

Attachment 1

Presentation by Steve Rainey on Rapid Assessment of Adult Pacific Lamprey Passage at Tumwater Dam

Rapid Assessment of Adult Pacific Lamprey Passage at Tumwater Dam

February 18 – Site Visit and Investigation

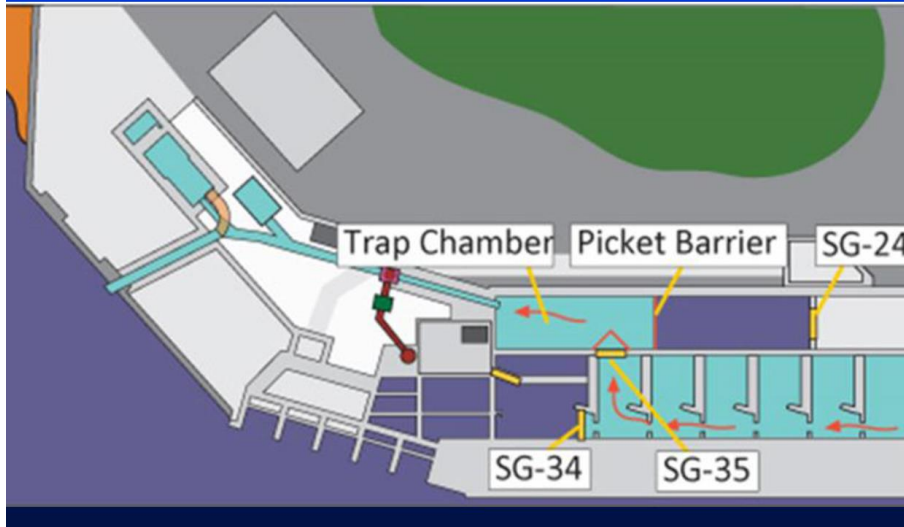
February 27 – 1st Draft Circulated

June 4 – 2nd Draft Circulated

- Includes referenced to possible lamprey blockage,**
- Requires field affirmation of hydraulics,**
- Set back of Final Report to include RRFF feedback and field readings**

Description:

Possible Lamprey Blockage during Trapping Operation
Slide 1 – Close SG-34 and Open SG-35

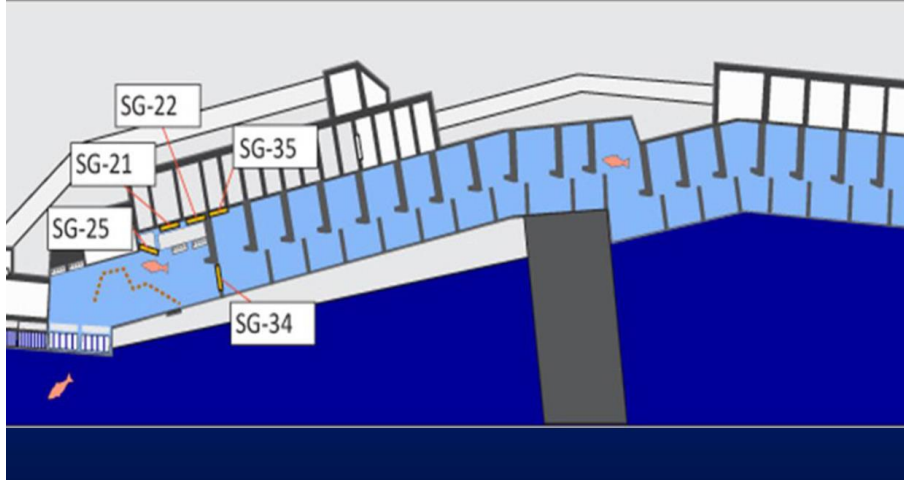


Description:

