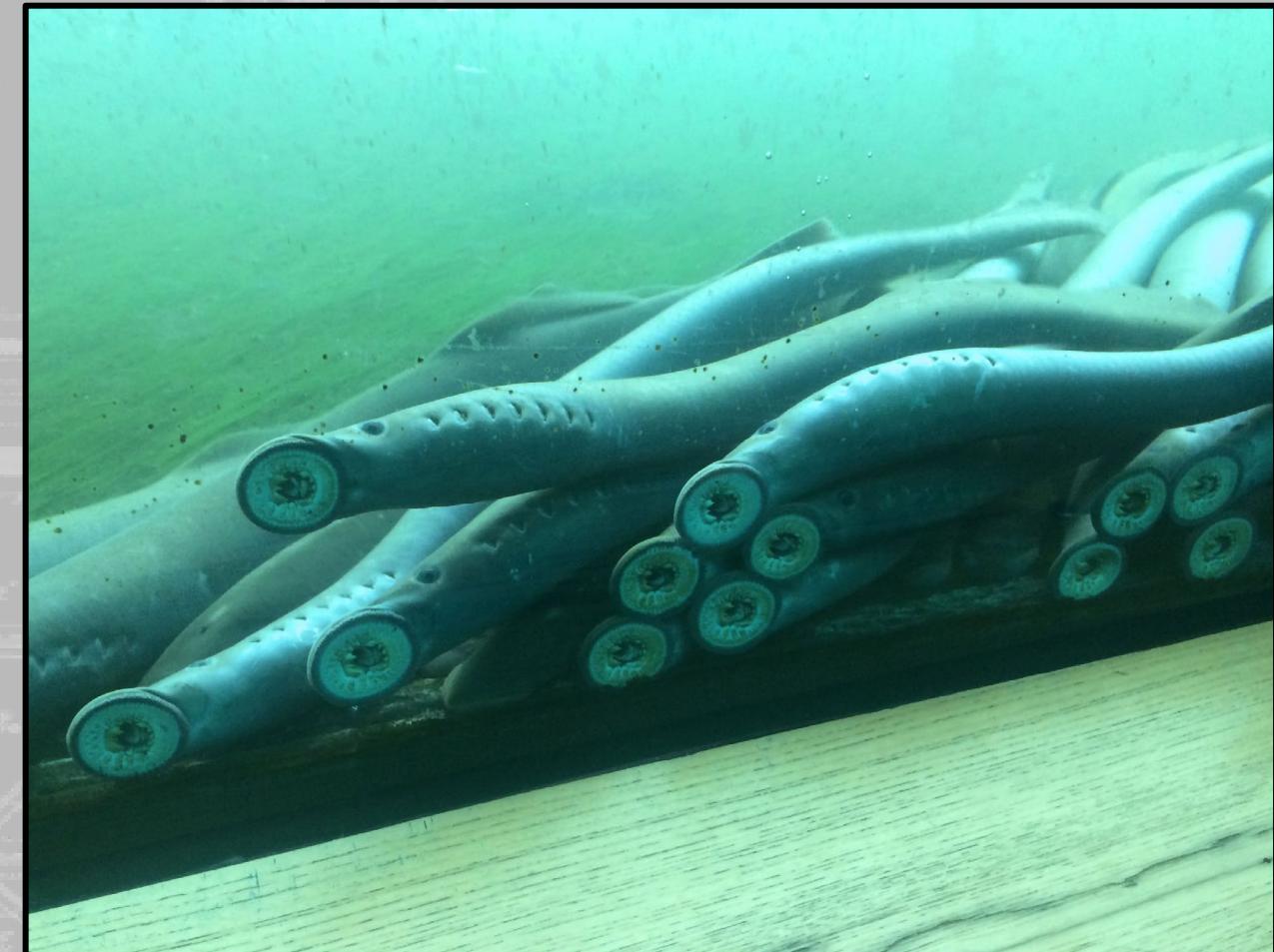
ADULT PACIFIC LAMPREY PASSAGE IMPROVEMENTS

2021 Anadromous Fish
Evaluation Program (AFEP)
Annual Review - 1/10/2022

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US Army Corps
of Engineers®





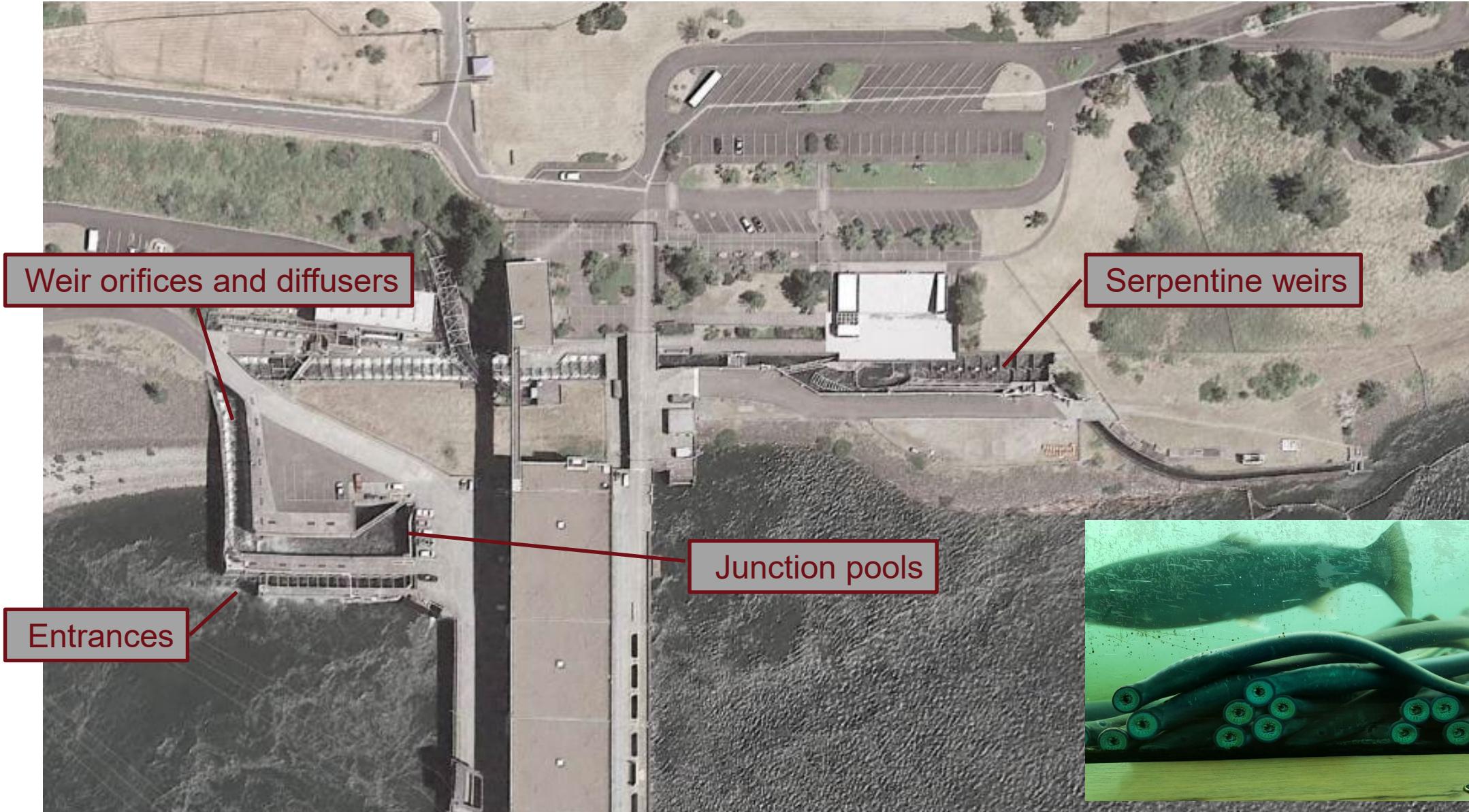
BACKGROUND



- 2008 Columbia Basin Fish Accords MOA
 - \$50M spent 2008-2018 researching fishway bottlenecks, monitoring lamprey passage behavior, and constructing/evaluating experimental passage structures
- 2018 Fish Accords extension MOA
 - Corps committed to seek funding to continue to improve Pacific Lamprey passage conditions at Corps dams
- 2018-2020
 - Coordinated with Tribes and CRITFC developing and prioritizing a list of actions, should funding be received to implement 2018 Accords extension
- 2020
 - Received funding to implement the measures from the 2018 Accords extension
- March 2021
 - Implementation plan finalized, including approx. \$10 million for adult lamprey passage improvements

