

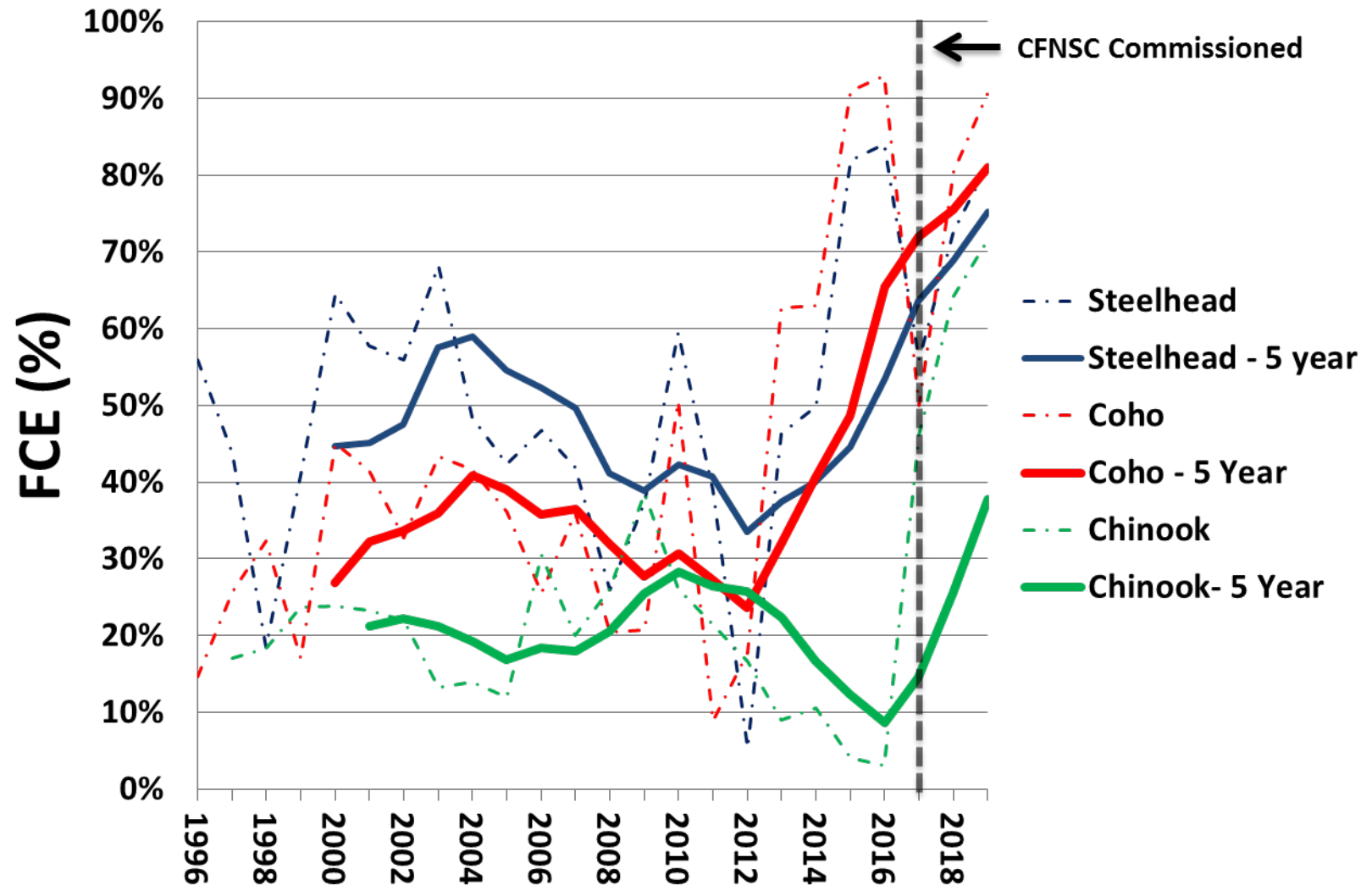
Goals

- Promote recovery of upper Cowlitz salmon and steelhead
 - Access to high-quality habitat
- Remove passage bottleneck

