

# Cowlitz Falls North Shore Collector Fish Collection 2017 - 2022

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Cowlitz Falls Fish Facility Manager

Cowlitz Annual Project Review and Science Conference

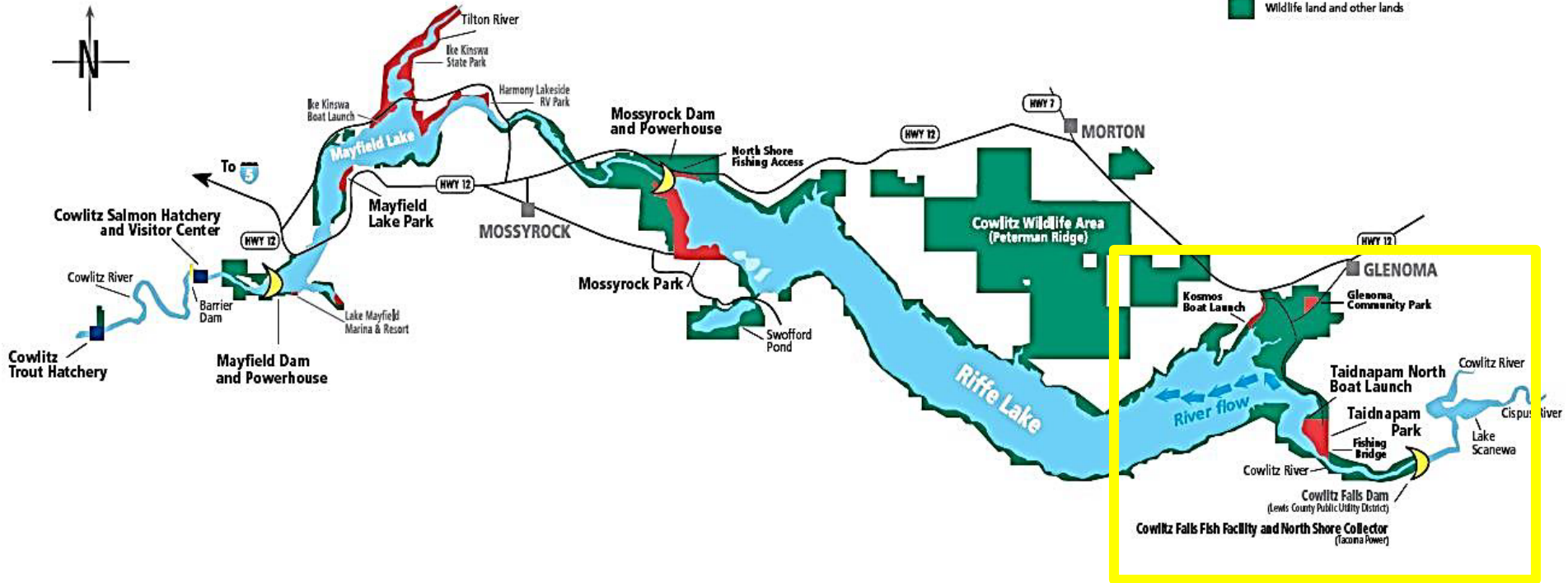
August 22, 2023

# Outline

- Cowlitz Falls Overview
- Fish Collection History
- Cowlitz Falls North Shore Collector
- Monitoring Results
- Next Steps

# Cowlitz River Project

- Dams and powerhouses
- Hatcheries
- Recreation areas
- Wildlife land and other lands



