

## Priest Rapids Coordinating Committee Conference Call

**Microsoft Teams**  
**Monday, November 18, 2024**  
**1:00 p.m. to 3:40 p.m.**

### Conference Call Minutes

#### **PRCC Representatives, Alternates, and Facilitation**

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Tom Dresser, Rod O'Connor (Alt), Tim Taylor (Alt) GPUD Scott Carlon, Justin Yeager (Alt), NMFS Bill Gale, Jason Romine (Alt), USFWS Chad Jackson, Andrew Murdoch (Alt), WDFW Kirk Truscott, Casey Baldwin (Alt), CTCR	Keely Murdoch, Brandon Rogers (Alt), YN Tom Lorz, CTUIR Clayton Buck, Wanapum Larissa Rohrbach, Anchor QEA, Facilitator Kristi Geris, Anchor QEA, Technical Support
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#### **Meeting Attendees**

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Tom Dresser, GPUD Rod O'Connor, GPUD Tim Taylor, GPUD Scott Carlon, NMFS Bill Gale, USFWS Chad Jackson, WDFW Andrew Murdoch, WDFW Tom Desgroseillier, WDFW	Brandon Chasco, WDFW Kirk Truscott, CTCR Keely Murdoch, YN Tom Lorz, CTUIR Pete McHugh, CRITFC (CTUIR) Larissa Rohrbach, Anchor QEA, Facilitator Kristi Geris, Anchor QEA, Technical Support
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#### **Action Items**

- R. O'Connor will inform the PRCC of any updates to the 2025–2027 Smolt Survival Study, should they arise. *(This item is ongoing.)*
- K. Truscott will verify the Confederated Tribes of the Colville Reservation (CTCR) PRCC Policy Committee representation. *(This item is ongoing.)*
- T. Lorz will provide an updated Columbia River Inter-Tribal Fish Commission (CRITFC) PRCC Representation Designation Letter. *(This item is ongoing.)*

- The PRCC will review the proposed PRCC Policy Committee meeting agenda distributed on November 19, and send comments to L. Rohrbach by November 26, 2024.
- L. Rohrbach will work with T. Dresser to identify proposed dates for a PRCC Policy Committee meeting, including timeline for materials preparation, pending PRCC feedback on proposed agenda topics.
- PRCC representatives will provide questions for Real Time Research (RTR) to address during a presentation of their No Net Impact (NNI) avian predation 2024 work and 2025 proposal (scheduled for January 9, 2025, at 10:00 a.m.) to T. Dresser no later than the PRCC December 16, 2024, conference call.
- Anchor QEA will distribute Outlook calendar placeholders for the 2025 PRCC meeting dates. (*Placeholders were distributed on November 20.*)

### **Review Items**

- A draft PRCC Policy Agenda was distributed by K. Geris on November 19, with edits and comments due to T. Dresser by November 26, 2024.

### **Decisions and Approvals**

- None.

#### **I. Subyearling Workshop Recap**

The PRCC and Habitat Conservation Plan Coordinating Committee (HCP-CC) convened a joint session to discuss the 2024 Subyearling Chinook Salmon Workshop (see separate joint session minutes).

#### **II. Welcome, Announcements, Agenda Review, and Meeting Minutes Approval**

L. Rohrbach reviewed the agenda. No additions or changes were requested by PRCC members, and the agenda was approved by all parties in attendance.

The draft minutes from the October 22 conference call were distributed by L. Rohrbach on November 14. No revisions were received, and the minutes were approved by members who attended that meeting. (*Note: K. Truscott, S. Carlon, C. Jackson, and T. Lorz abstained because these representatives did not attend the October conference call.*)

#### **III. Actions Items Review**

Action items from the PRCC October 22 conference call and follow-up discussions were as follows (*Note: Italicized text corresponds to agenda items from the October 22 conference call.*):

- *R. O'Connor will inform the PRCC of any updates to the 2025–2027 Smolt Survival Study, should they arise.*

By next month, Grant PUD will announce who was selected as the contractor to conduct the study. There will also be updates on tag and equipment purchases. This item is ongoing.

- *L. Rohrbach will work with T. Dresser to identify a date for a PRCC Policy Committee meeting.*

This will be discussed during today's conference call.

- *K. Truscott will verify the CTCR PRCC Policy Committee representation.*  
The representative will likely be Rebecca Hunt (CTCR Natural Resource Director), and the alternate will likely be Dennis Moore (CTCR Policy Analyst). This item is ongoing.

- *T. Lorz will provide an updated CRITFC PRCC Representation Designation Letter.*

This item is ongoing.

- *K. Truscott will coordinate with H. McLellan (CTCR) regarding an update on the Northern Pike Removal (2022 to 2024) effort once the PRCC November and December 2024 meeting dates are confirmed.*

A presentation will be provided during the December 2024 meeting.

- *L. Rohrbach will connect with A. Murdoch about his draft agenda for further discussing Subyearling Chinook Salmon Workshop topics and will connect with J. Ferguson (HCP-CC Chair) about a joint session with the HCP-CC.*

This was discussed during today's joint session.

- *L. Rohrbach will reach out to K. Truscott, S. Carlon, C. Jackson, and T. Lorz to obtain approvals of the September 24 minutes.*

C. Jackson approved via email on October 29, and S. Carlon, T. Lorz, and K. Truscott approved via email on November 4.

- *L. Rohrbach will reach out to K. Truscott, S. Carlon, C. Jackson, and T. Lorz about adding P. McHugh (CRITFC) and D. Moore (CTCR Policy Analyst) to the PRCC email lists.*

This notification was discussed.

- *L. Rohrbach will provide P. McHugh with the 2013 PRCC Policy Committee statement of agreement (SOA) regarding White River Spring Chinook Salmon Mitigation.*

This information was shared following today's PRCC conference call.

- *PRCC representatives will review the PRCC NNI Fund Specifications Sheet and Guidance document (distributed on October 15) and will reach out to Grant PUD with questions.*

L. Rohrbach reviewed last month's discussion, as described in the minutes.

- *L. Rohrbach will distribute the 2024 Quincy Northern Pikeminnow Derby results that were shared during today's PRCC conference call.*

These results were distributed on November 14.

#### IV. PRESENTATION: WDFW PIT-Tag Barge

T. Desgroseillier (Washington Department of Fish and Wildlife [WDFW] Upper Columbia Science Unit Team Lead) and B. Chasco (WDFW Analyst) shared the presentation *Juvenile Outmigration Timing and Survival Estimation Utilizing the Wenatchee PIT Barge* (Attachment A). Discussions were as follows.

##### Slide 8: Temporary Mooring Location

L. Rohrbach asked how this location might be affected by the fluctuating water level in the area. T. Desgroseillier said the upper location is highly affected by pool stage. The site selection criteria have a minimum depth requirement, and the spot chosen for the temporary location has sufficient depth where variability in pool height should have no negative effects.

K. Truscott said in some years, the delta area ices up but then thaws. If this happens, are there plans to move the barge back out into the delta until it ices up again?

T. Desgroseillier said yes, WDFW geared up specifically to move the barge around on shorter notice. K. Truscott asked whether the barge has previously been moored in the proposed winter location (adjacent to the mainstem Columbia River, just downstream of the Wenatchee River delta). T. Desgroseillier answered, not last winter. K. Truscott recalled ice coming out of the Wenatchee River down river right into the mainstem Columbia River. T. Desgroseillier said WDFW will keep an eye on this.