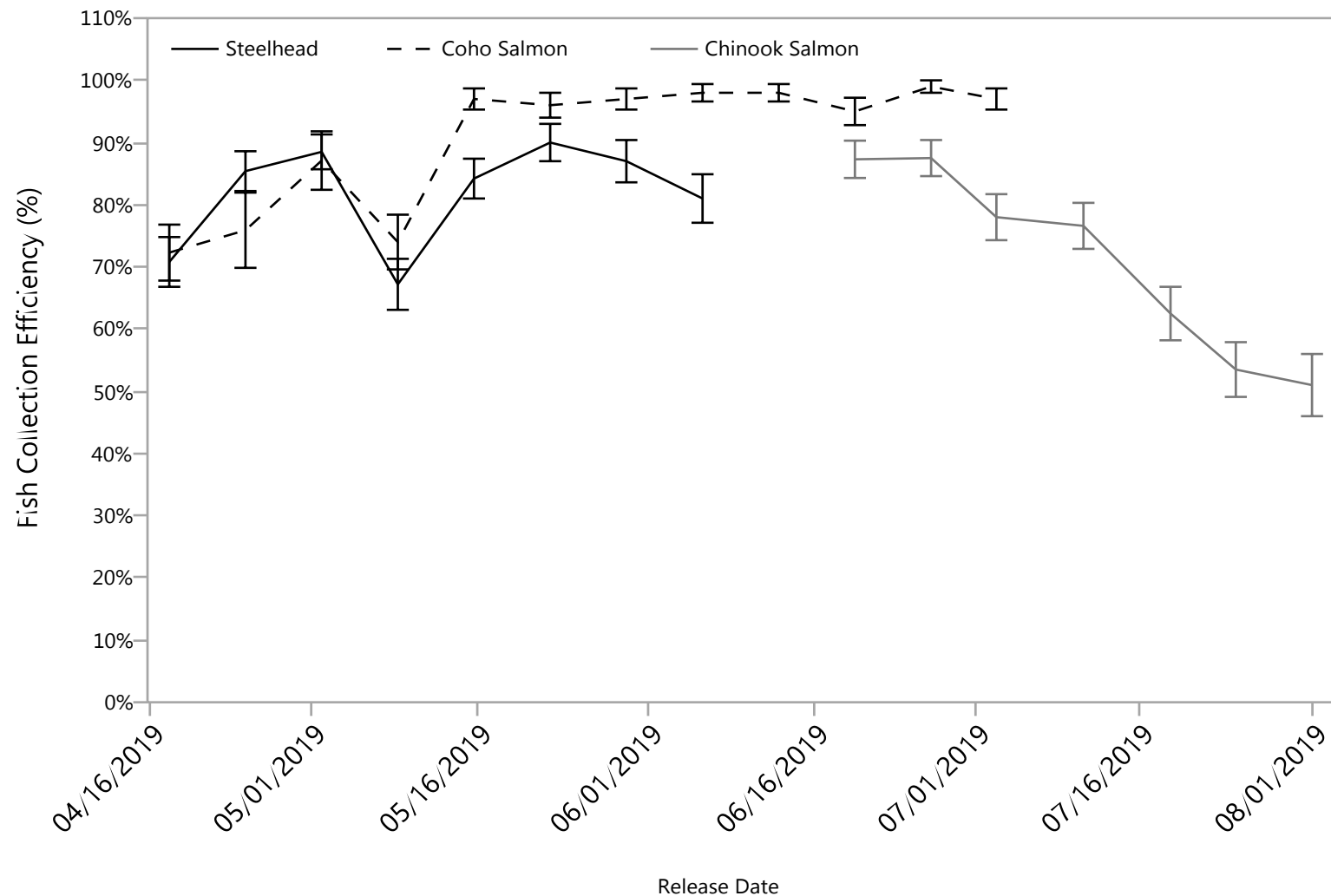
Goals

- Fish Passage Survival (FPS)
 - *“the % of smolts entering the upstream end of Scanewa reservoir, and adjusted for natural mortality, that are collected at Cowlitz Falls Dam, that are transported downstream to the stress relief ponds, and subsequently leave as healthy migrants”*
- Performance Standard of **95%**
 - Minimum of **75%**