# Cowlitz Falls Project



**Dam Owner**  
Lewis County PUD

**Cowlitz Falls Fish  
Facility Owner**

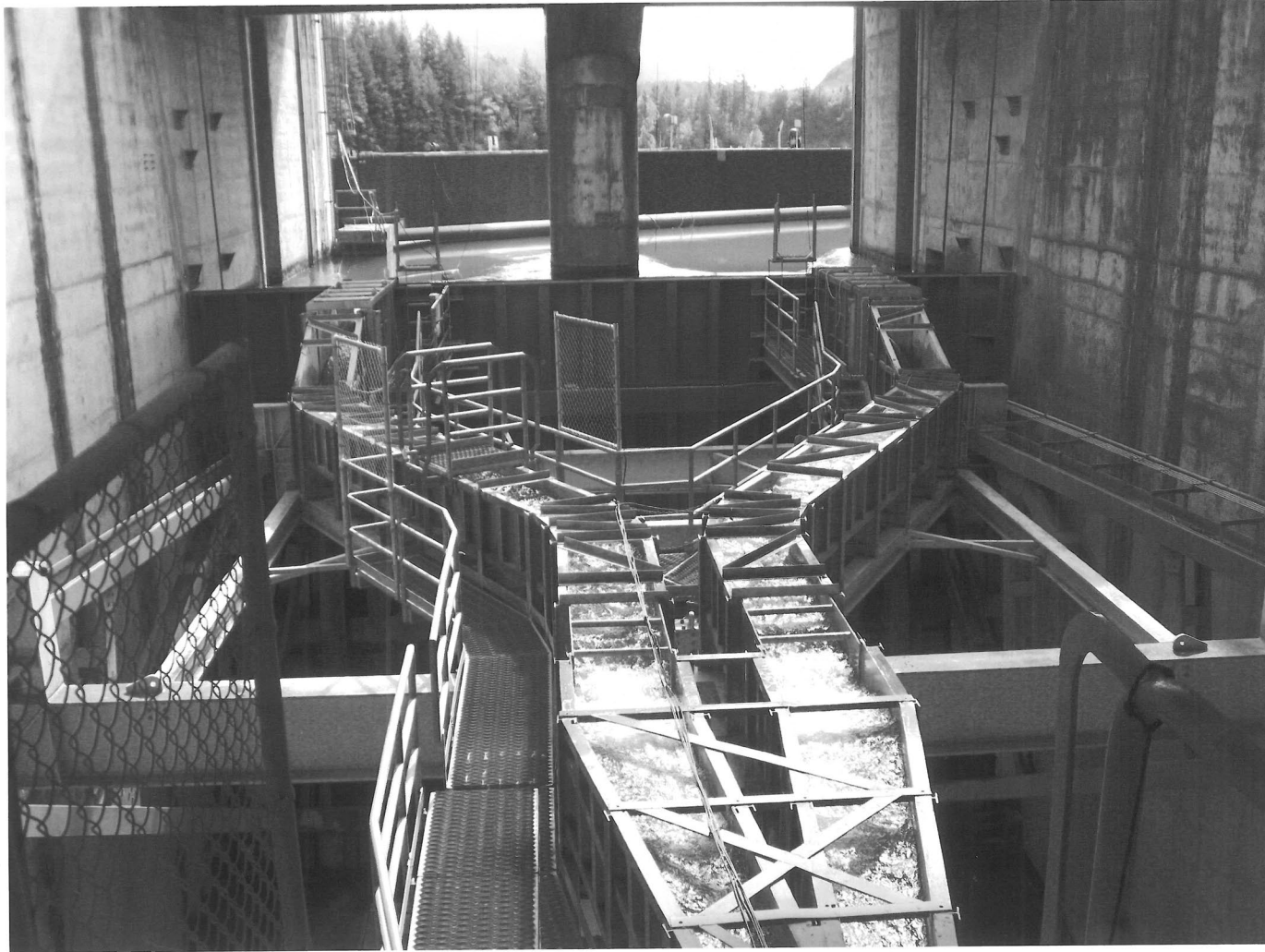
**Tacoma Power**

- Formerly owned by the Bonneville Power Administration
- Formerly operated by WDFW

# Outline

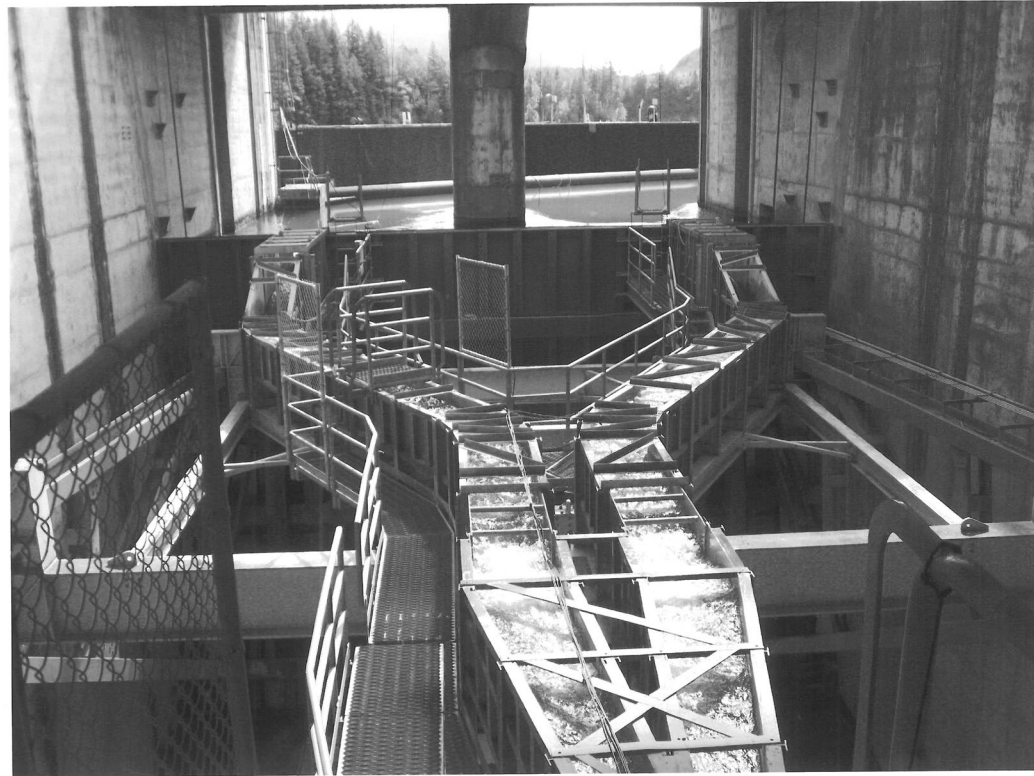
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# Surface Collection System