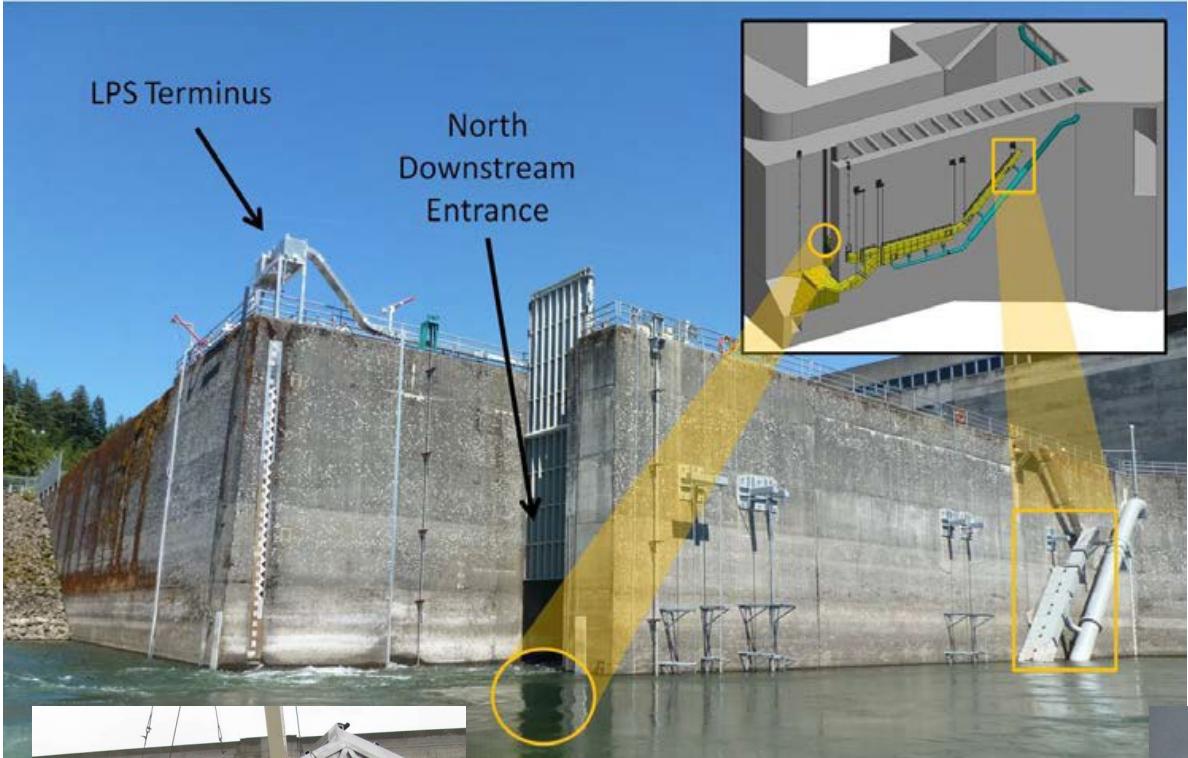


ADULT LAMPREY PASSAGE BOTTLENECKS

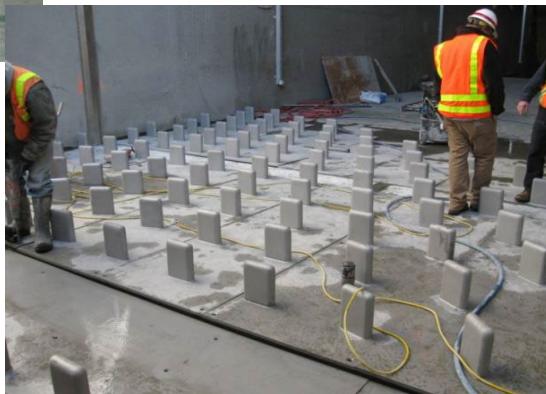




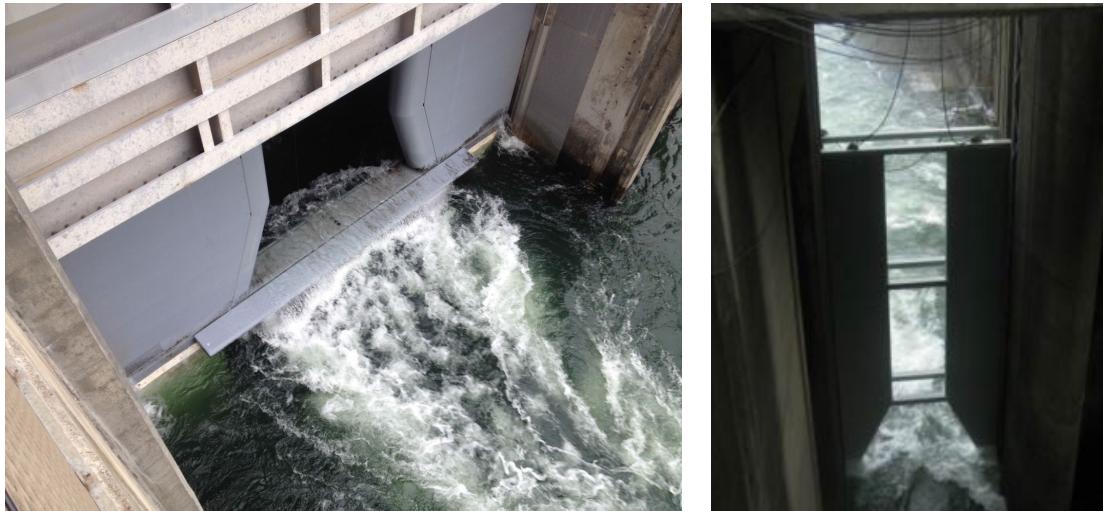
FISHWAY ENTRANCE MODIFICATIONS



Bonneville WA Shore
Entrance Collectors



4



Variable width weir

Weir Design
Modifications



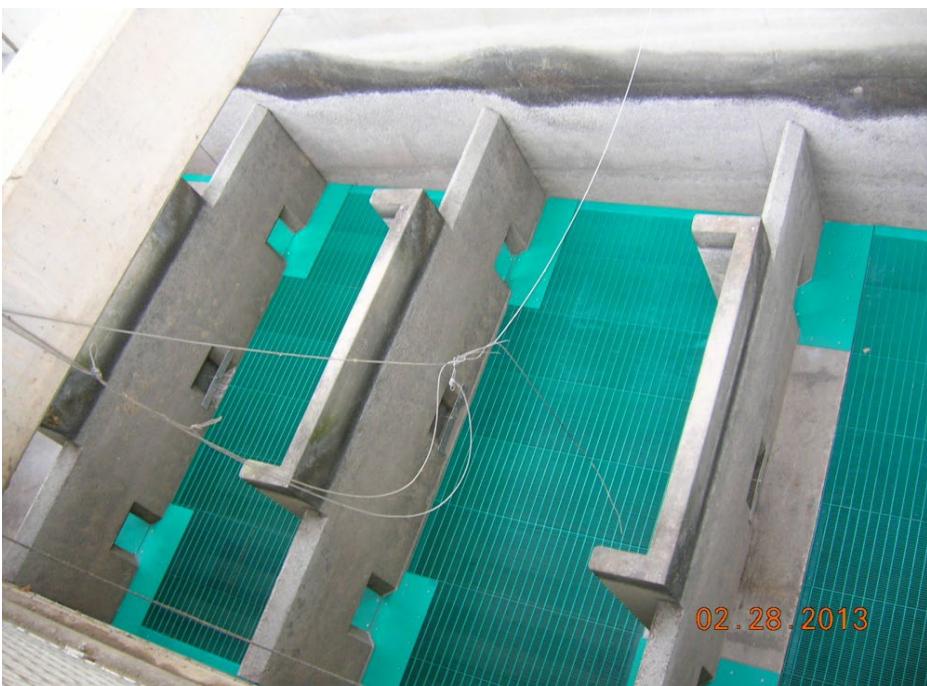
Rounded caps on overflow weirs
Hydraulic refuge
and attachment
points