##### Slide 10: Separating In-Basin and Out-Of-Basin Effects for Hatchery and Wild Yearling Migrants

B. Gale asked whether this model assumes that all tagged fish are released and whether the blue dots are arrays. B. Chasco said yes, and the detection arrays are only at some of the pond outlets where fish are released. There is a lot more resolution in the data based on the spatial distribution of the arrays. As a first pass, these are just based on all tagged fish presumed to be released at a release location and whether the fish reached the Wenatchee River.

B. Gale noted that survival also includes in-hatchery predation from tagging to release and residualism. B. Chasco also wants to look at shed rates in tagged fish to refine the number released. T. Desgroseillier reiterated that this is a first draft, and there is a lot of interest in refining these data—for example, by obtaining more information from USFWS and the Yakama Nation (YN) about fish releases and better accounting for mortality. That said, he thinks this shows proof of concept of what the barge can do. A. Murdoch also noted there were two freshets when the barge was out of the river during that winter period, so some fish likely out-migrated undetected during that period.

K. Murdoch said that, looking at hatchery Chinook Salmon, Coho Salmon, and steelhead, one would think there would be no significant difference between these survival bars, but it looks like Leavenworth National Fish Hatchery (LNFH) fish are surviving better in basin than fish from the upper basin, which is intriguing because the migratory pathways are not that different. Looking at Coho Salmon, the YN has released Coho Salmon at LNFH and at Nason Creek in the upper basin. It would be interesting to separate these out to see whether Coho Salmon released at LNFH look more like Chinook Salmon at LNFH or like upper basin (Nason Creek) Chinook Salmon.

B. Chasco said the sample sizes for some release groups are not sufficient to get reasonable error bounds on survival estimates. He would like to run some groups separately, if possible. He has not added any covariates to this model, except release location, so this could be another option.

#### Slide 11: Estimating Wild Subyearling Spring Chinook Over-Winter Survival with Traditional Cormack-Jolly-Seber (CJS) Modeling

R. O'Connor asked how the estimate on Slide 11 differs from the estimate on Slide 12. B. Chasco said the traditional CJS model (on Slide 11) does not partition for temporal differences, whereas the multistate model does (on Slide 12).

#### General Discussion

P. McHugh asked whether the barge detects adults. T. Desgroseillier said yes, but not as well as the instream array system, which uses plate arrays in the river bed and detects upward in the water column. The barge detects downward.

B. Gale said to truly compare how hatchery fish are doing, hatcheries need to start monitoring releases. This is challenging when some locations are releasing millions of fish in 1.5 days. He assumes the downstream arrays have collision issues. The predator exclusion in certain units at LNFH is not sufficient, including otters and birds.

T. Desgroseillier agreed and said the issues at LNFH are not unique to that location.

B. Gale said the barge data may help with what was lost due to lower detection efficiency at McNary Dam compared to the past; there is no downstream detection site after release like there used to be.

K. Truscott asked whether there are near-term plans to implant more passive integrated transponder (PIT) tags in natural-origin steelhead. T. Desgroseillier said no, but WDFW is looking internally and externally at how to increase the tagging effort. The focus now is more on finding people for electrofishing, because the smolt traps are not sufficient for collecting and tagging steelhead. Most tags are associated with electrofishing, including about 10,000 tags in subyearling spring Chinook Salmon through efforts in Nason Creek and Chiwawa River. WDFW would like to include Peshastin Creek, but there just needs to be more people.

B. Chasco asked the PRCC to let him know about interests in different analyses, and T. Desgroseillier said WDFW will also reach out to hatchery program leads with data requests. A. Murdoch said WDFW plans to present data at the PRCC HSC meeting in February 2025. WDFW is thinking about ways to propose incorporating this clearly as part of the PUDs' monitoring and evaluation programs, notably for separating in-basin and out-of-basin effects.

L. Rohrbach suggested, as this continues to be an NNI-funded project, that another WDFW update be planned after spring 2025. She asked about NNI-fund obligations for reporting, and T. Dresser does not believe there are any obligations.

## V. PRCC Hatchery Subcommittee Update – White River Hatchery Program

Last month, the PRCC Hatchery Subcommittee was unable to reach consensus on the package of materials for the Expert Panel, notably the list of potential panelists. This discussion will continue this Wednesday, November 20. If approved, the package will be available for PRCC review, with PRCC approval during the December 16 conference call.

*(Note: The PRCC Hatchery Subcommittee was unable to achieve consensus on the list of background materials to be provided to the Expert Panel. The PRCC will not be asked review the materials ahead of the December 16 conference call.)*

## VI. PRCC Policy Committee Meeting Agenda Topics

L. Rohrbach shared the following proposed PRCC Policy Committee agenda topics:

- A. Passage**
  - i. Brief Overview/Update**
  - ii. Overview of Upcoming Juvenile Salmonid Evaluations**
  - iii. Summer Subyearling Information Needs**
  - iv. Juvenile Steelhead Correction Factor – Avian Predation**
  - v. Adult salmon survival methodology**
- B. Habitat**
  - i. Brief Overview/Update**
- C. Hatchery**
  - i. Brief Overview/Update**
  - ii. Highlights from Past Year’s Activities**
  - iii. Highlights on Capital Improvements**
  - iv. White River Spring Chinook Program**

The meeting location and meeting date are still to be determined. A Doodle Poll will be reissued for dates in 2025. Rohrbach hoped to get preliminary reactions on these topics during today’s call, then this draft agenda will be distributed for consideration. This is not intended to be a Grant PUD-driven agenda; rather, it should be a PRCC-driven agenda. If there are topics PRCC representatives think should be in front of the Policy Committee, this is a good opportunity for this group to make suggestions. The last policy meeting convened policy representatives for all Priest Rapids project committees (Priest Rapids Fish Forum, Fall Chinook Working Group, and Hanford Reach Working Group) because policy representatives from the different committees had not met in a long time. The next meeting will be PRCC-specific, but if there is a desire to include other committees, this feedback is welcome. There are no disputes on the table for the PRCC policy representatives to consider.

T. Dresser said the topic of a juvenile steelhead correction factor should not be a surprise because avian predation continues to be a major concern for Grant PUD dating back to 2001. There are 15 to 20 years of data showing that Caspian terns from territories outside of Grant PUD’s control impact steelhead survival. Grant PUD and the PRCC need to pursue a correction factor, especially with a steelhead survival study forthcoming next year. This topic is just awareness for the Policy Committee. The Caspian tern population is being moved, but not very far. There has been great

progress with the Bureau of Reclamation in some places, but terns are trying to establish other colonies within the Columbia River Plateau.

T. Dresser said the Salmon and Steelhead Settlement Agreement (SSSA) includes a 91% adult and juvenile combined survival standard; however, the SSSA does not include a methodology for estimating adult salmon survival separately. Grant PUD and the PRCC are invested in developing and testing a methodology. This topic is also for awareness for the Policy Committee. Grant PUD views this as another critical issue, with the forthcoming survival studies. K. Truscott asked whether Grant PUD also plans to address the 91% combined survival standard, specifically. T. Dresser said Grant PUD has asked the National Marine Fisheries Service to address this for all Parties, if not before the policy meeting, then during the policy meeting.