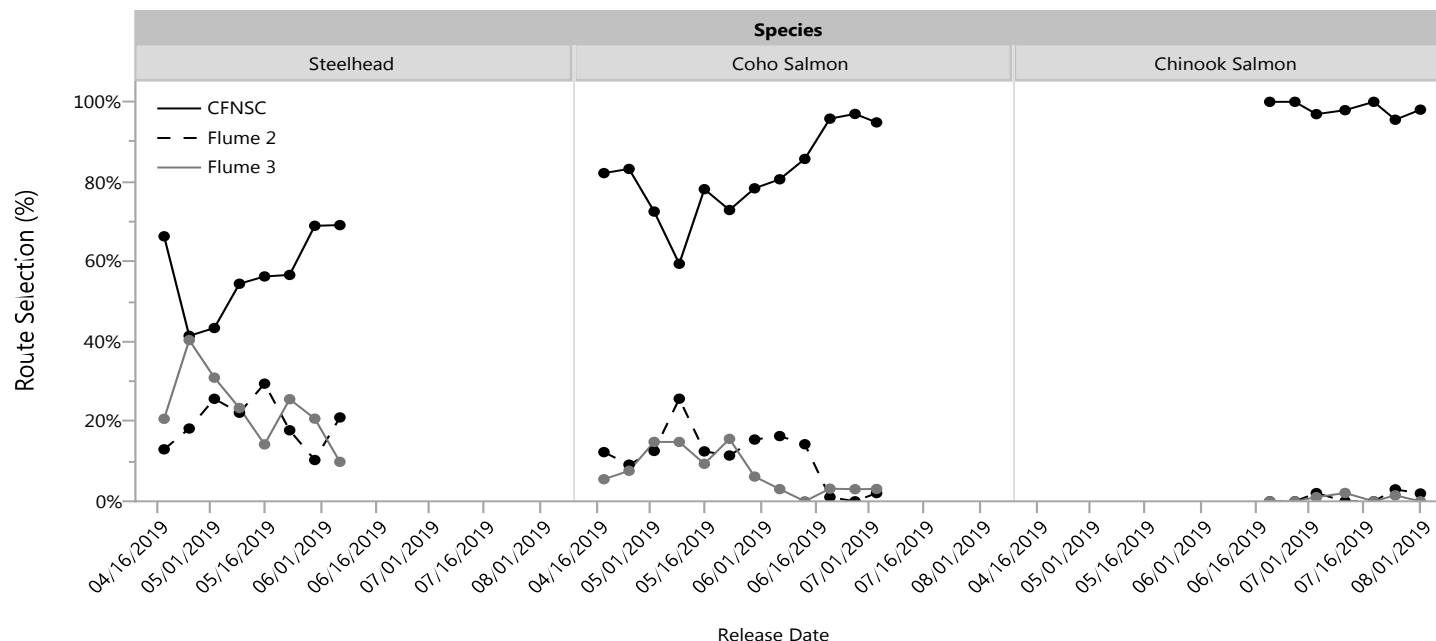
Fish Collection Efficiency 1996 - 2019



Fish Collection Efficiency 2019



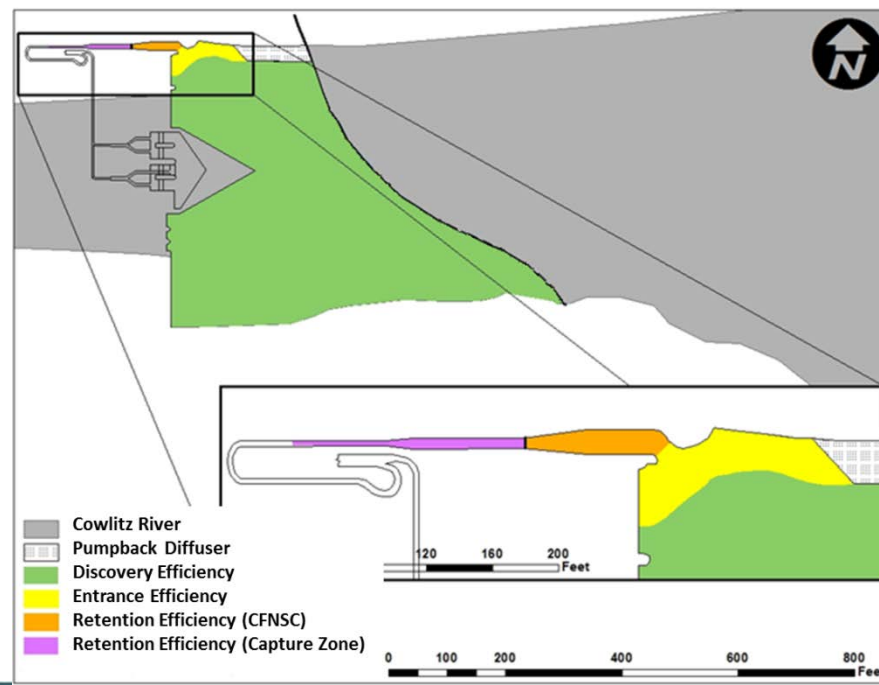
Route Selection 2019



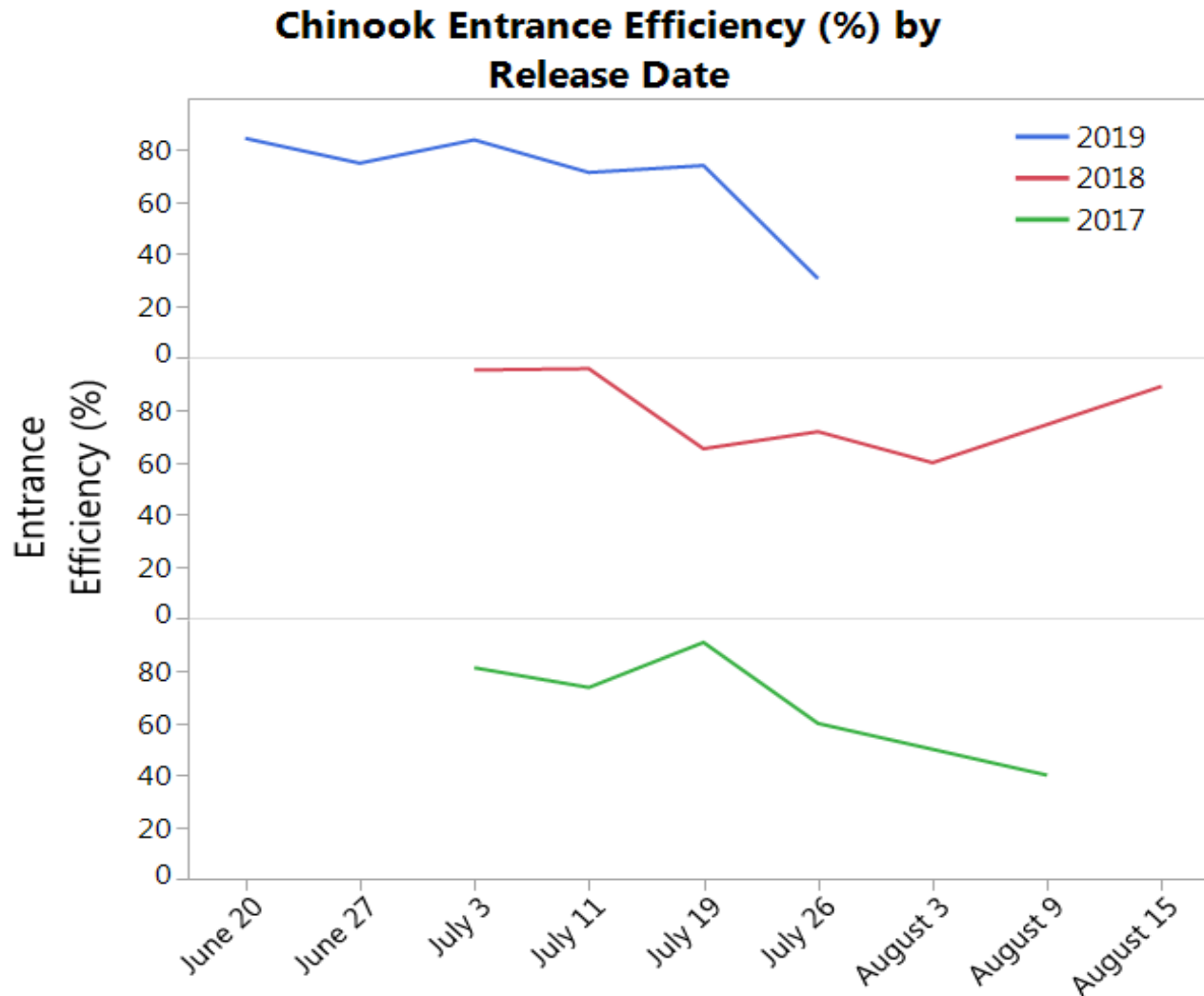
Species	Number Released	CFNSC	Spillbay 2 Flume	Spillbay 3 Flume	Pooled FCE
Steelhead	950	56.2%	20.1%	23.7%	81.3%
Coho Salmon	1,201	82.3%	10.7%	6.9%	90.5%
Chinook Salmon	866	98.5%	0.8%	0.7%	71.5%