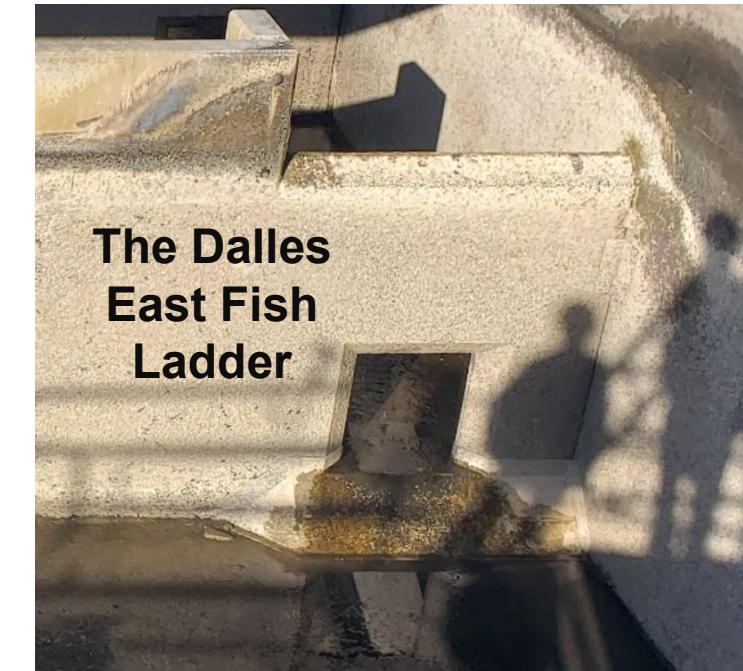
LADDER WEIR AND DIFFUSER MODIFICATIONS



Plating over
diffuser grating
for attachment



Replace 1"
diffuser grating
with $\frac{3}{4}$ "





SERPENTINE (CONTROL) SECTION MODIFICATIONS



refuge boxes

Vertical slot & orifice configuration



lamprey orifices

wetted wall

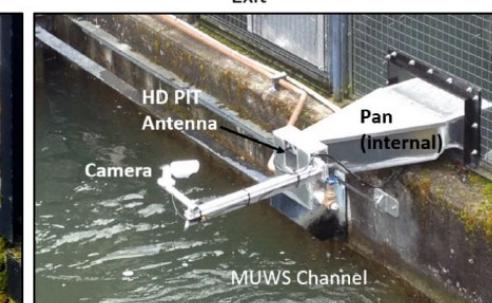
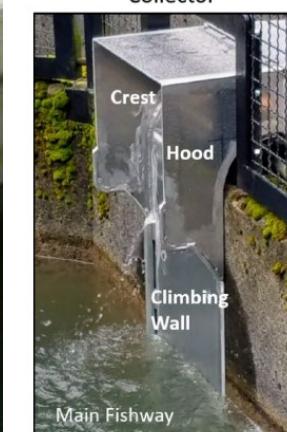
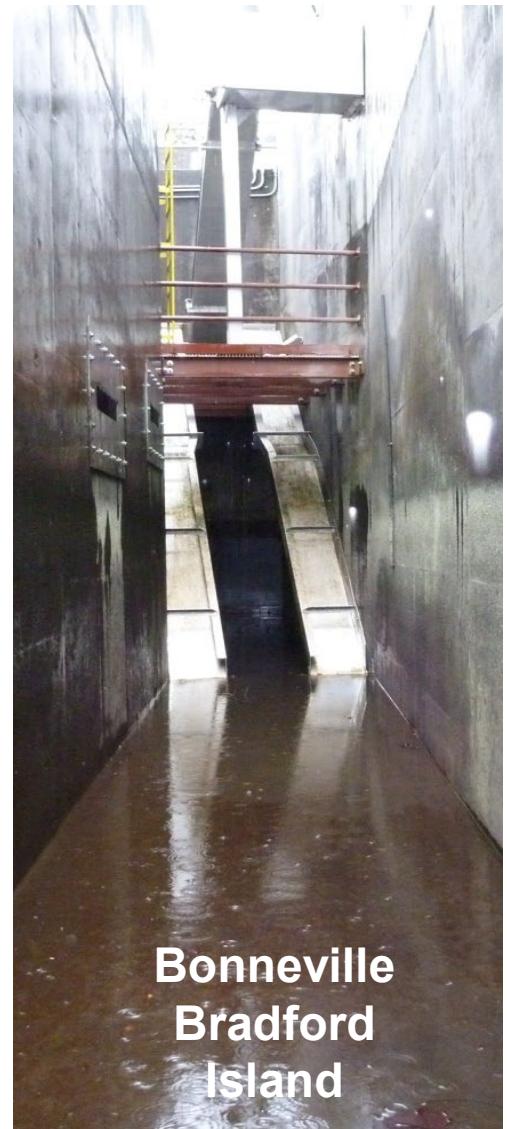