Like the last policy meeting, presentation materials will be prepared by Grant PUD and distributed prior to the meeting. There will also be an opportunity for Parties to present their views, too.

B. Gale suggested adding hatchery recalculation methodology and hatchery program permitting consultations. In a year or so, when agencies start thinking about reinitiation of consultation, if there is disagreement, the Policy Committee could be primed on the topic. These topics were added to the draft agenda in the meeting.

A. Murdoch said he will think about whether there are any Hanford Reach topics.

A draft PRCC Policy Agenda was distributed by K. Geris on November 19, with edits and comments due to T. Dresser by November 26.

L. Rohrbach will work with T. Dresser to identify a date for a PRCC Policy Committee meeting, including developing a timeline for distributing materials ahead of the meeting, and redistributing a Doodle Poll for dates in 2025.

## **VII. 2024 Fish Mode Operations Summary**

The memorandum “2024 Expanded Wanapum Fish Mode Operations” (Attachment B) was distributed on November 18. This is a requirement per SOA 2022-03,<sup>1</sup> to illustrate the reduction in turbine unit starts and stops by moving from an operating range of 11,800 cubic feet per second (11.8 kcfs) to 10.0 kcfs. The Discussion section reviews the evaluation behind this change, which was first implemented in 2023, and how this was an apples-to-apples comparison. Operation engineers used a unit discharge model, using actual generation at Wanapum Dam, to compare actual versus modeled operating ranges for 2023 and 2024. T. Dresser reviewed unit start/stop counts at Wanapum Dam in 2023 and 2024 (Table 1). Model results showed the number of Wanapum unit starts and stops were reduced by 41% during 2024. In speaking with the operators at both plants, particularly at Wanapum, this change has made their job more efficient by not having to cycle units as often as in the past, so this also benefits staff. The Background section includes language from SOA 2022-03, as a reminder, if changes in juvenile salmon and steelhead survival are observed, there is an offramp.

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<sup>1</sup> Titled *Expansion of Fish Mode Operational Range for the Wanapum Turbines*, submitted to the PRCC on October 25, 2022, and approved on January 24, 2023.

This year, fish mode operations ended on August 31. Grant PUD will continue collecting these data in 2025, do the same analysis, and report out.

## VIII. 2024 Fish Passage Operations Report

### A. Fish Ladder Inspections

No updates were shared.

### B. Fish Spill Updates

Adult steelhead fallback operations ended on November 15, and crews are preparing for annual winter maintenance at both plants.

### C. Adult Fish Counts for 2024 (April 15 to November 15)

L. Rohrbach reviewed the adult fish counts through November 8, shown below. T. Dresser noted that after November, a quality assurance (QA)/quality control (QC) check of the data found there was an individual who had issues with identifying Coho Salmon at Priest Rapids. This issue has been addressed; however, the numbers could not be corrected. He suspects the individual was misidentifying fall Chinook Salmon, so these numbers may be biased low. T. Lorz asked whether Priest Rapids projects have video counting and archived video to validate species identification. T. Dresser said yes, but there is not enough data storage to reverify the entire year, and increasing the storage is restricted by IT. L. Rohrbach asked about the order of magnitude of fish spawning below Wanapum Dam. T. Dresser said it is not uncommon to have a couple thousand redds in the tailrace depending on the run. K. Truscott asked about the 7,000-fish difference in summer Chinook Salmon between Rock Island Dam and Wanapum Dam. T. Dresser suspected this could also be miscounting, but based on the QA/QC, Dave Duvall (Grant PUD Fish Count Lead) seemed confident in all fish counts except Coho Salmon. Next year, Grant PUD will continue using an external contractor. This approach has resulted in many improvements, and external contractors can respond to personnel issues more quickly.

Project	Spring Chinook Salmon (Adult + Jack) <sup>a</sup>	Summer Chinook Salmon (Adult + Jack) <sup>b</sup>	Fall Chinook Salmon <sup>c</sup>	Sockeye Salmon	Coho Salmon	Steelhead
Priest Rapids	15,720	40,766	31,032	699,785	38,653	9,746
Wanapum	16,810	37,622	16,279	697,922	28,281	9,197
Rock Island	15,676	44,621	10,974	728,872	26,395	8,827

Notes:

a: Chinook counted from April 15 to June 13 are considered spring Chinook Salmon.

b: Chinook counted from June 14 to August 13 are considered summer Chinook Salmon.

c: Chinook counted after August 14 are considered fall Chinook Salmon.

## UPDATES

### VI. Review of Outstanding NNI-Funded Projects

- **Lower Wenatchee Instream Flow Enhancement Project Phase II**  
No updates were shared.
- **Northern Pike Removal (2022 to 2024)**

H. McLellan (CTCR) will share a presentation during the December 2024 meeting (approximately 1:15 p.m.).

- **WDFW PIT-Tag Detection Barge**

Covered previously in these minutes.

- **2024 Quincy Northern Pikeminnow Derby**

No update anticipated.

- **2024 RTR Avian Predation Study**

The memorandum “No-Net-Impact Project – Avian Predation on Juvenile Steelhead” (Attachment C) was distributed on November 14. This is preliminary information. In 2024, a record low number of steelhead smolts were collected, with only 3,472 newly tagged fish and 328 recaptures. There was a relatively low number of wild fish, about 20% of steelhead tagged. T. Dresser reviewed tag recoveries from various islands (Table 1), and PIT-tag recoveries for the 2024 smolt outmigration throughout the Columbia River Basin (Table 2). In 2024, over 30,000 PIT tags were recovered. Table 2 also includes 2023 totals, and 2022 and 2021 data are available by request.

RTR wants to pursue funding from NNI funds in 2025. To do this, RTR needs approval by the PRCC January 28 conference call. Similar to last year, a meeting needs to be scheduled in early January for RTR to present 2024 results and a 2025 proposal. T. Dresser said PRCC approval in January initiates a 4- to 6-week Grant PUD and RTR contracting window. Once in place, this allows little time for RTR to plan or hire staff, among other necessary tasks, which is the reasoning behind the condensed schedule. Bonneville Power Administration also plans to fund part of the avian predation work in the Columbia River Basin. PRCC representatives agreed to convene an RTR avian predation meeting on January 9 from 10:00 a.m. to 12:00 p.m. PRCC representatives will provide questions for RTR to address during their presentation to T. Dresser no later than the PRCC December 16 conference call.

## **VII. Subcommittee Updates**

L. Rohrbach will continue to forward subcommittee notes and materials to PRCC members and alternates.

- Priest Rapids Fish Forum – met November 6, next meeting February 7.
- Habitat Subcommittee – met October 10, next meeting December 12.
- Fall Chinook Work Group – met October 8, next meeting May 6.
- Hatchery Subcommittee – met November 20, next meeting December 18.

### VIII. SOAs Discussed in 2024

SOA number	Key Words	Last Discussed	Status
SOA-2024-1	Fish Mode Exceptions	July 23, 2024	Approved

### IX. Next Meetings

The next PRCC meeting will be Monday, December 16, to be held virtually.

L. Rohrbach announced that K. Geris will transition into the communicator role for this group now that L. Rohrbach has moved into the facilitator role. Moving forward, K. Geris will distribute materials to the PRCC. The format of agendas and meeting materials will remain the same, but file nomenclature and SharePoint uploads will be adapted to provide a more consistent administrative record.