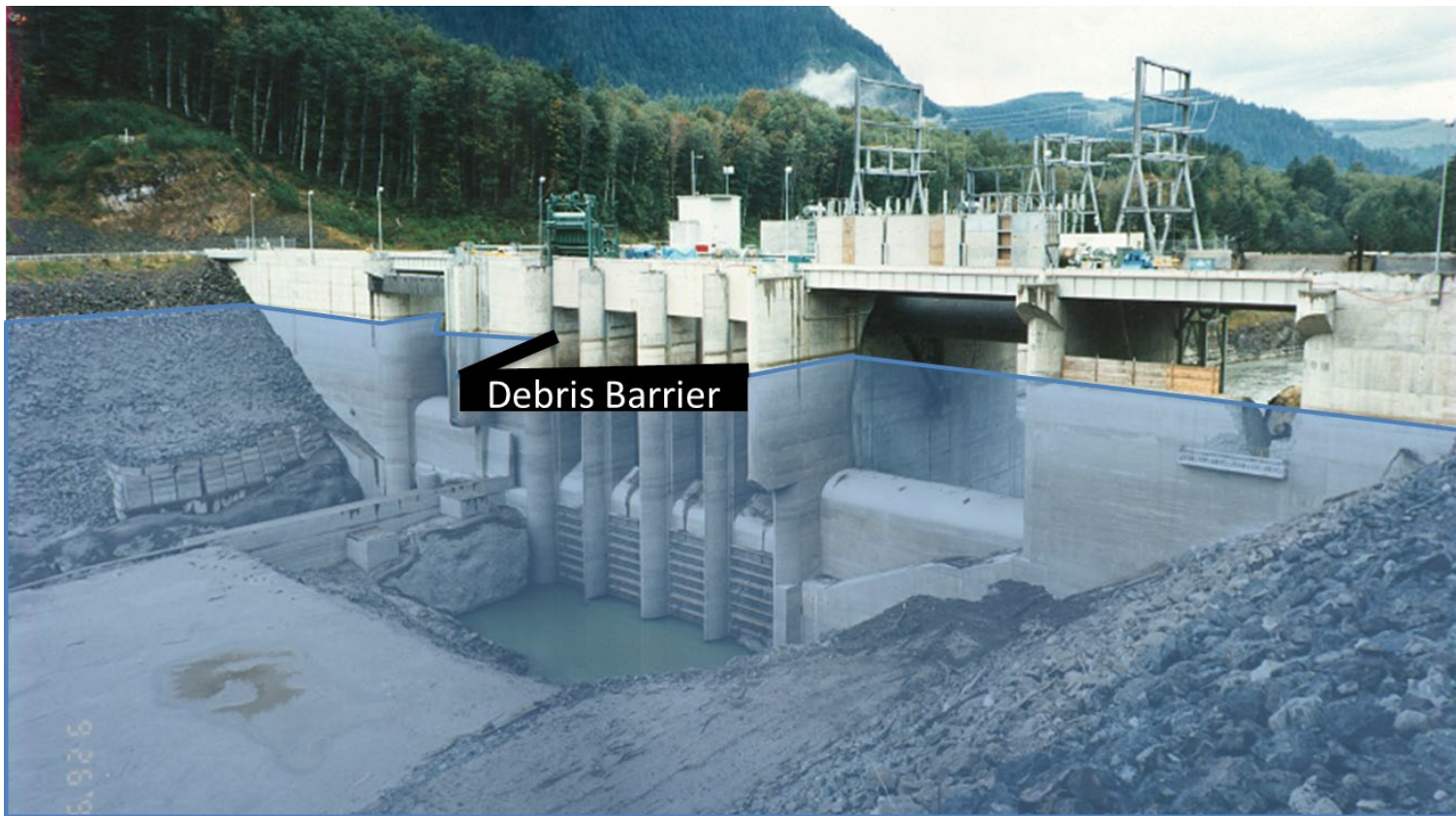
# Historic Fish Passage Survival

- **~45% Steelhead**
- **~50% Coho**
- **~12% Chinook**



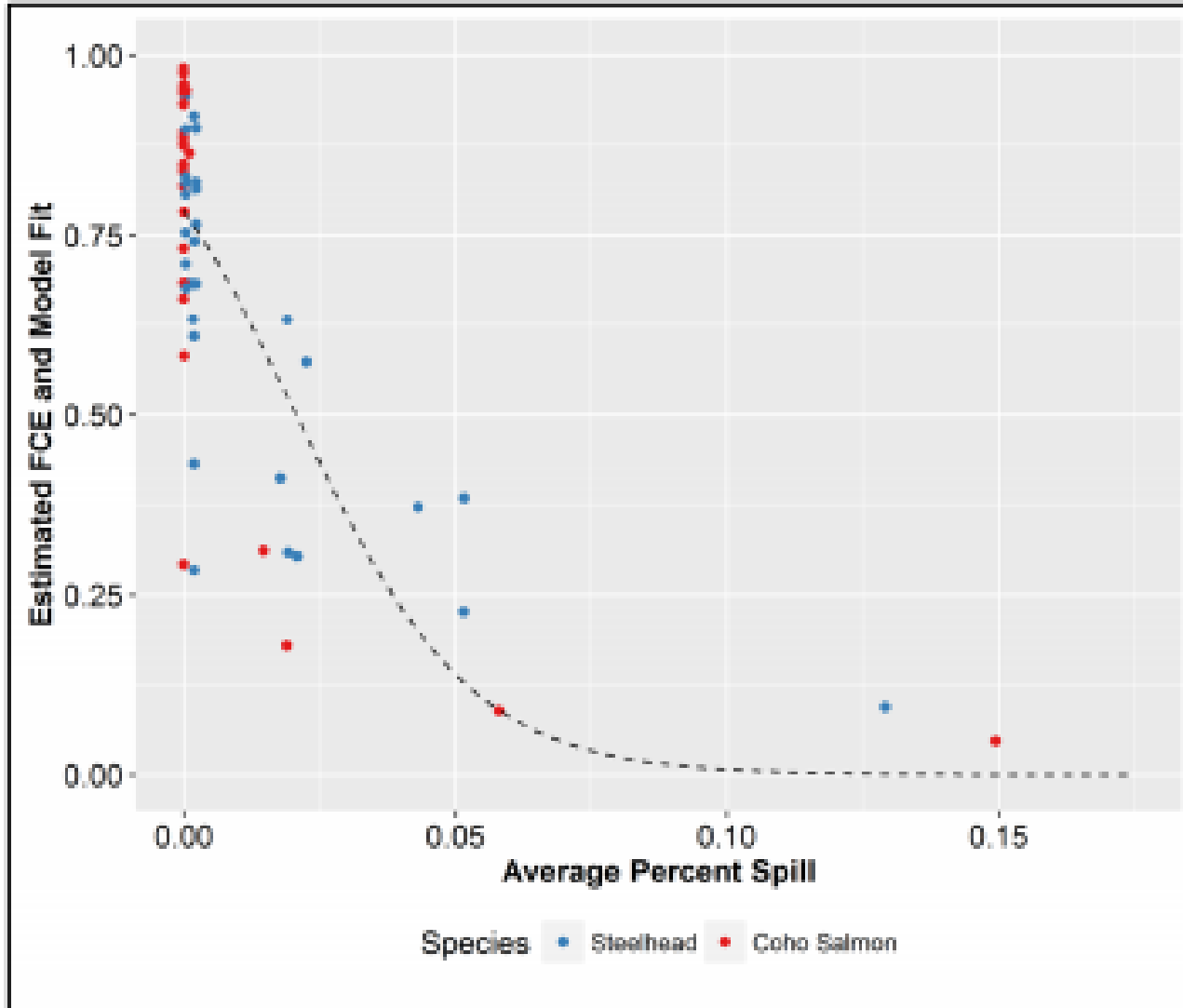
# Low Entrance Efficiency

- Behavior near debris barrier





# Spill vs Fish Collection Efficiency (FCE)



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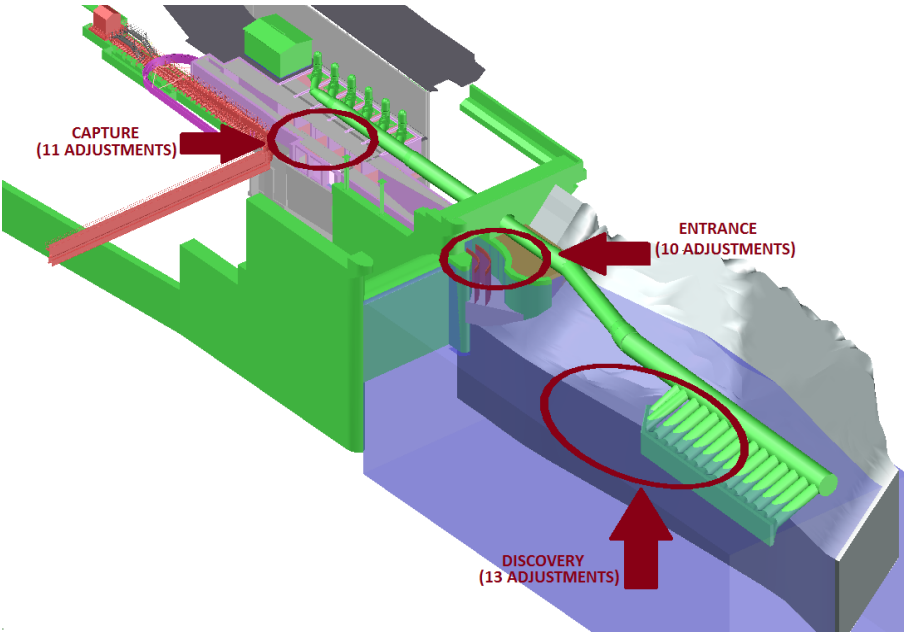


# Goals

- 95% Fish Passage Survival
- Improve Fish Collection Efficiency
- Improve Entrance Efficiency



# Cowlitz Falls North Shore Collector



# Cowlitz Falls Project



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- **Monitoring Results**
- **Next Steps**

# Primary Operations

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	<b>Begin Date</b>	<b>End Date</b>
<b>2017</b>	April 17	Aug. 31
<b>2018</b>	March 1	Aug. 31
<b>2019</b>	March 1	Sept. 13
<b>2020</b>	Feb. 3	Sept. 30