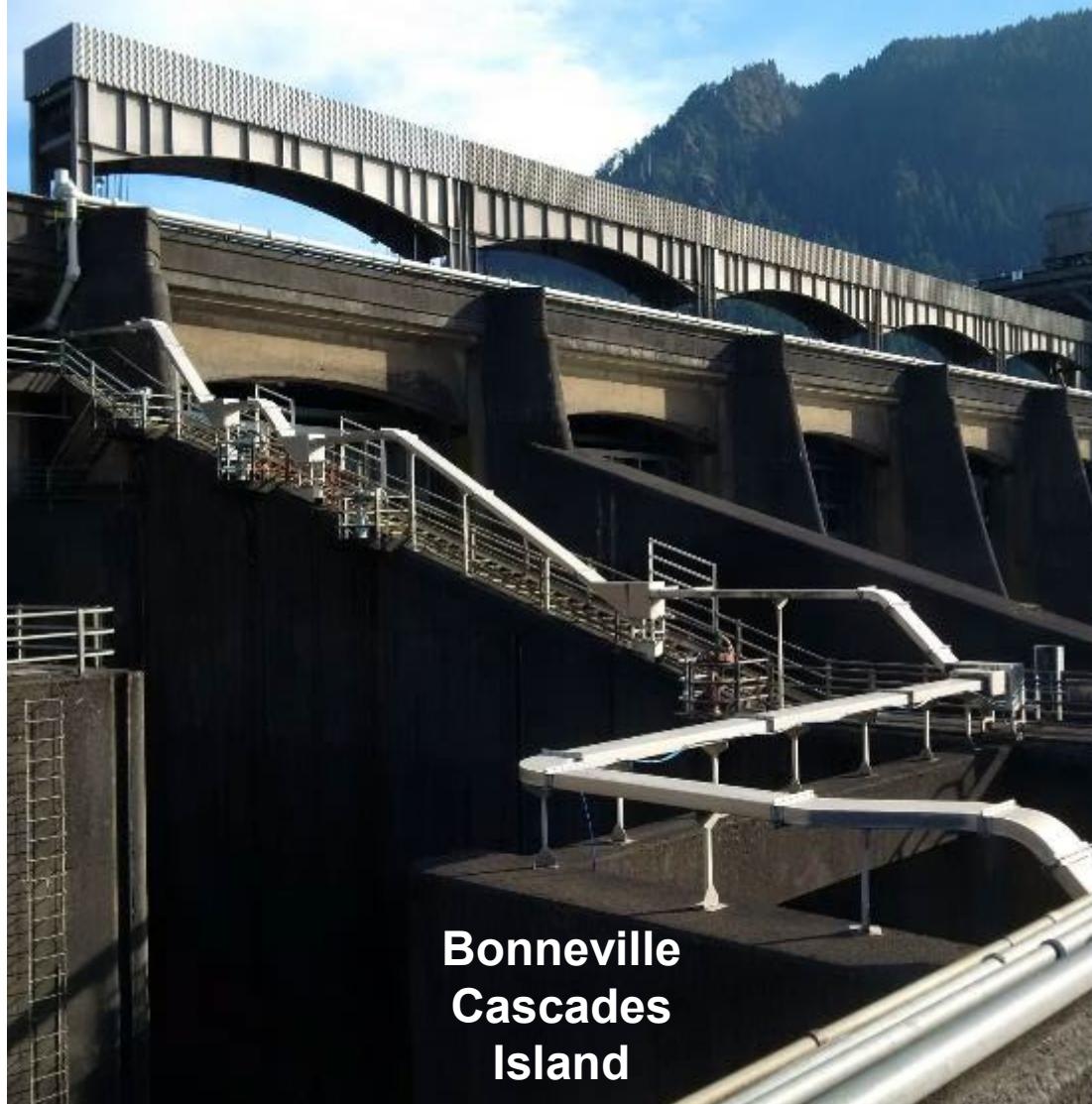
Figure 2. Views of wetted wall structure showing the collector (left) and exit (right) sections.



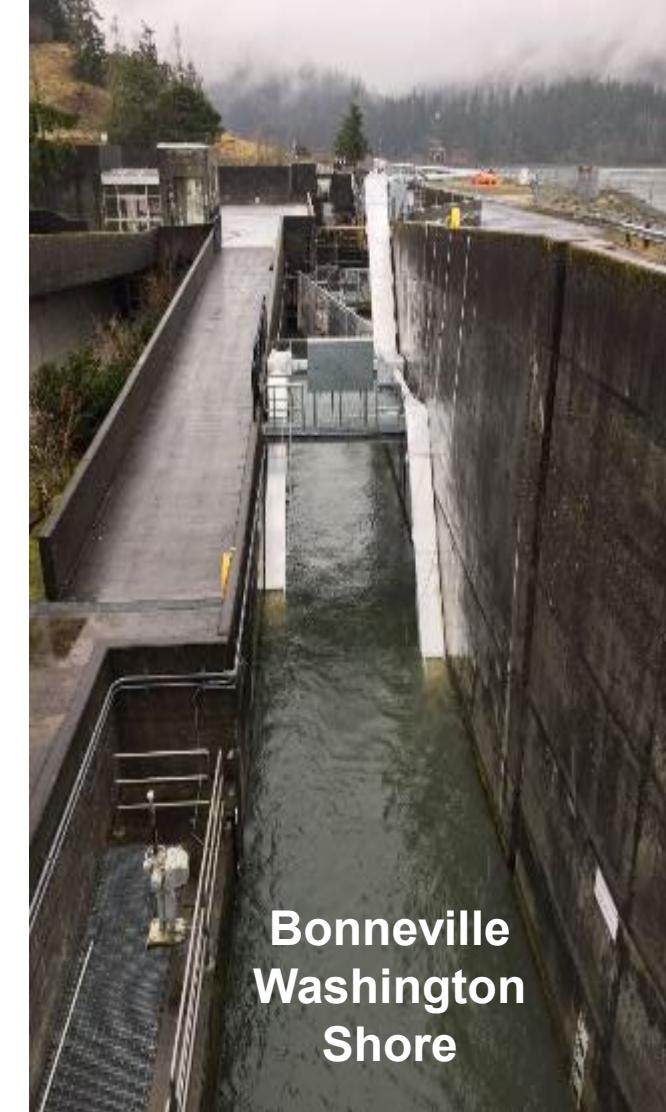
LAMPREY PASSAGE STRUCTURES (LPS)