The PRCC reviewed and agreed on a 2025 PRCC Meeting Schedule (Attachment D). *(Note: The HCP-CC reviewed and agreed on this schedule during their meeting this same day.)*

Anchor QEA will distribute Outlook calendar placeholders for the 2025 PRCC meeting dates. *(Placeholders were distributed on November 20.)*

### X. Attachments

Attachment A – Juvenile Outmigration Timing and Survival Estimation Utilizing the Wenatchee PIT Barge

Attachment B – 2024 Expanded Wanapum Fish Mode Operations

Attachment C – No-Net-Impact Project – Avian Predation on Juvenile Steelhead

Attachment D – 2025 PRCC Meeting Schedule

# Juvenile Outmigration Timing and Survival Estimation utilizing the Wenatchee PIT Barge



# Wenatchee PIT Barge Project Goals

1. Better understanding of juvenile outmigration timing and strategies from the Wenatchee River basin.
  - a) Previously limited by poor juvenile detection efficiency at stream-width PIT tag arrays and limitations in juvenile trapping.
2. Better estimate juvenile survival.
  - a) Decouple Wenatchee River from Columbia River survival estimates.
  - b) Estimate overwinter survival of wild Chinook and steelhead within the Wenatchee River.



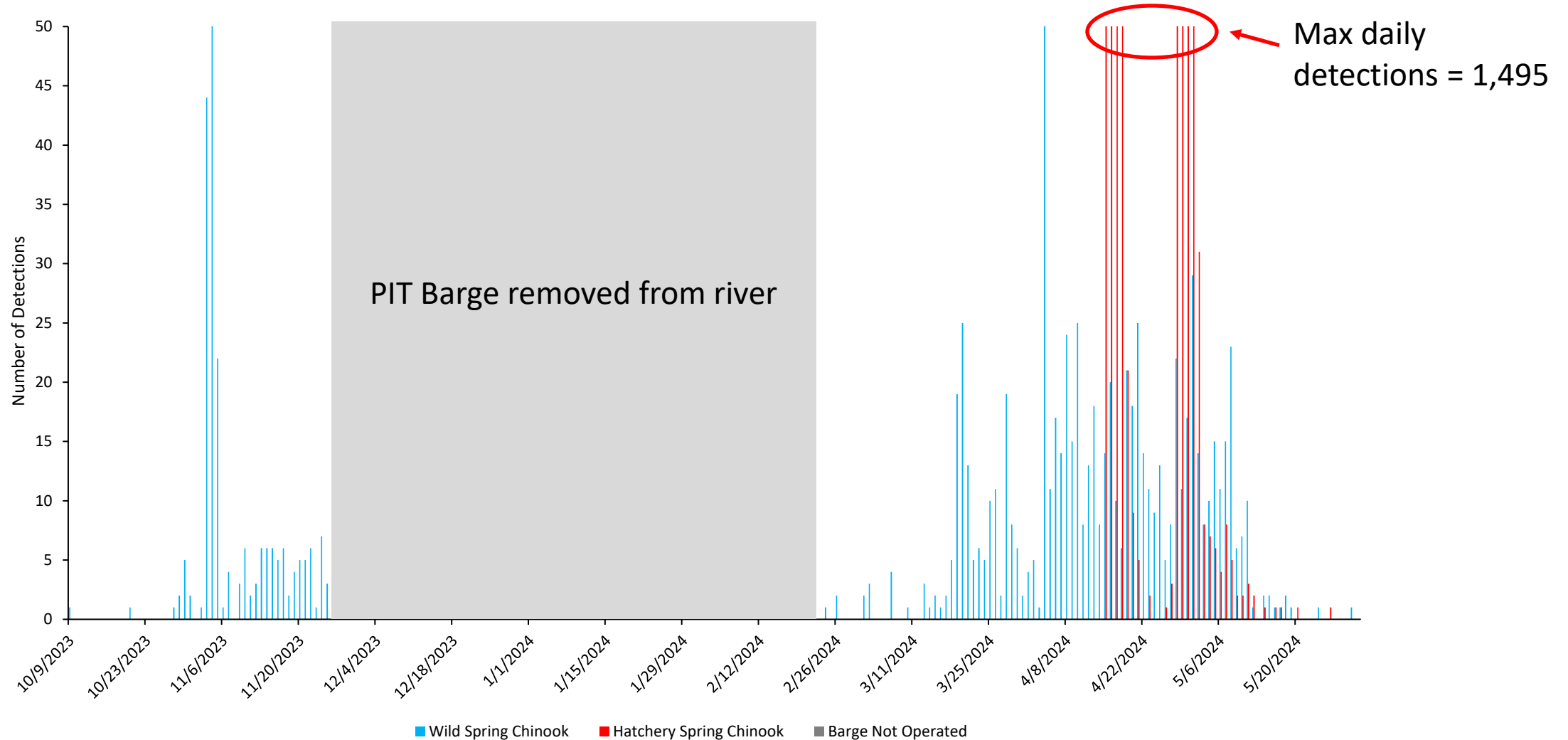
# Past and Current PIT Barge Operation

The learning curve:

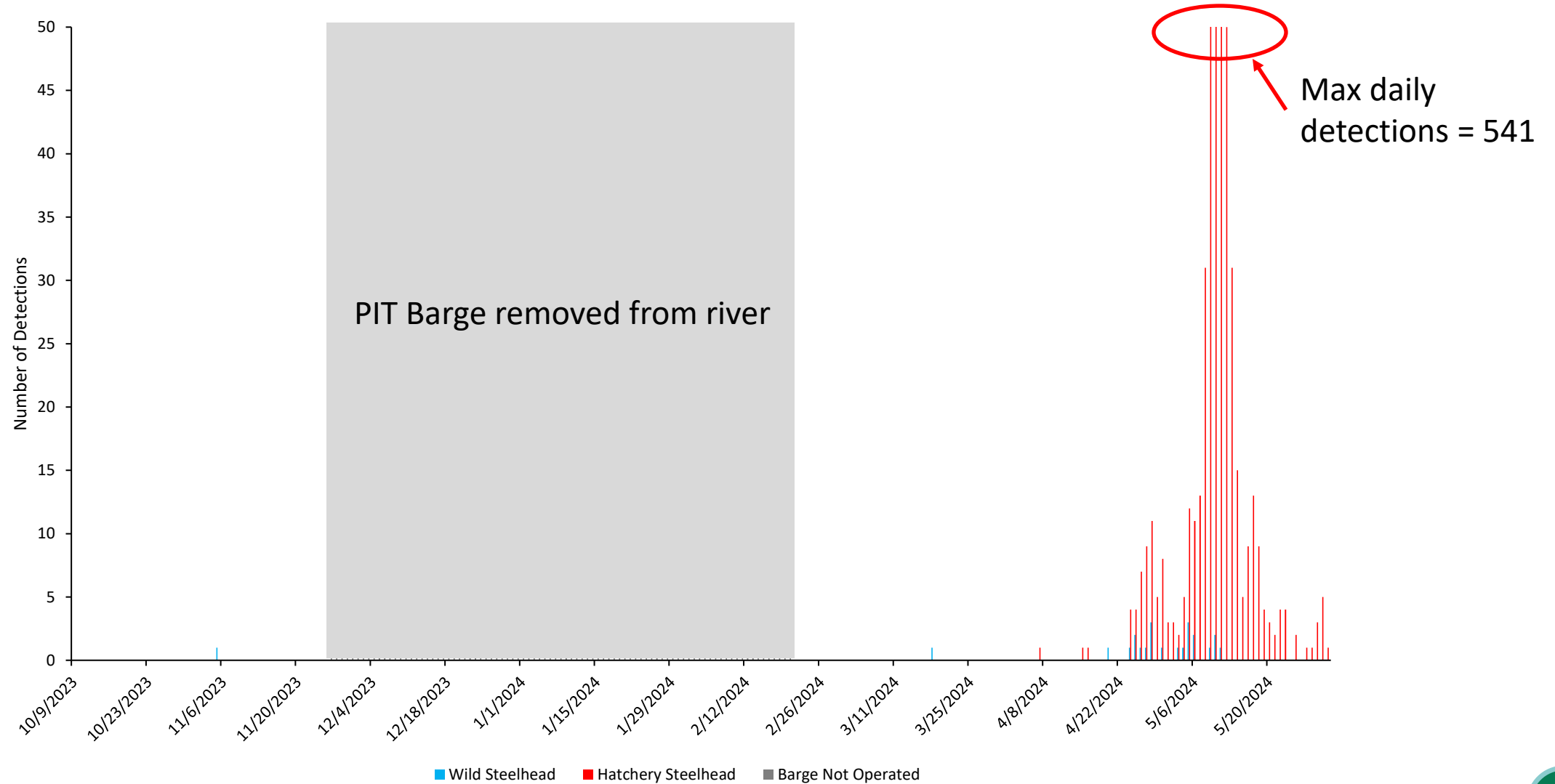
- Equipment failure
- Location accessibility
- Winter surface ice



