

FOSTER DAM IMPROVEMENTS FOR UPSTREAM AND DOWNSTREAM FISH PASSAGE

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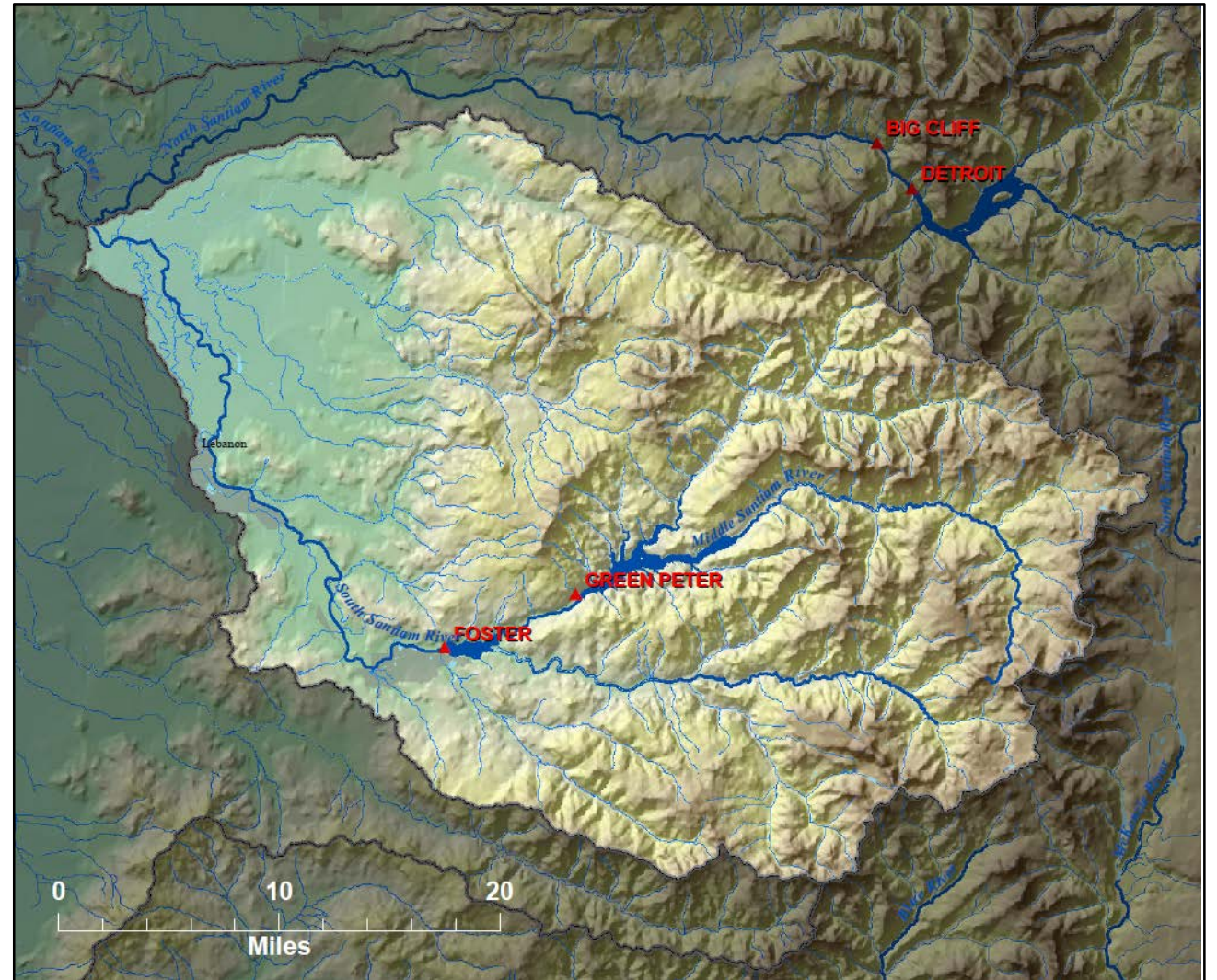


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PRESENTATION OUTLINE

- Background.
- NMFS 2008 BiOp.
- Upstream Fish Passage.
- Downstream Fish Passage.
- Next Steps.