Bonneville
Bradford
Island



Bonneville
Cascades
Island



Bonneville
Washington
Shore

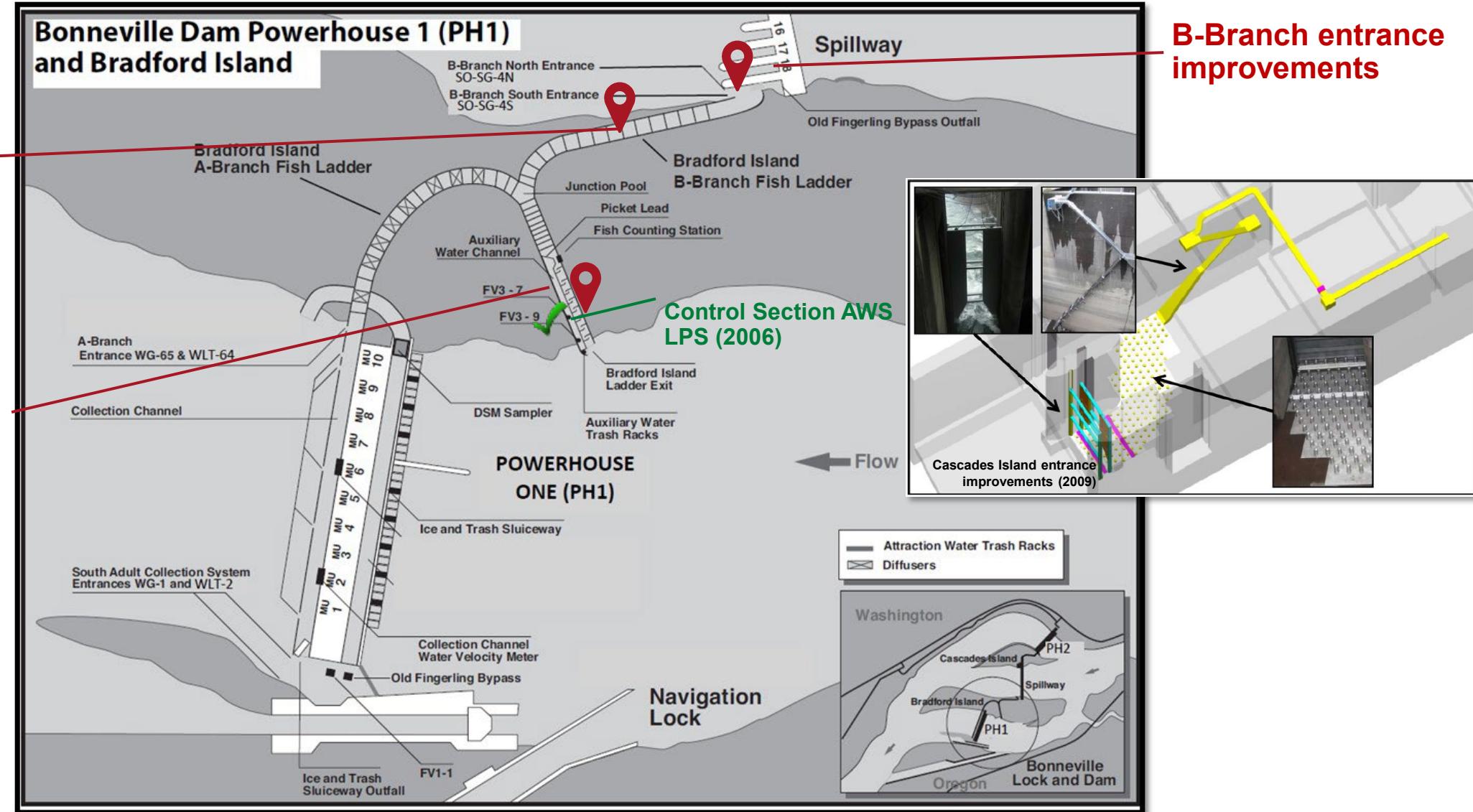


BONNEVILLE 1PH LADDER SYSTEM ADULT PASSAGE PROJECT FORECAST



❖ Diffuser grating plating and ramps to elevated orifices where feasible in B-Branch

Extensive minor modifications to serpentine weir section



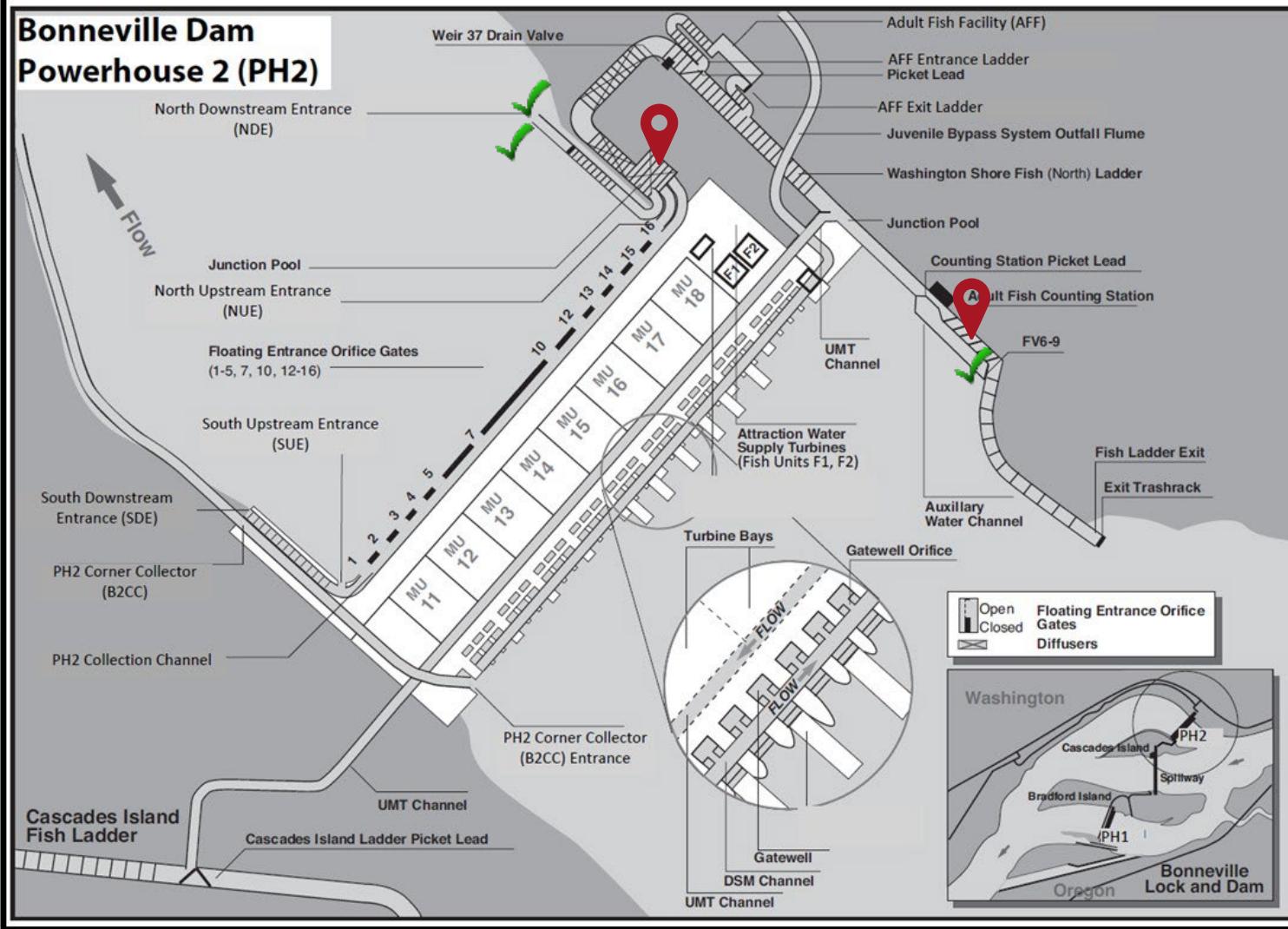


BONNEVILLE 2PH (CASCADES ISLAND & WA SHORE) LADDER SYSTEM PROJECT FORECAST



Projects completed 2008-2018

- Control Section AWS LPS (2007)
- Cascades Island Entrance modifications and LPS (2009)
- Lamprey Flume System (2013)
- WA Shore diffuser plating (2017)
- WA Shore entrance weir modifications (2019)