Acoustic-tagged Chinook Behavior

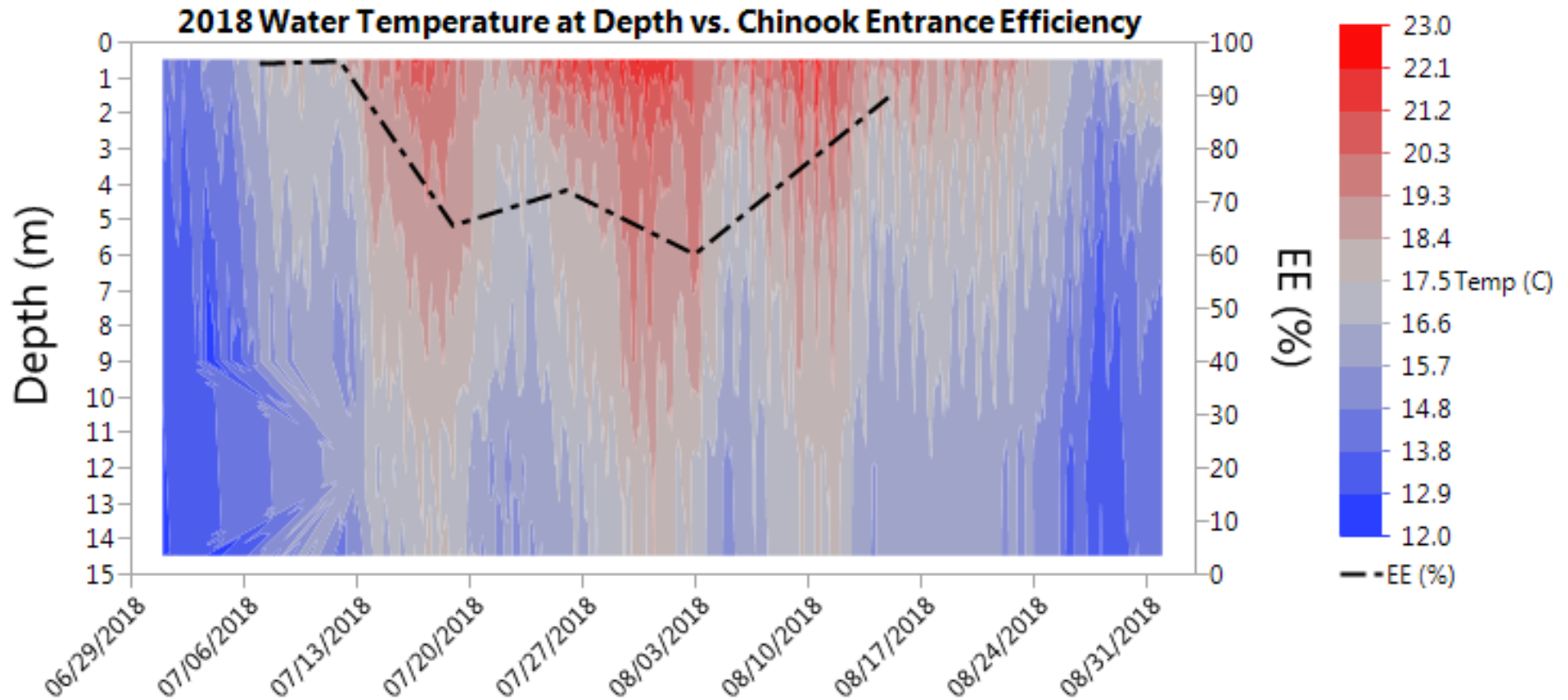
	Discovery Efficiency (%)	Entrance Efficiency (%)	Retention Efficiency (%)	Capture Zone Retention Efficiency (%)
2017	99.6	70.7	93	96.8
2018	98.1	81.6	88.8	99
2019	100	69.9	96	95.9