Courtesy of J. Macdonald



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BACKGROUND

- Foster Dam is a 221-m (725-ft) tall multi-purpose dam; went into operation in 1968.
- Adult Fish Facility (AFF) was constructed because the dam blocked upstream passage.
 - Operated by Oregon Dept. of Fish and Wildlife (ODFW).
- Downstream fish passage occurred via the spillway or turbines.
 - A fish weir was installed in the spillway (Spill Bay 4) in 1984 as a surface outlet for juvenile steelhead.
 - The weir was operated for one month annually; April 15 – May 15.



Foster Dam – USACE file photo



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NMFS 2008 BIOLOGICAL OPINION

- Reasonable and Prudent Alternative (RPA) included measures for improving up and downstream fish passage for threatened Spring Chinook salmon and winter steelhead in the South Santiam River.
- The RPA measures required:
 - An improvement to the Foster Adult Fish Facility for upstream passage.
 - Evaluation of the fish weir at the spillway for improvements to facilitate juvenile downstream passage.



Foster Dam – USACE file photo



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UPSTREAM FISH PASSAGE

- Construction/upgrades of the AFF began in 2012 and was completed in February 2014.
- AFF went into operation March 2014.
 - Operated by ODFW.
 - Only wild winter steelhead and Spring Chinook salmon released upstream of Foster Dam.
 - However, Chinook salmon replacement rate has been variable.
 - Prespawn mortality (PSM) rates are moderate; evaluating reservoir releases.
 - Observed delays of adult fish in the Foster tailrace – fish not readily using the ladder.
 - Studies to evaluate possible causes for the delay was conducted by University of Idaho (2016 – 2017).



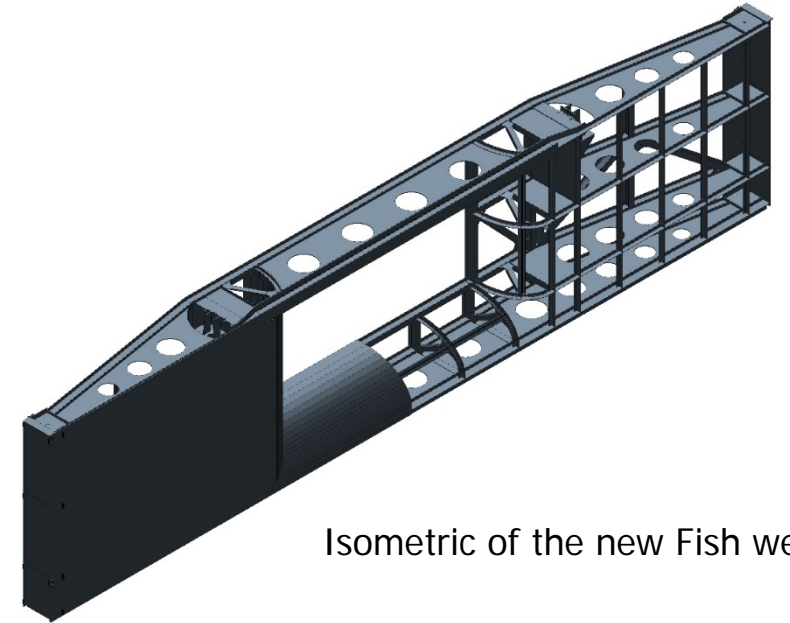
DOWNSTREAM FISH PASSAGE

- Began focused research of the fish weir and other passage routes in 2012.
- Operated the weir year-round for fish passage studies; 2012 - 2016.
 - Studies were conducted at low (winter) and full (summer) reservoirs.
 - Results informed the need for a new/improved fish weir.
 - Product Delivery Team (PDT) designed a new weir with more flow, greater operational hydraulic head, capture/entrainment velocities and improved hydraulic conditions.



NEXT STEPS

- Adult Fish Facility: Results from the U of I study will inform considerations for further improving adult fish passage at the ladder and into the facility.
 - A PDT will continue investigations and solutions.
 - Continue to release only wild fish above Foster Dam.
 - Continue to investigate PSM and replacement rates.
- Juvenile downstream passage: New fish weir is under construction and will be delivered by February 22, 2018.
 - Post construction evaluation is scheduled to begin in March 2018.
 - Results of the study will be compared with the results of the studies of the old weir to document success.



Isometric of the new Fish weir





Photo taken on January 31, 2018

Farewell Old Fish Weir – you have served downstream fish passage well.

1984 – 2018



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