Projects planned 2020-2024

- WA Shore Serpentine Section Redesign
- WA Shore Junction Pool LPS

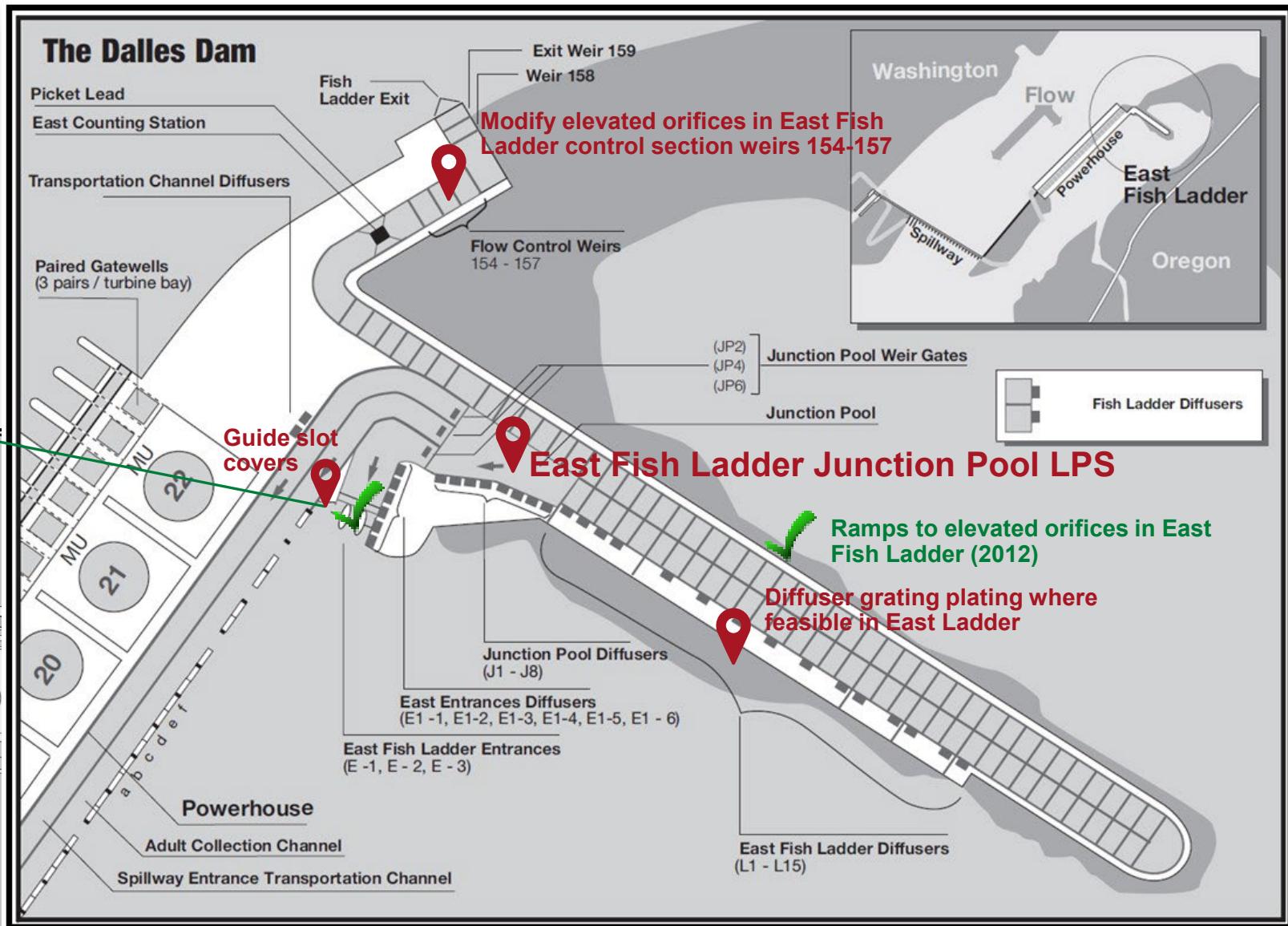
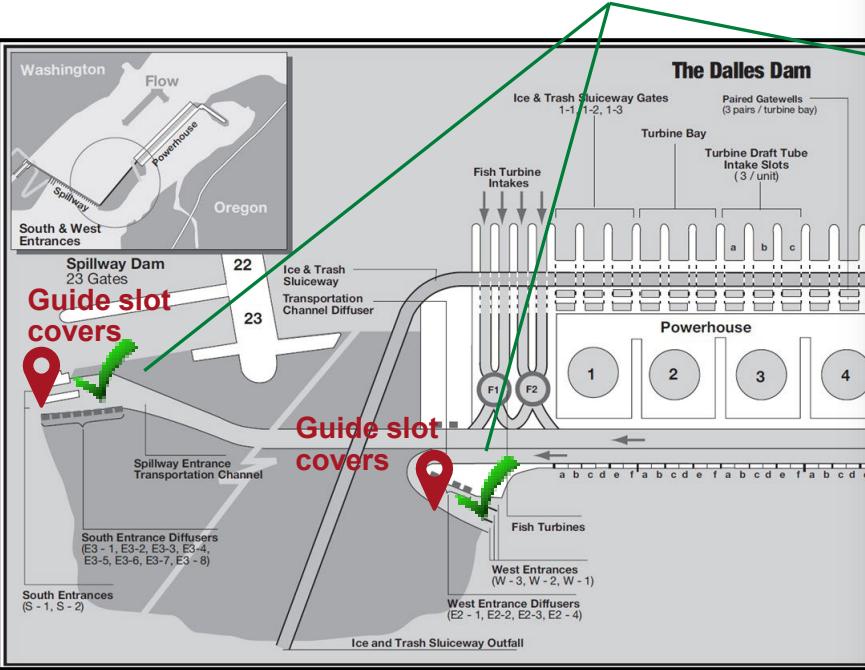




THE DALLES EAST LADDER SYSTEM

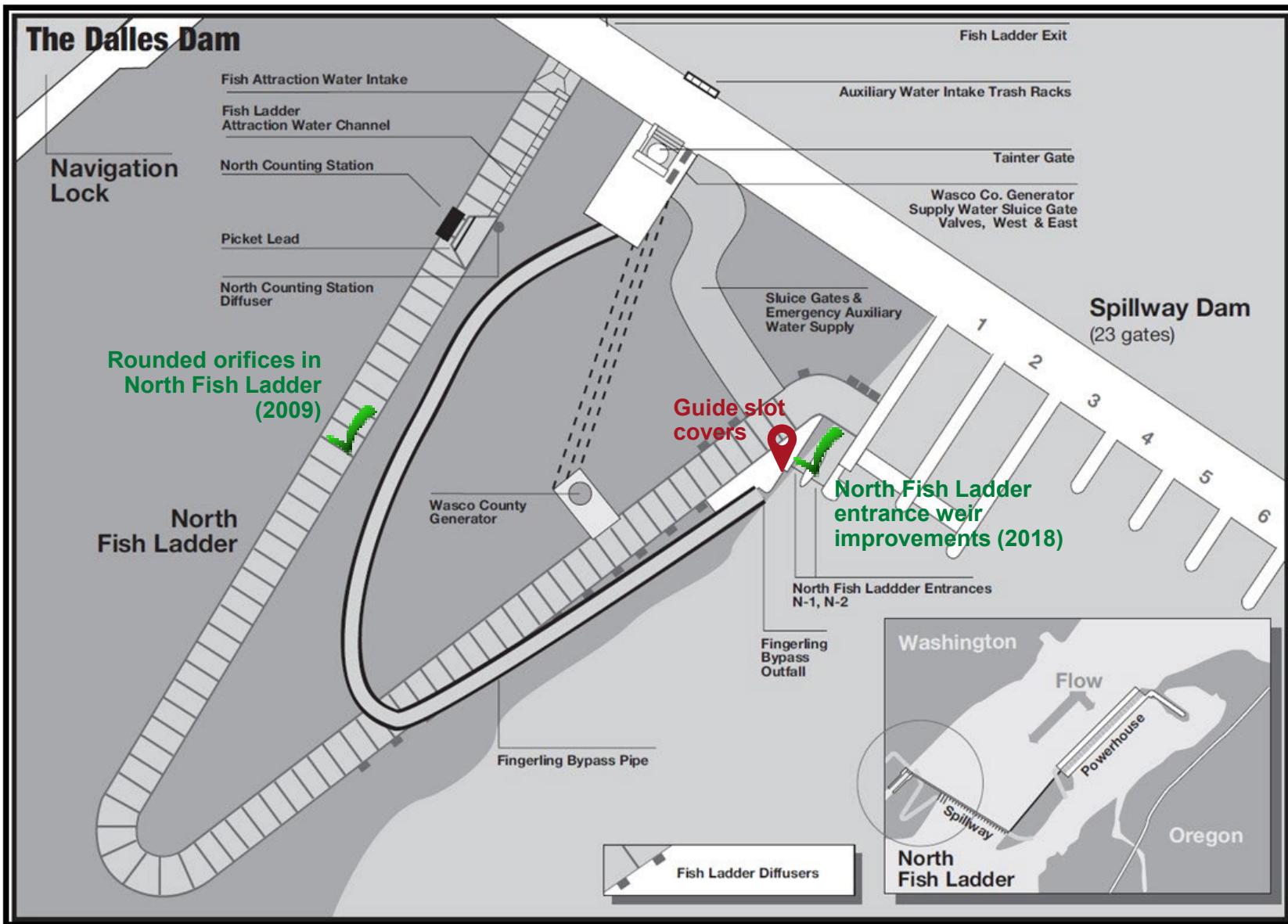


East Fish Ladder entrance weir improvements (2017-2019)