<b>2021</b>	March 15	Sept. 30
<b>2022</b>	March 15	Sept. 30



# Run of River Outmigration

## Smolts – all age classes

	Chinook	Coho	Steelhead	Cutthroat	Total
<b>2017</b>	56,345	26,196	4,860	952	88,353
<b>2018</b>	27,070	161,529	14,450	1070	204,119
<b>2019</b>	62,885	184,713	11,892	684	260,174
<b>2020</b>	7,315	127,544	8,287	1,171	144,317
<b>2021</b>	13,110	158,096	9,975	1,528	182,709
<b>2022</b>	6,656	102,094	8,388	1,081	118,219

# Run of River: Fall Operations

Generally operate for four consecutive weeks of three-day, 72-hour blocks.

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	<b>Begin Date</b>	<b>End Date</b>	<b>Hours (days)</b>
<b>2017</b>	Oct. 24	Nov. 30	253 (10.5)
<b>2018</b>	Nov. 8	Dec. 21	203 (8.5)
<b>2019</b>	Oct. 22	Nov. 15	288 (12.0)
<b>2020</b>	Oct. 6	Oct. 30	294 (12.3)
<b>2021</b>	Oct. 5	Oct. 29	279 (11.6)
<b>2022</b>	Oct. 4	Oct. 28	288 (12.0)