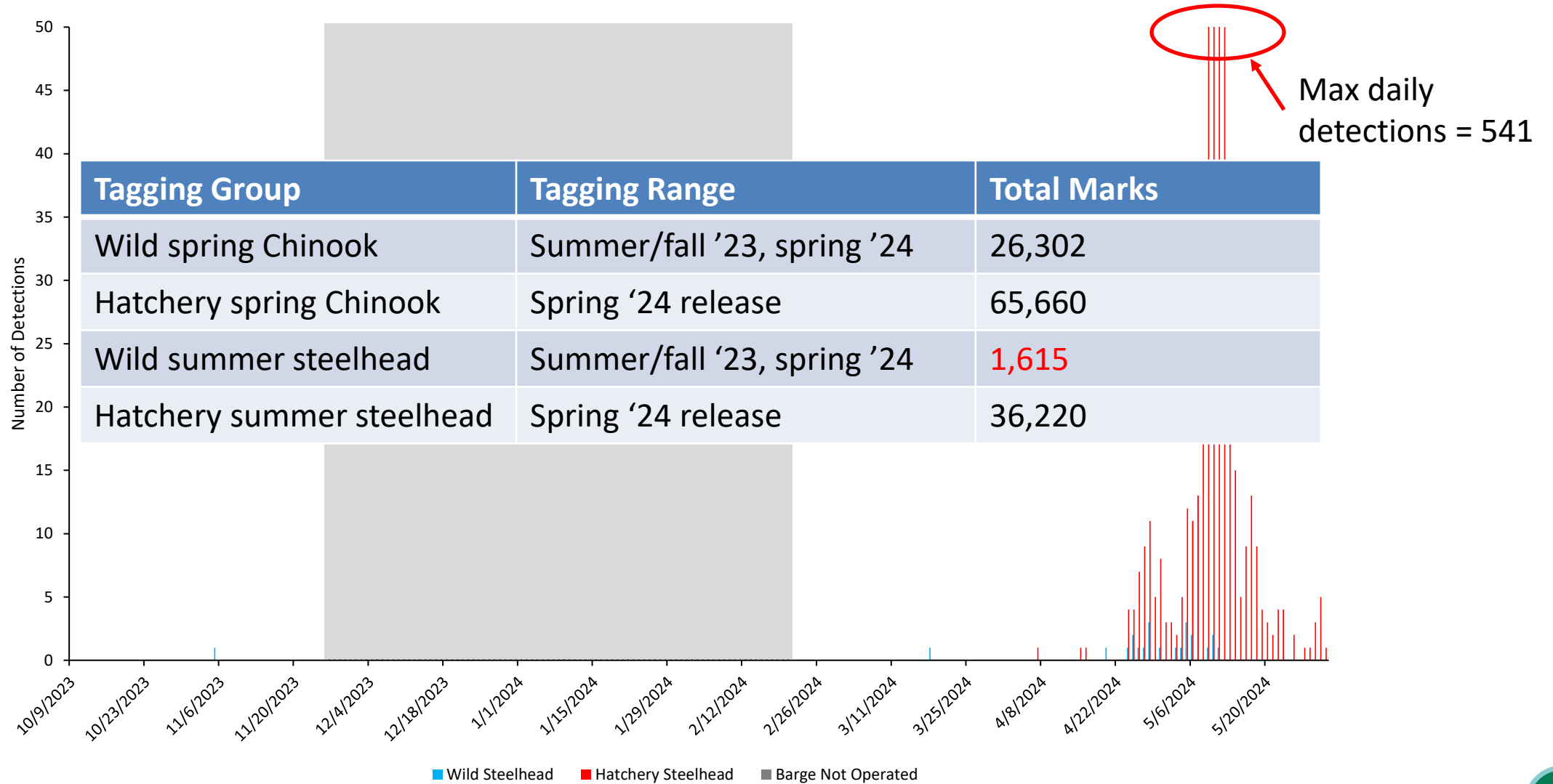
# Fall '23 – Spring '24 PIT Tag Detections