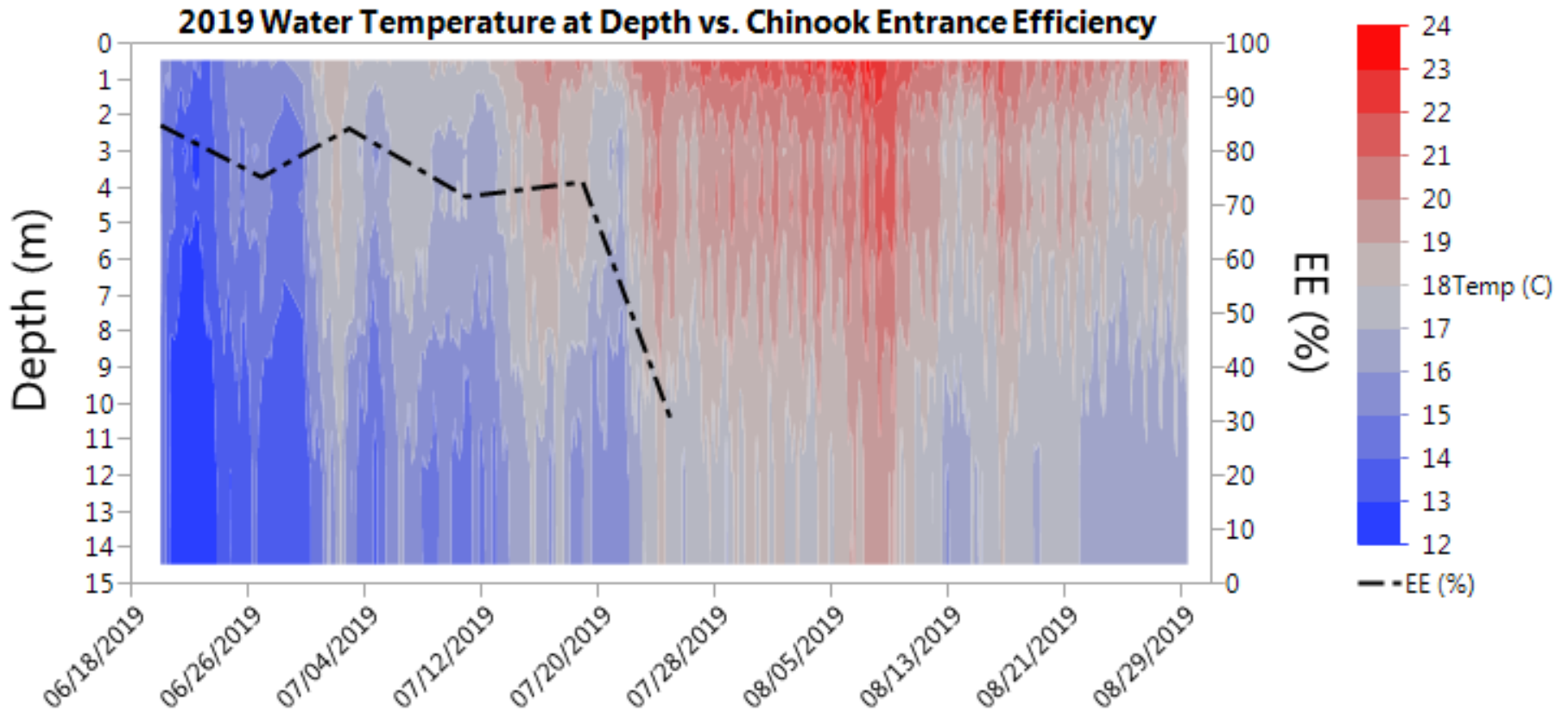
Acoustic-tagged Chinook Behavior



Acoustic-tagged Chinook Behavior

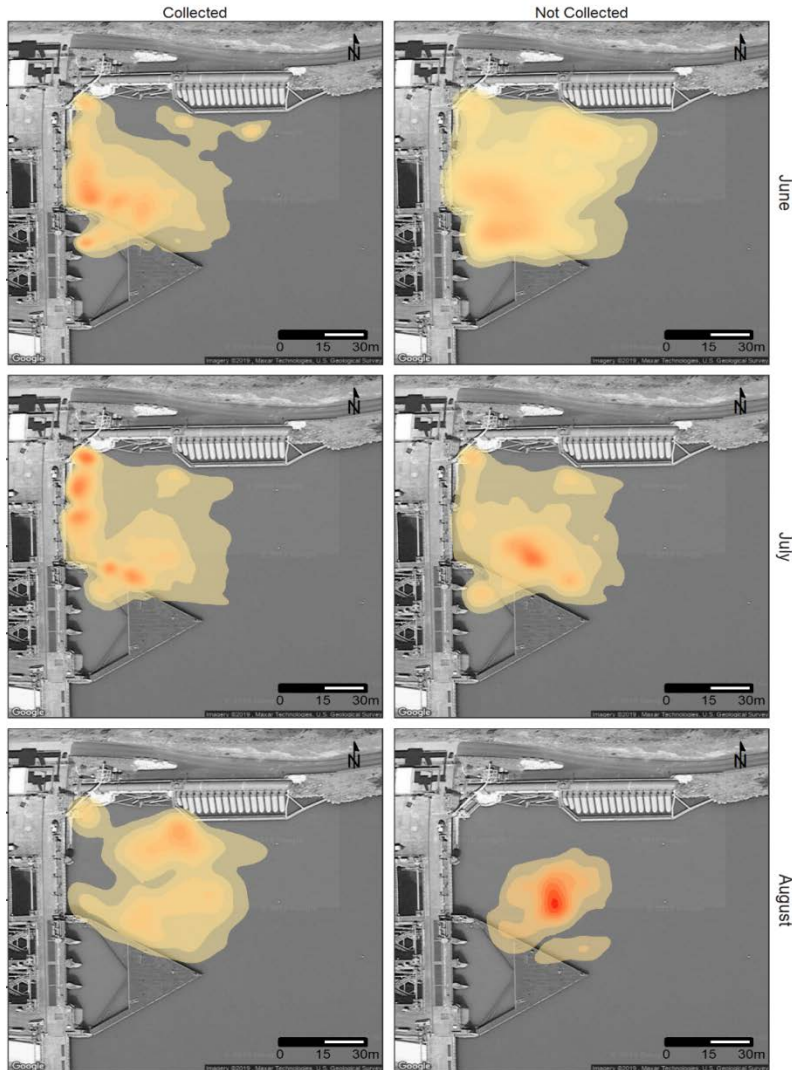


Acoustic-tagged Chinook Behavior



Acoustic-tagged Chinook Behavior

Detections by month during CFNSC pumpback and Unit 1 operations



Acoustic-tagged Steelhead Behavior

**Discovery
Efficiency (%)**

**Entrance
Efficiency (%)**

**Retention
Efficiency (%)**