# Run of River Fall Migration

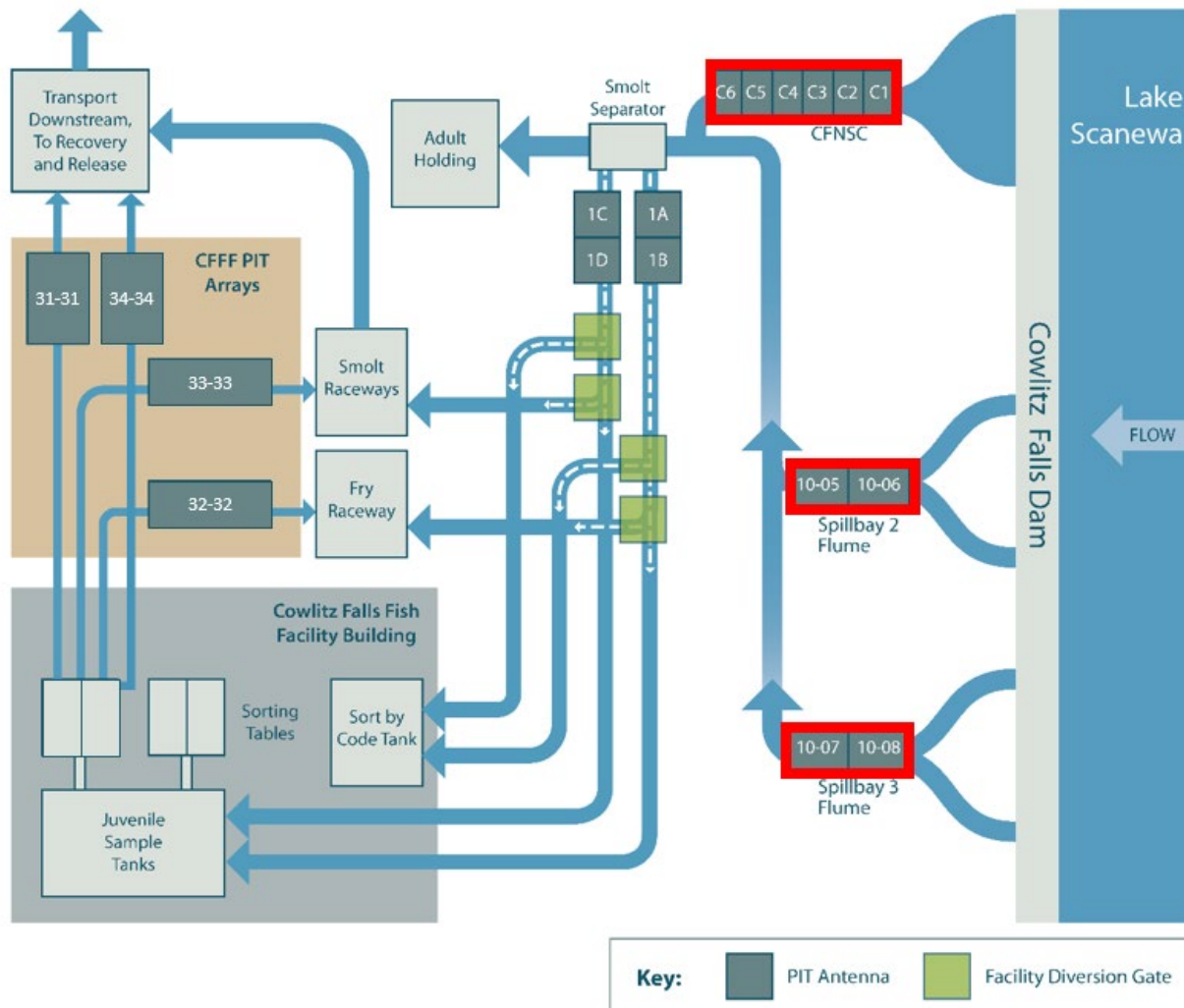
## Smolts – all age classes

	Chinook	Coho	Steelhead	Cutthroat	Total
<b>2017</b>	327	747	186	25	1,285
<b>2018</b>	512	969	30	4	1,515
<b>2019</b>	1,905	1,223	112	18	3,258
<b>2020</b>	547	1,247	61	31	1,886
<b>2021</b>	1,572	872	93	35	2,572
<b>2022</b>	470	463	21	5	959

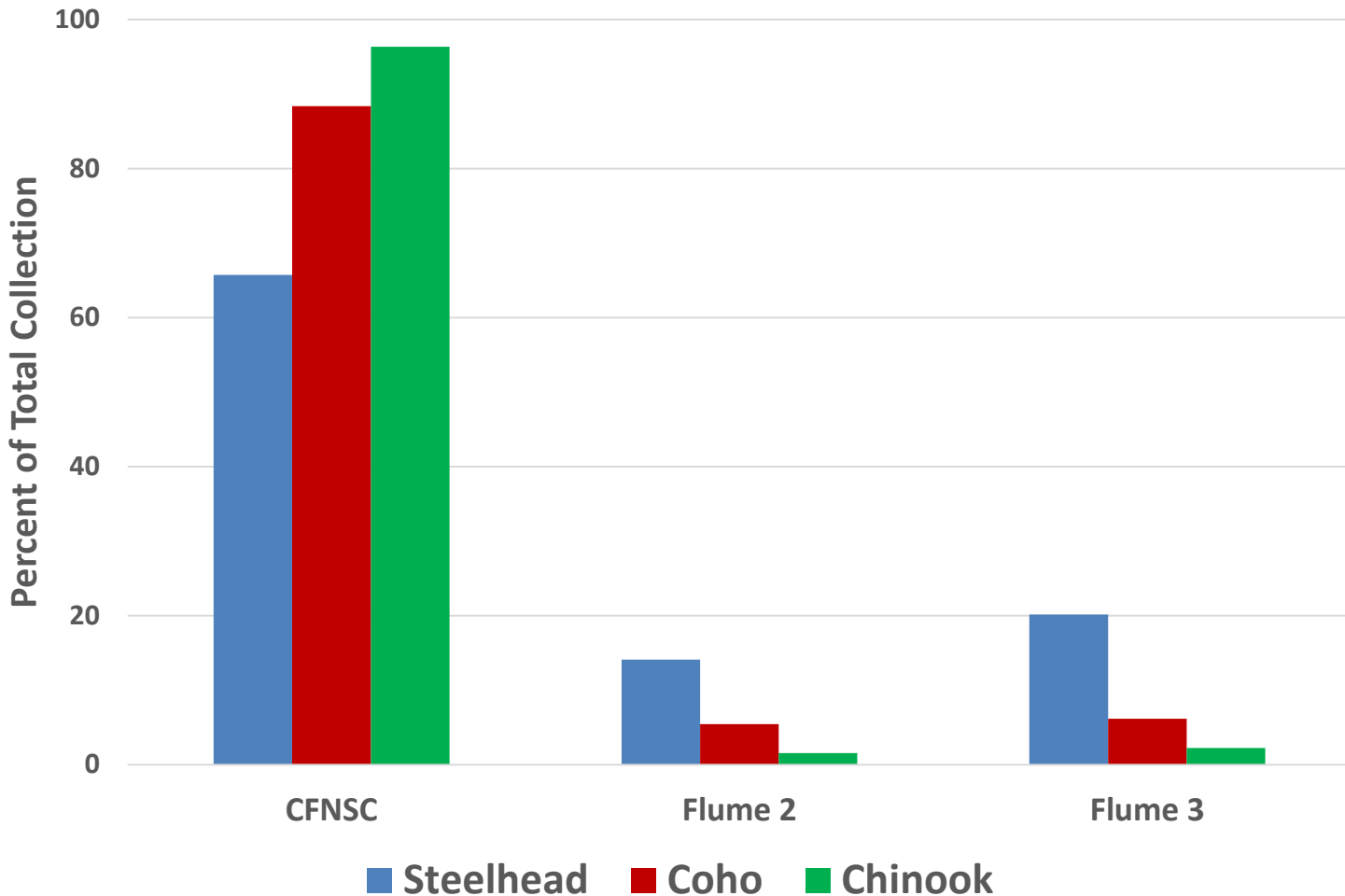
# 2017-2022 PIT Tag Releases

	<b>Release Date Range</b>	<b>Sample Size Range</b>
<b>Steelhead</b>	April 18 - June 15	476 - 891
<b>Coho</b>	April 18 – July 12	601 - 1201
<b>Chinook</b>	June 20 – Sept. 1	399 - 900