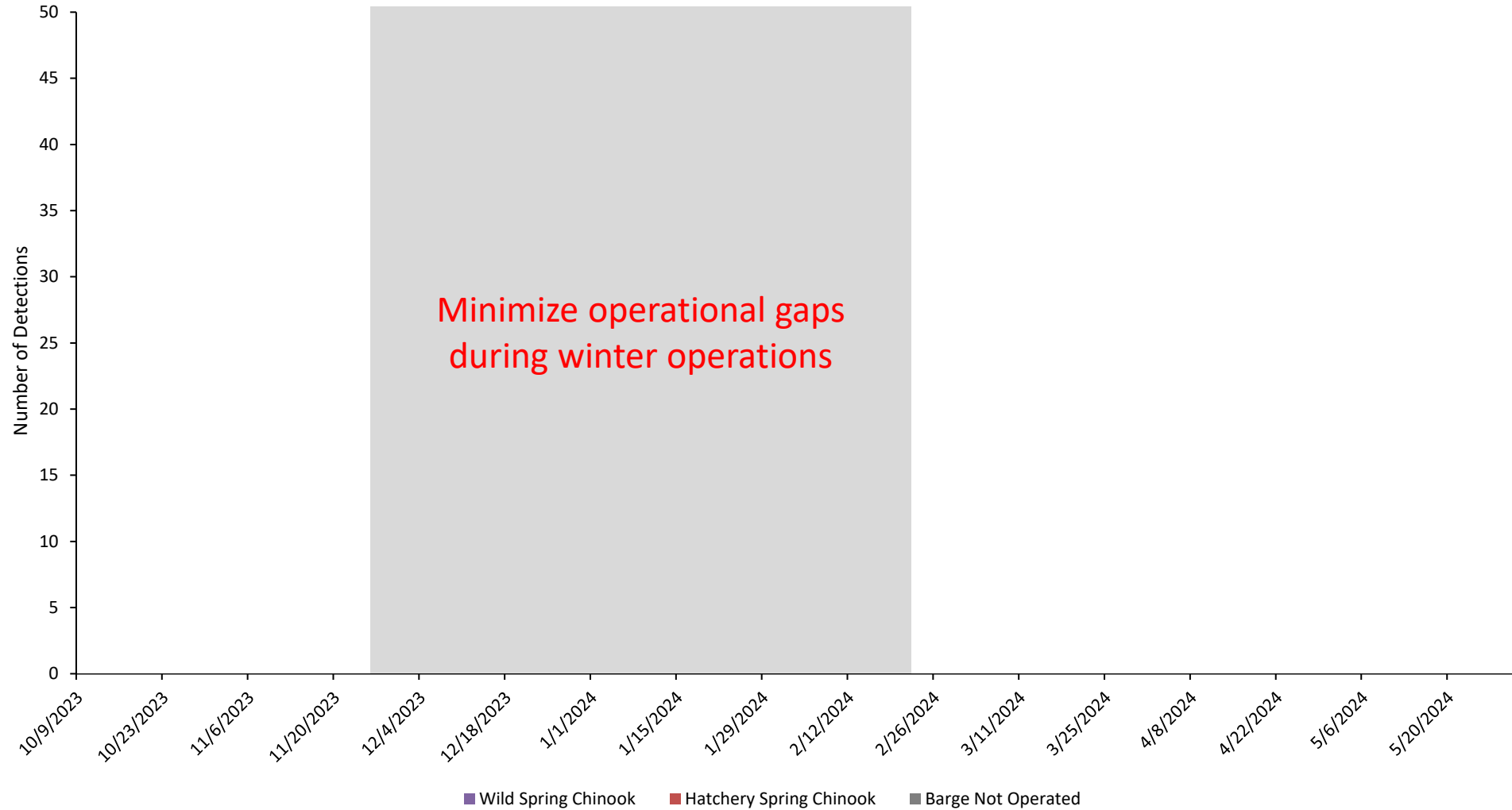
# Fall '23 – Spring '24 PIT Tag Detections



# Fall '23 – Spring '24 PIT Tag Detections



# Current Operational Goals



# Temporary Mooring Location

- Temporary relocation during presence of surface ice in the Wenatchee.
- Temporary relocation as needed during bridge construction.
  - Mid July through mid September work window.

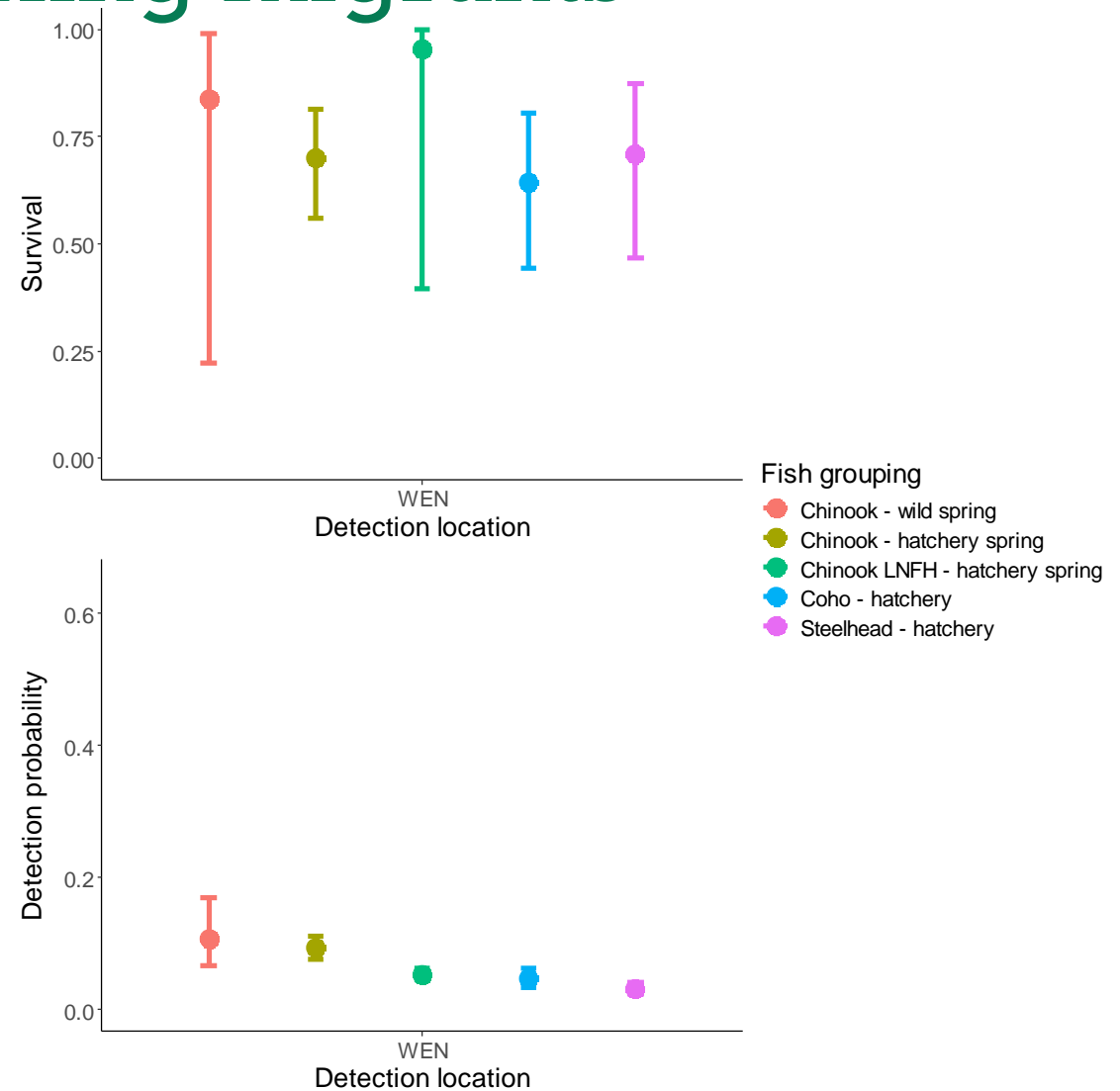
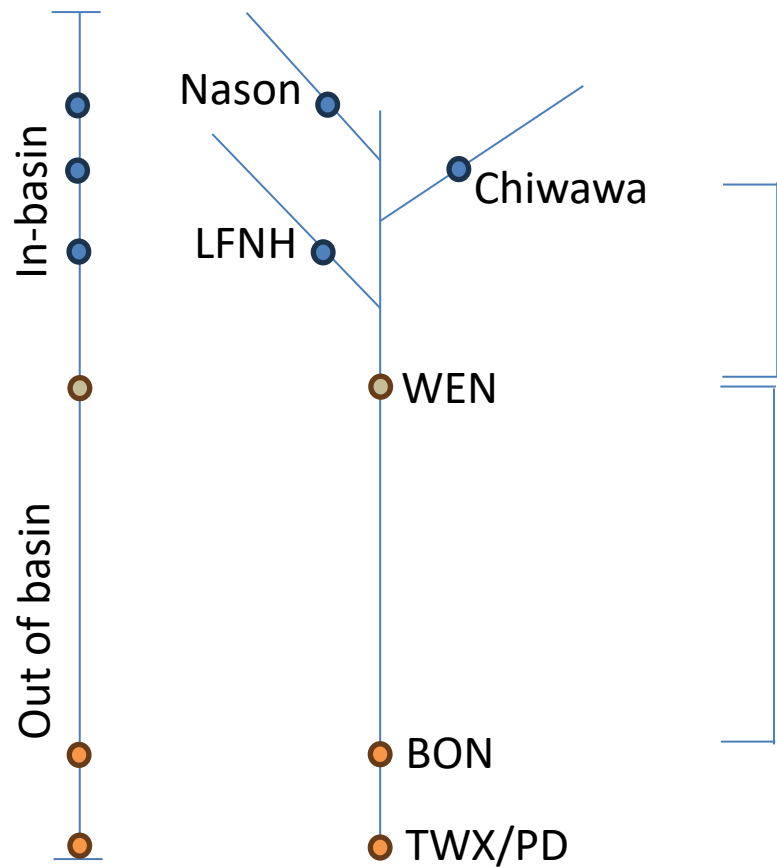