**Capture Zone Retention
Efficiency (%)**

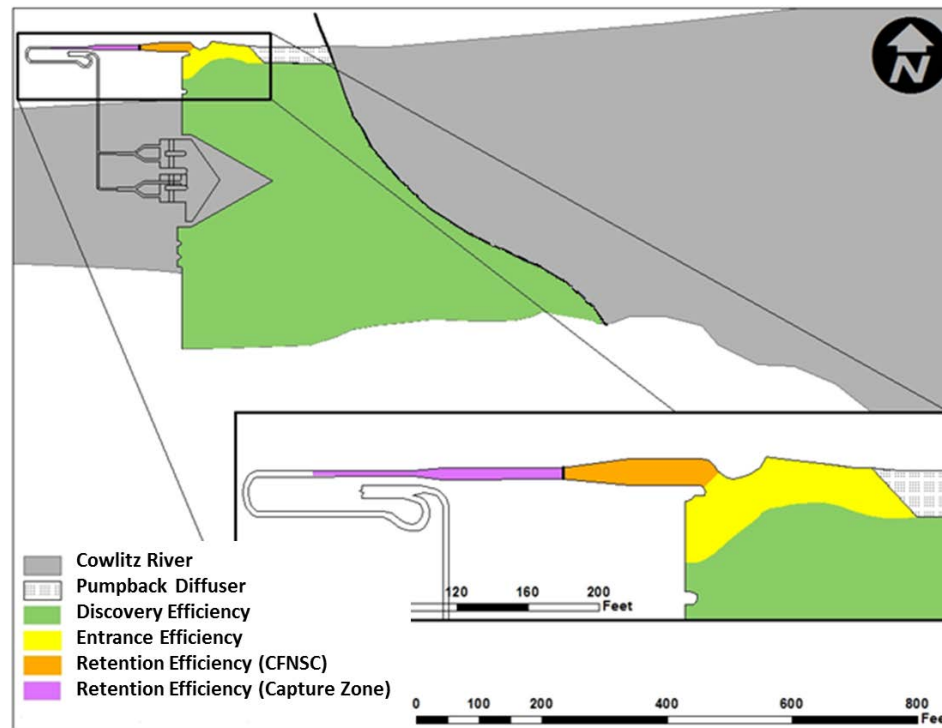
2019

100

95.1

67.2

52.3



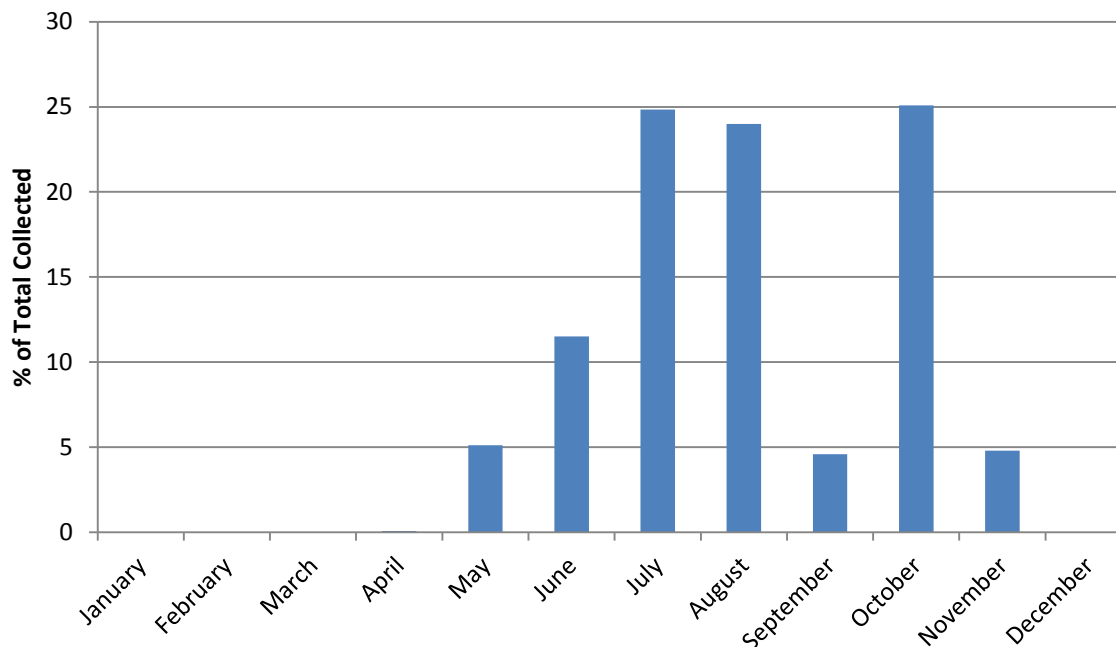
2020 Plans

1. Expand fish collection season at Cowlitz Falls
2. Characterize life history of returning adults
3. Opportunistic evaluation of CFNSC at 750 cfs during spring spill events
4. Adjust Capture Zone floor geometry
5. Adjust Pumpback Diffuser discharge to direct flow towards CFNSC entrance