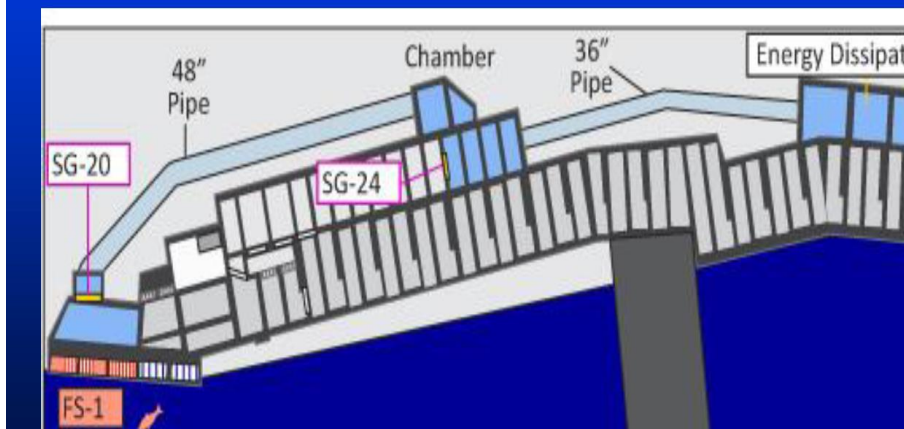
Possible Lamprey Blockage during Trapping Operation
Slide 2 – Close SG-34 and SG-35



Possible Lamprey Blockage – Trapping Operation
Slide 3 – Open SG's 21 & 22 to route flow to Trap Holding Pool



Possible Lamprey Blockage – Trapping Operation
Slide 3 – SG-24 at Downstream End of Holding Pool
is pre-set and takes added flow at higher river stages



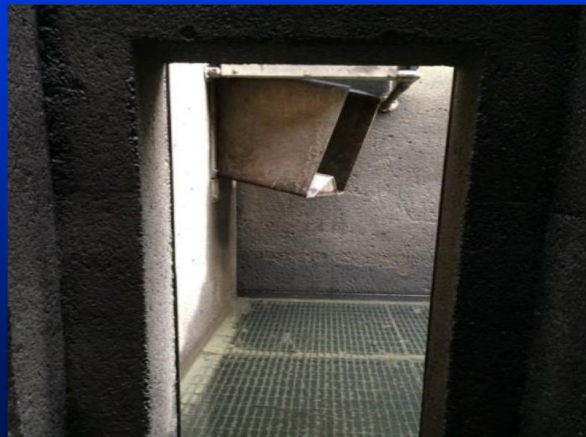
Slide Gates 21, 22, 34, and 35

NOTE: SG 21 and 22 are set full open



**Floor Screen – Inflow to Adult Holding Pool
from SG's 21 and 22
(as seen through SG-25)**

NOTE: Water surface kept at shroud elevation



June 30 Observations:

Low River stage, with less than a 1.0 ft head over dam crest (Flow about 1100 cfs)

SG 21 and 22 left full open by operators

Holding pool water surface kept near lower shroud elevation to curtail jumping

No overflow at SG 24

Differential across SG's 21 and 22 = 0.55 ft

SG 21 and 22 velocities around 6 ft per second

No lamprey blockage at low river stages

June 30 Observations

What about higher river stages???

Assessed $Q_R = 3000$ cfs

Forebay elevation rises another 0.8 ft

Head differential across fully-open SG 21 and 22 increases to 1.3 ft

Velocity through SG 21 and 22 about 9.1 fps

At higher river stages, SG 21 and 22 differentials increase

Appears to be a probable lamprey blockage at mid-range and higher river stages

Tentative Conclusions for Final Report

It is probable that most lamprey are not able to pass fully-opened SG's 21 and 22 during fish trapping operations at mid-range and higher river stages

Recommendations

- 1. Conduct a telemetry study to assess whether lamprey are able to enter the Tumwater fishway-trap, as on the Yakima (both spring and fall periods)**
- 2. Identify whether there is a location within the ladder, where lamprey are not able to pass upstream during trapping and non-trapping operations**
- 3. Confirm or disprove preliminary assessment that SG's 21 and 22 are lamprey blockages at mid-range and higher river stages**

Final Tumwater Fishway-Trap Lamprey Passage Rapid Assessment Report

Integrate latest findings

Collate RRFF comments

Finalize report before August 1