# Cowlitz Falls PIT System



# 2017-2022 Route Selection

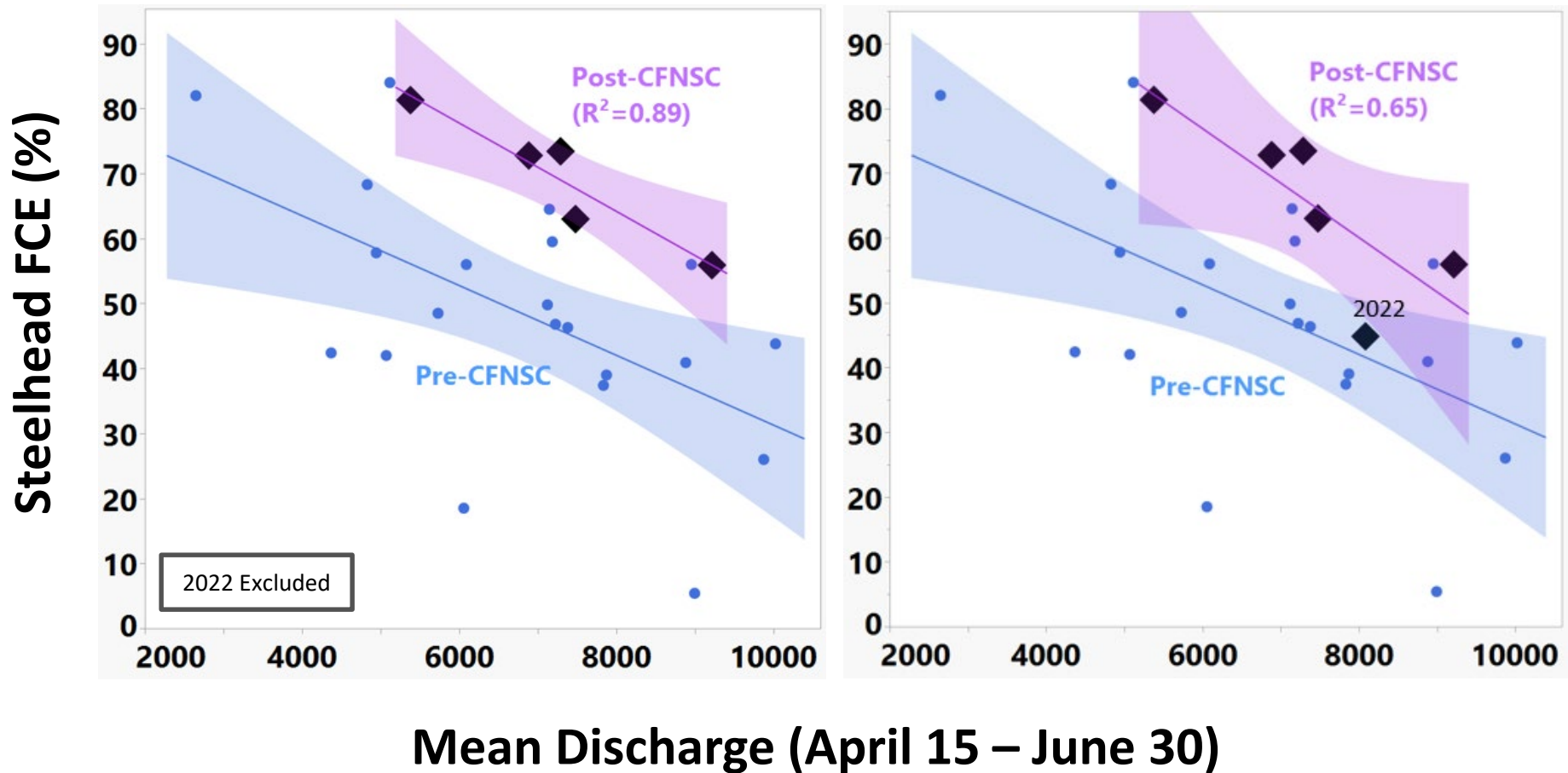


# Fish Passage Summary

## Fish Passage Survival (FPS)

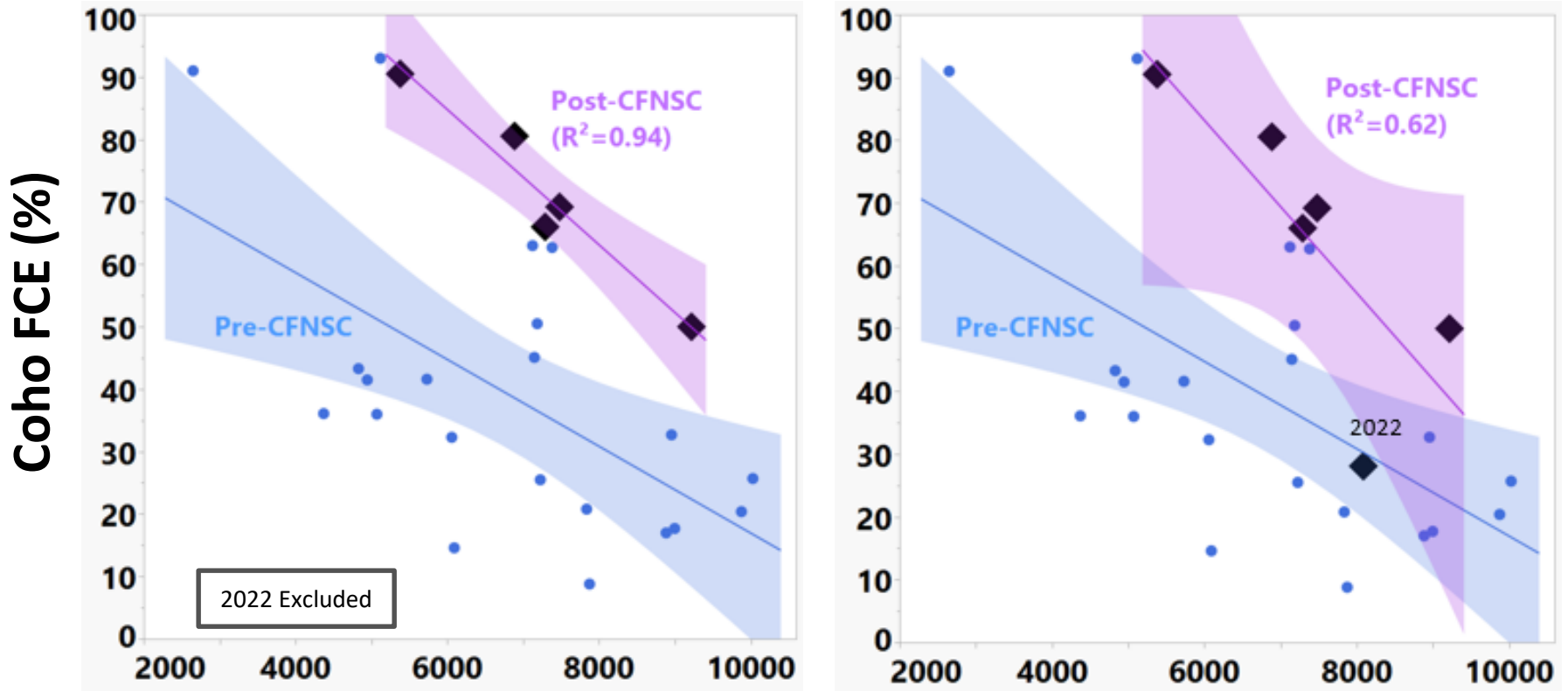
Species	2017	2018	2019	2020	2021	2022	5-year mean
Steelhead	57%	75%	83%	65%	76%	46%	69%
Coho	52%	82%	93%	72%	68%	29%	69%
Chinook	51%	70%	78%	54%	60%	62%	62%