Expand Collection Season

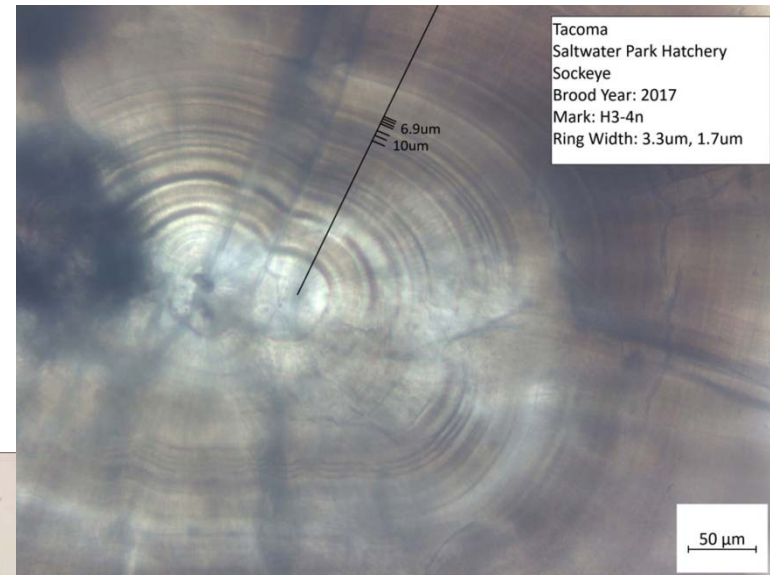
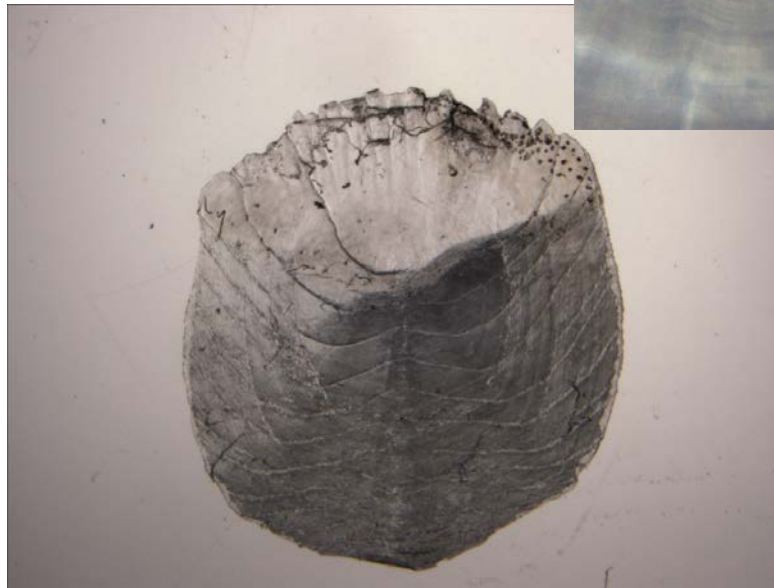
Operate
CFNSC in
early spring
and late fall