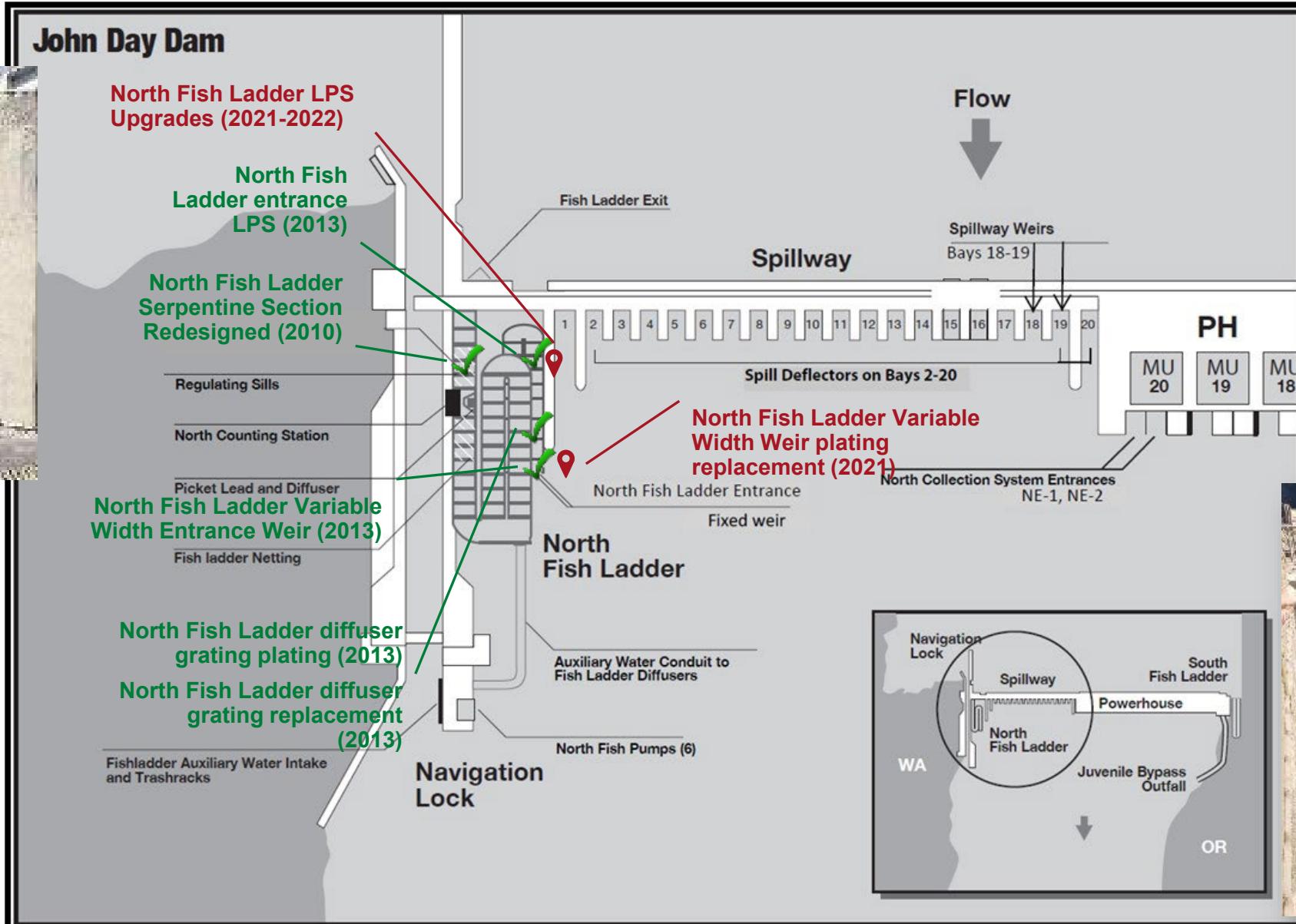


THE DALLES NORTH LADDER SYSTEM



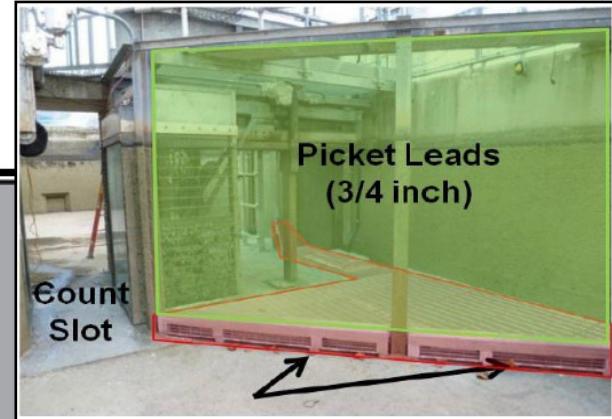
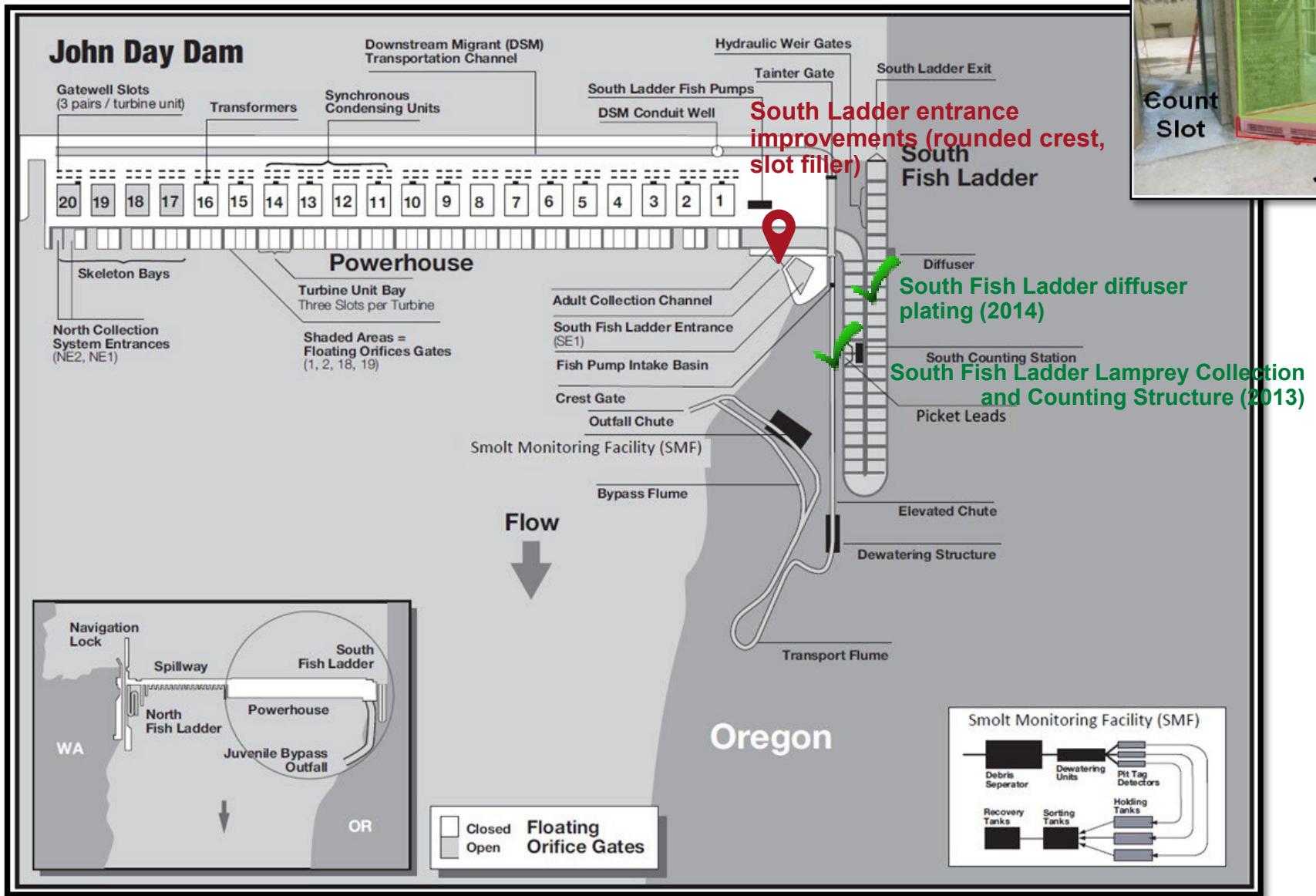