# Water Year Comparison - Steelhead



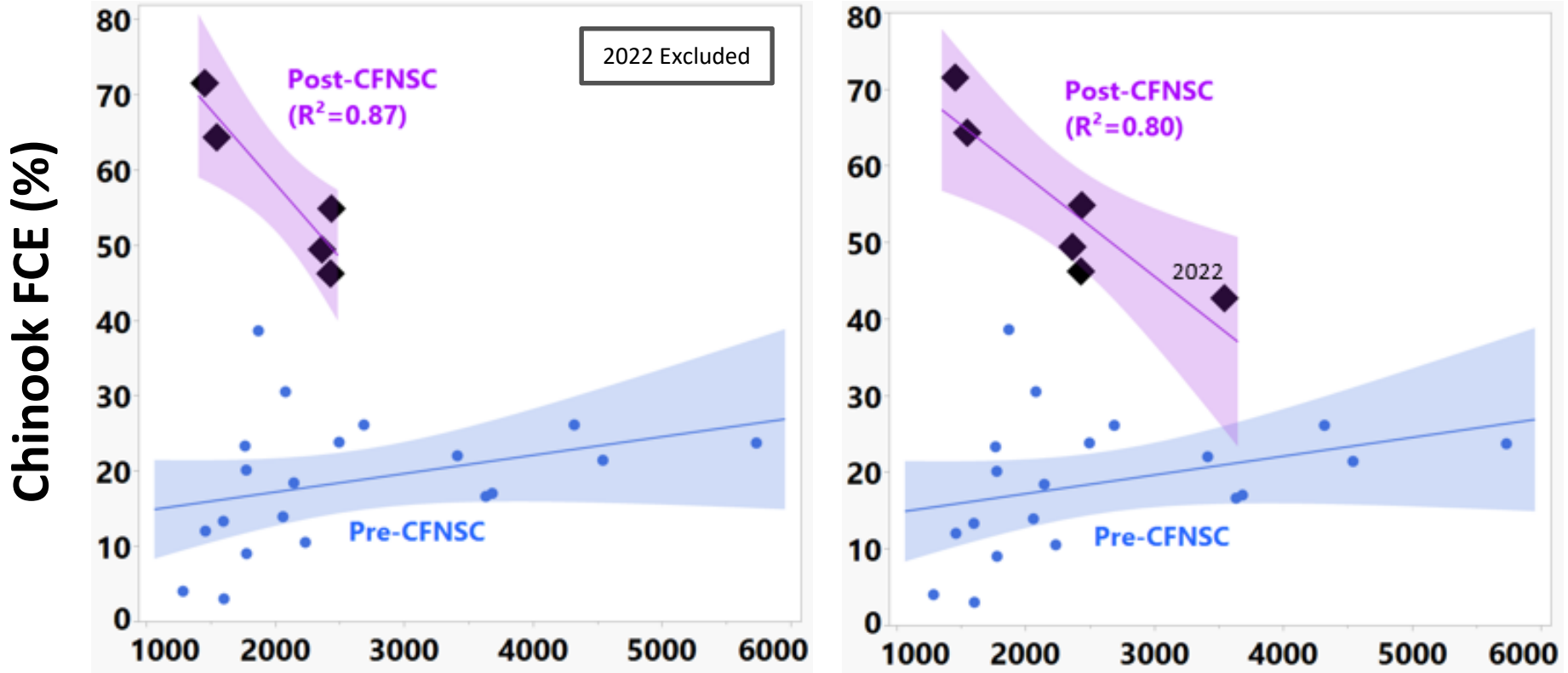


# Water Year Comparison - Coho



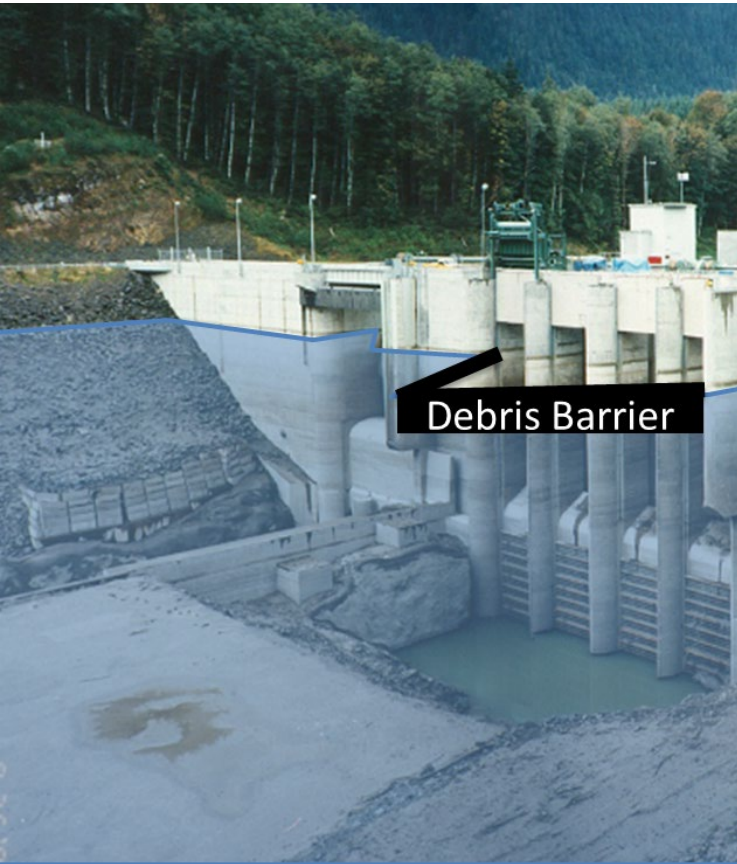
Mean Discharge (April 15 – June 30)

# Water Year Comparison - Chinook

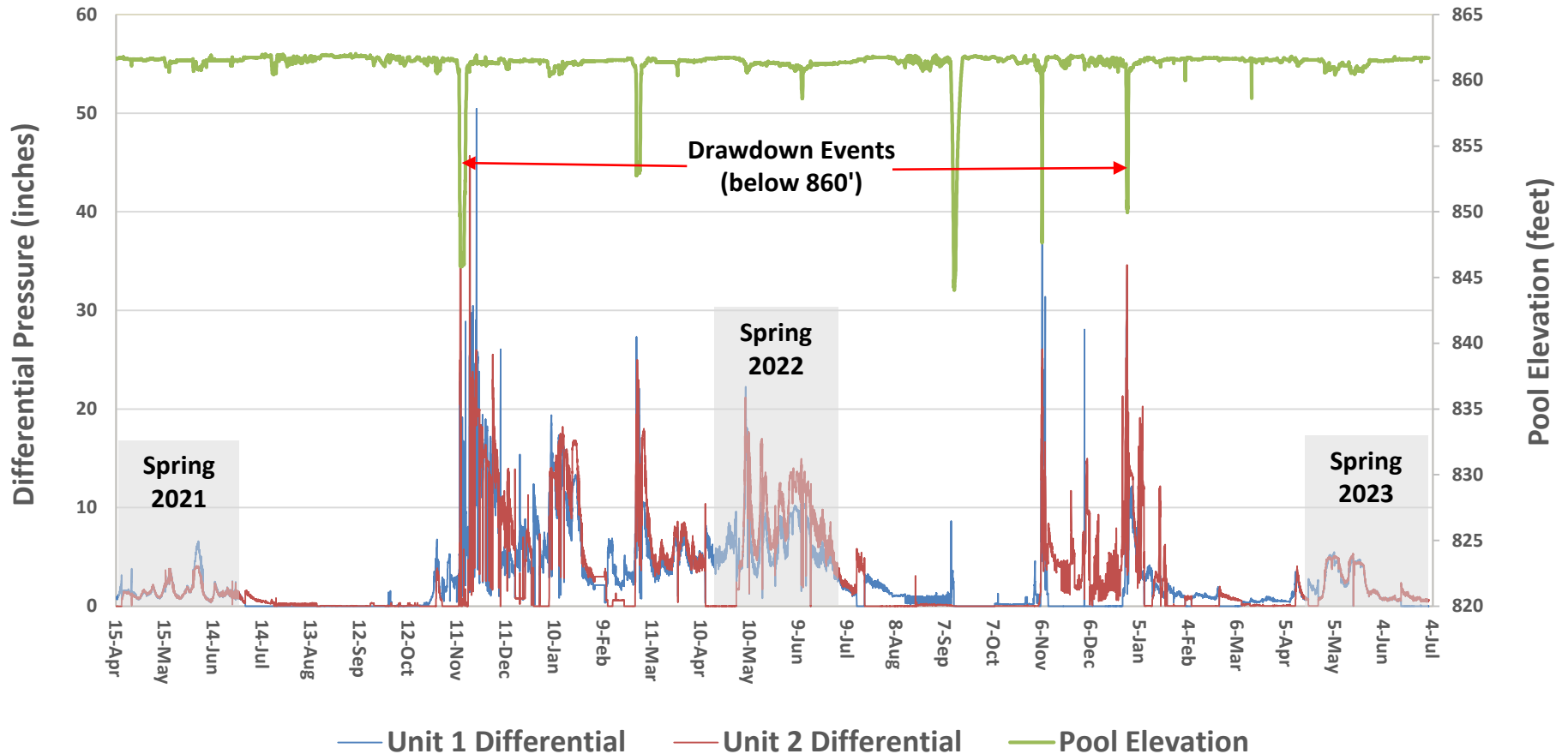


Mean Discharge (July 1 - August 31)

# Trash Rack Occlusion



# Trash Rack Occlusion



# Trash Rack Occlusion

## 2023 CFNSC Recommendation

- Test the hypothesis that debris build up in 2022 contributed to low collection efficiency.
- Establish partnership with Lewis County PUD to clean out debris in front of trash racks at an increased, standard frequency

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# Next Steps

- Establish trash rack cleanout agreement
- Ongoing monitoring
  - Baseline performance monitoring (FCE/FPS)
  - Directed studies
    - No Chinook studies planned in 2024/2025 due to planned summer drawdowns by Lewis County PUD
- Continue to implement Adaptive Management Plan (TWG and FTC)

# Questions?