**Percent of Total Chinook Collected by Month
at Mayfield Countinghouse 2015**



Characterize Adult Life History

Collect life history data
from adults



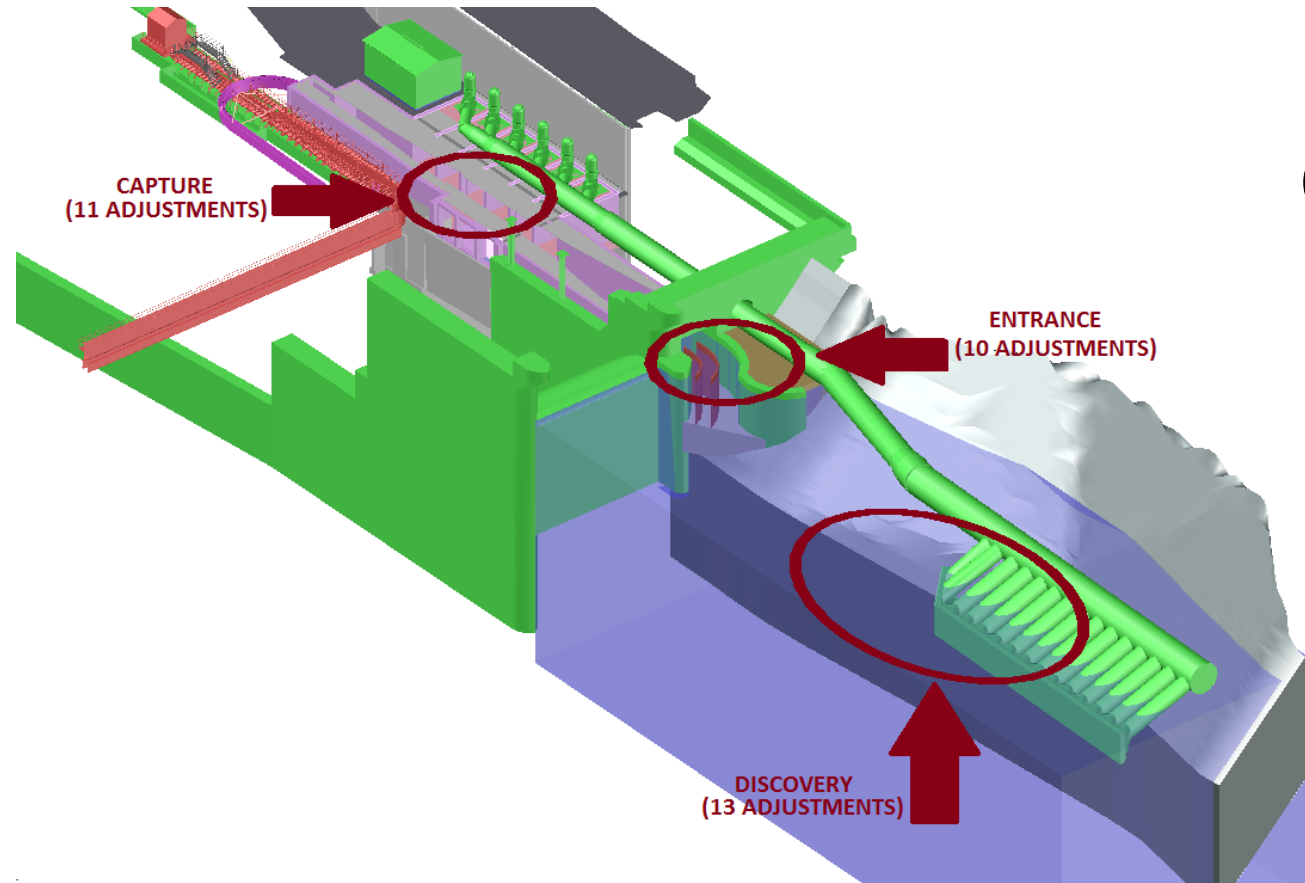
Opportunistic testing at 750 cfs

Increase flow through Tailrace Discharge Structure



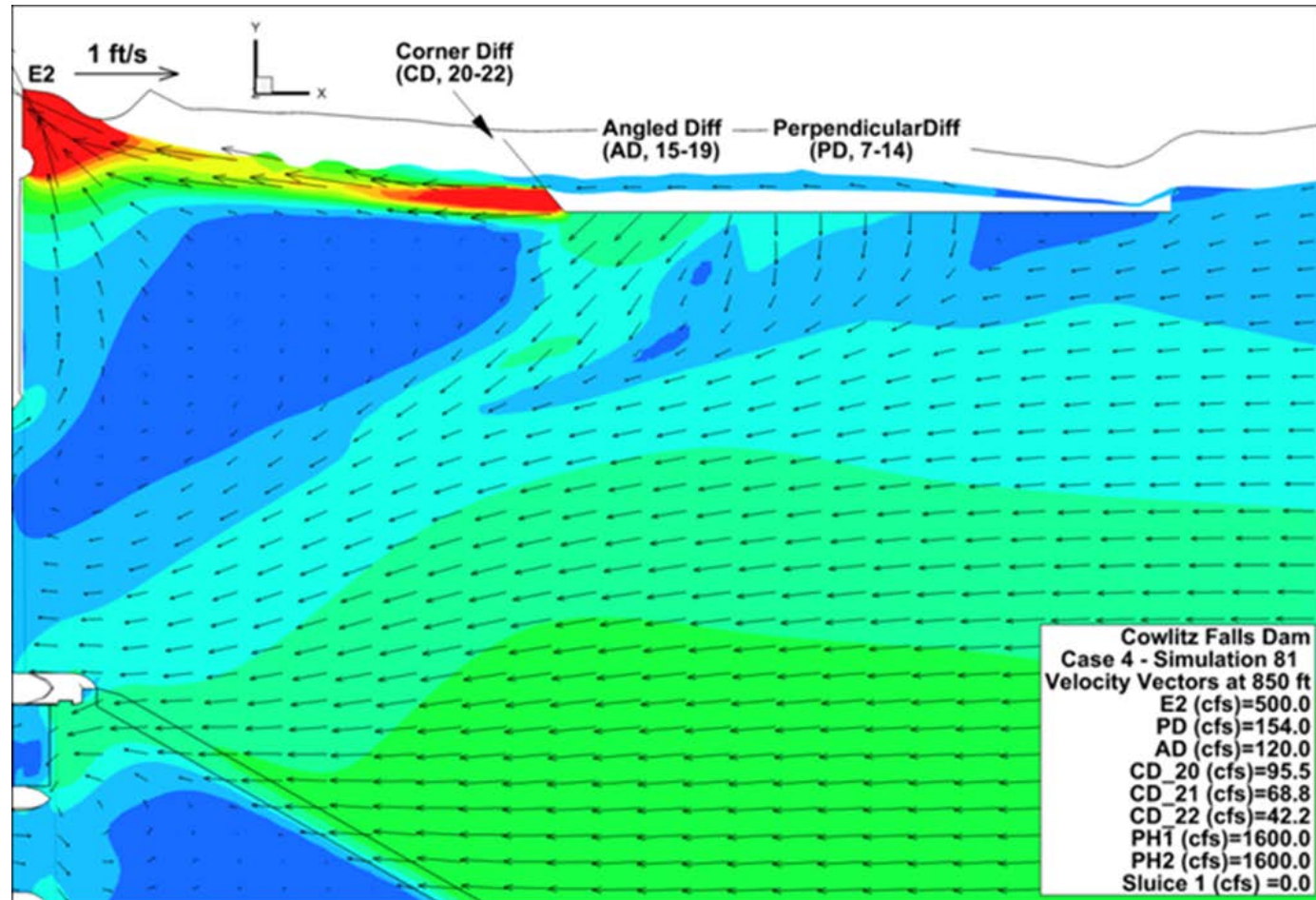
Adjust Capture Zone Floor Geometry

Improve
Capture Zone
hydraulics



Adjust Pumpback Diffuser Discharge

Configure to
Entrance
Directed
Discharge



Upcoming Activities

Anticipated upcoming activities at Cowlitz Falls Dam

2020	Expanded fish collection season
	Opportunistic 750 cfs tailrace discharge
	Entrance Directed Pumpback Diffuser discharge
	CFNSC Capture Zone floor adjustment
2021	Per AMP and pending 2020 results
2022	Per AMP and pending 2021 results