JOHN DAY NORTH LADDER SYSTEM





JOHN DAY SOUTH LADDER SYSTEM

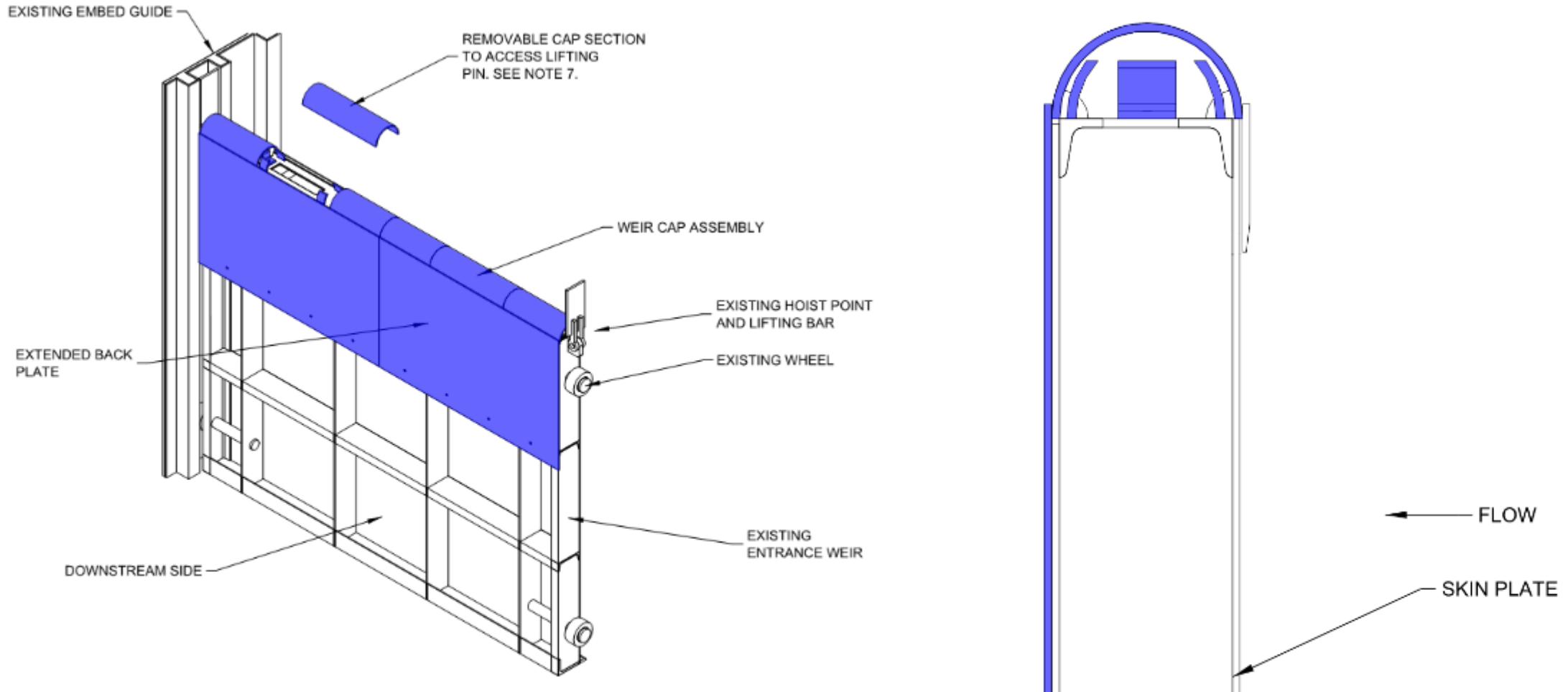




JOHN DAY SOUTH AND MCNARY WEIR CAPS



The Dalles Design as a Starting Point



E & W WEIR CAP ASSEMBLY - ISOMETRIC

SCALE: NTS
NO. REQ'D : 8 TOTAL
MATERIAL: ASTM A36 (UNO)



ADULT PASSAGE IMPROVEMENTS PROJECT FORECAST



CTLWG

SRWG

FFDRWG

Research, Monitoring and Evaluation

- Adult lamprey passage and migration RM&E (FY25)

- Juvenile lamprey passage and migration RM&E (FY22-FY25)

- Improve adult counting (FY22-FY23)

- Diffuser grating replacement assessment (CRSO) (FY 22)

Bonneville 1PH (BON1) Adult Passage Improvements

- B-Branch entrance improvements (variable width entrance weir, bollards, and LPS) (Winter '23)
- Serpentine weir extensive minor modifications (Winter '23)
- B-Branch diffuser plating and orifice ramps (CRSO) (Winter '23)
- LPS pump upgrade (Winter '21)

Bonneville 2PH (BON2) Adult Passage Improvements

- Control Section Redesign (CRSO) (Winter '24)
- WA Shore Junction Pool LPS (Winter '24)
- Cascades Island lamprey flume modification (Winter '22)
- LPS pump upgrade (Winter '22)

The Dalles (TDA) Adult Passage Improvements

- East Fish Ladder Junction Pool LPS (CRSO) (Winter '23)
- Modify elevated orifices in East Fish Ladder control weirs (Winter '22)
- North ladder entrance slot fillers (Winter '22)
- East ladder entrance slot fillers (Winter '22)

John Day (JDA) Adult Passage Improvements

- North Fish Ladder LPS Upgrades (Winter '22)
- South Fish Ladder LPS upgrades (CRSO) (Winter '21)
- South Ladder SE1 weir caps (Winter '22)
- North Fish Ladder Variable Width Weir plating (Winter '22)

Walla Walla District Adult Passage Improvements

- MCN Washington ladder weir caps (CRSO) (Winter '23)
- MCN Oregon ladder weir caps (CRSO) (Winter '23)



QUESTIONS?