# Wenatchee PIT Barge Project Goals

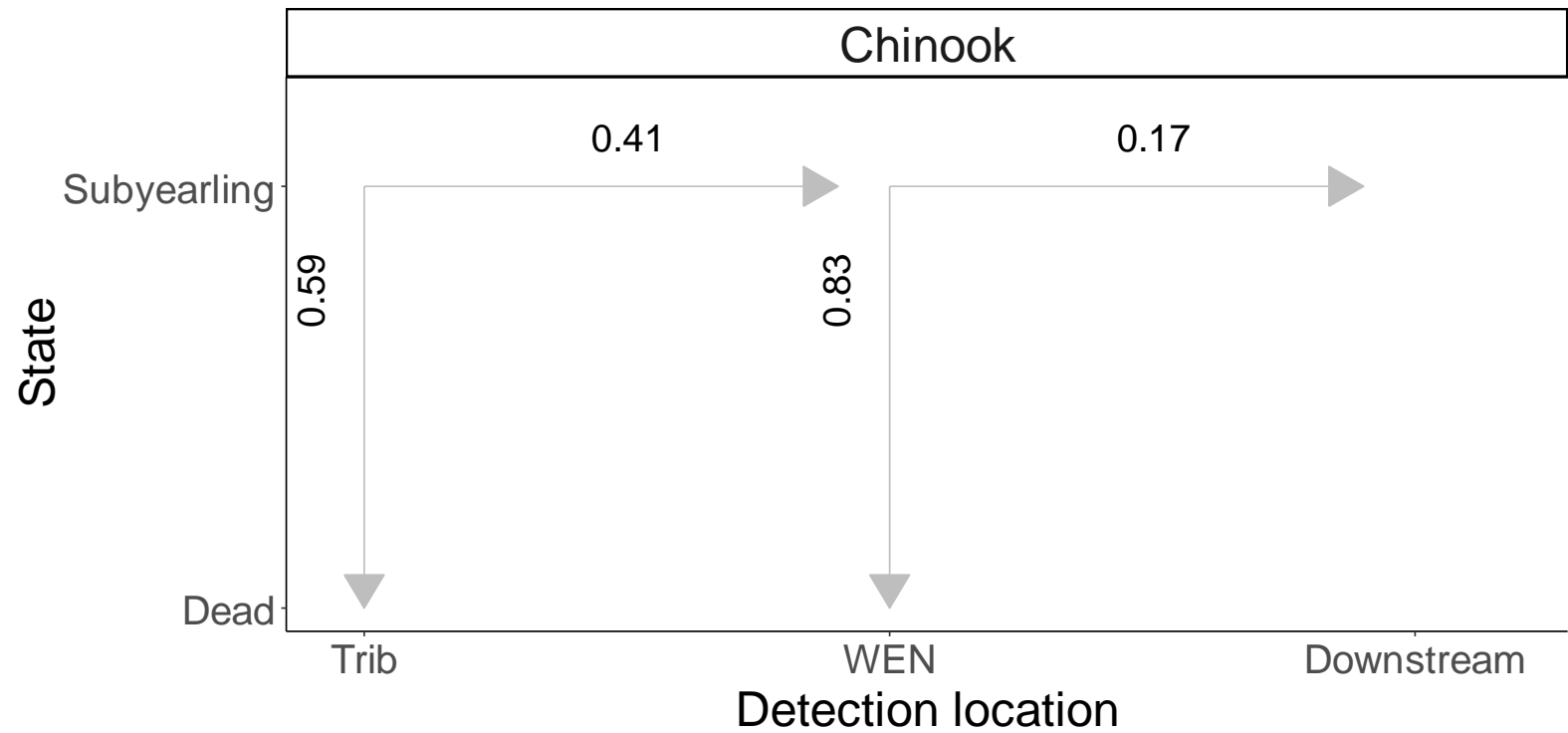
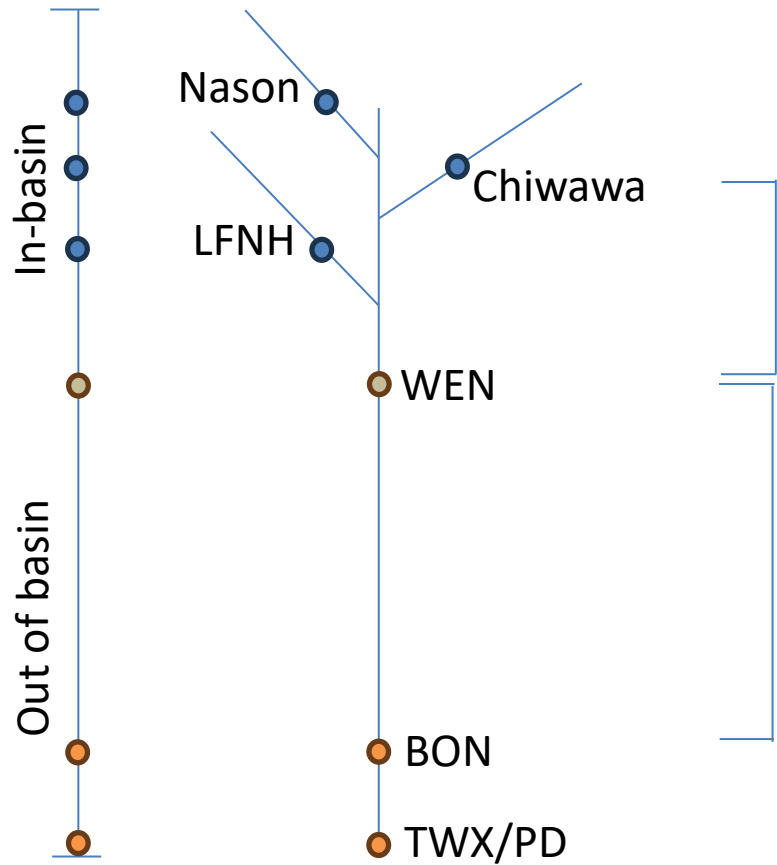
1. Better understanding of juvenile outmigration timing and strategies from the Wenatchee River basin.
  - a) Previously limited by poor juvenile detection efficiency at stream-width PIT tag arrays and limitations in juvenile trapping.
2. Better estimate juvenile survival.
  - a) Decouple Wenatchee River from Columbia River survival estimates.
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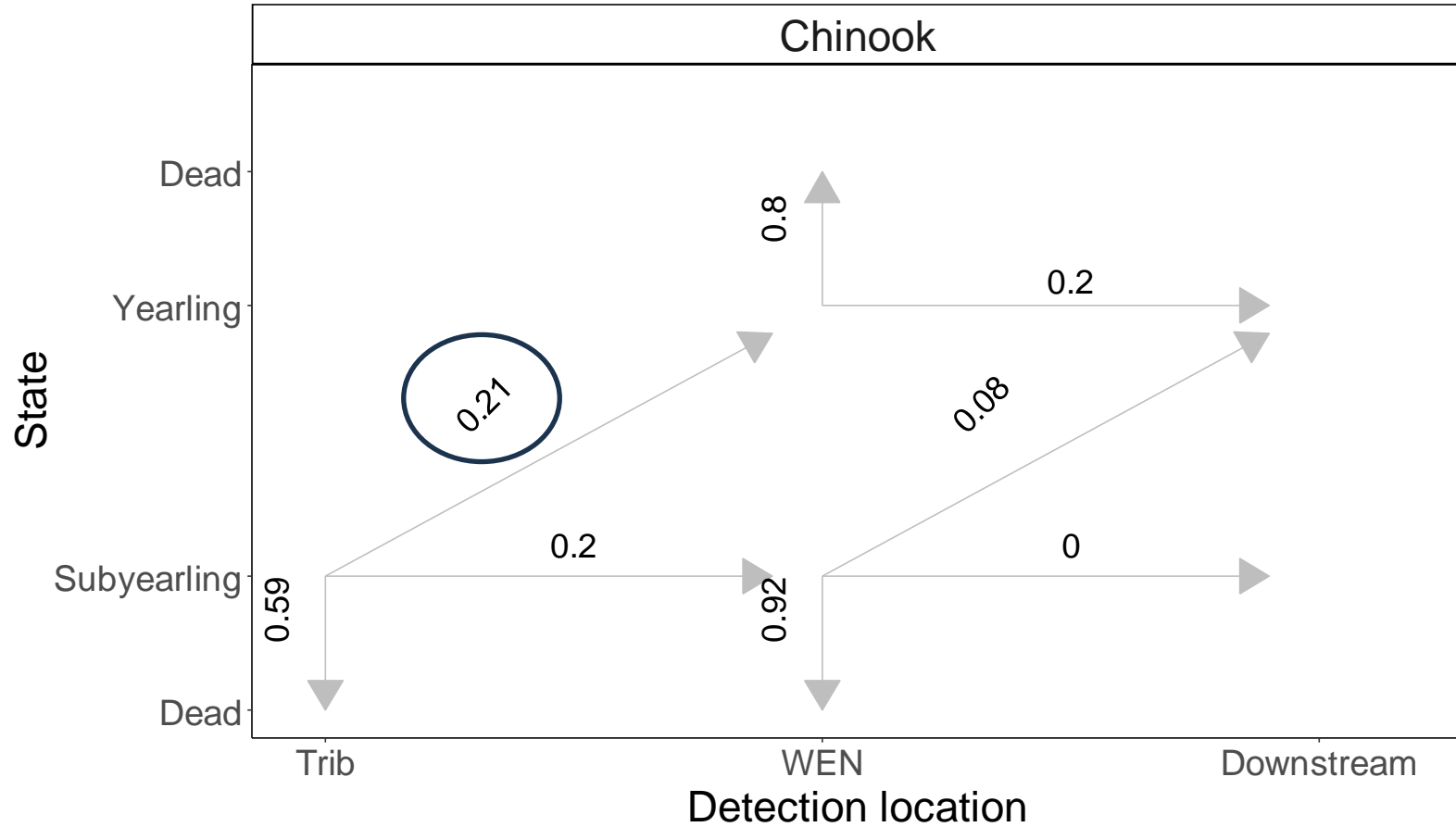
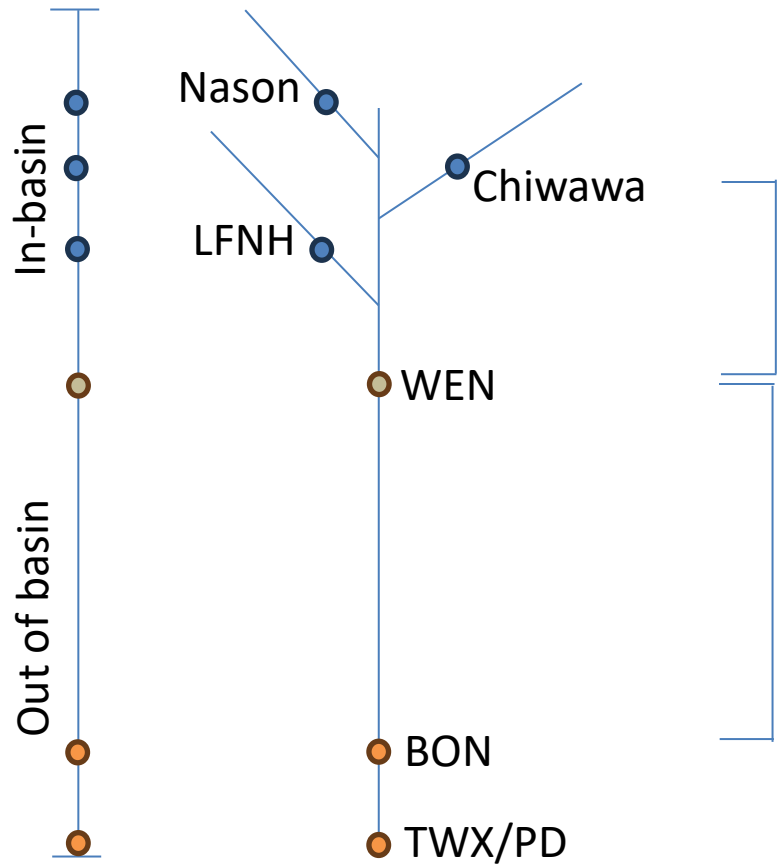
# Separating in-basin and out-of-basin effects for hatchery and wild yearling migrants



# Estimating wild subyearling spring Chinook over-winter survival with traditional CJS



# Estimating wild subyearling spring Chinook over-winter survival with multistate modeling



# Conclusions

Despite a rough start...

- PIT barge operations have been sufficient to document basin specific diverse juvenile outmigration strategies and estimate survival for both overwinter rearing and actively migrating fish.
- Future barge operations will improve upon survival estimation by reducing winter data gaps.



**MEMORANDUM**

**November 18, 2024**

**To:** Priest Rapids Coordinating Committee Members

**From:** Tom Dresser, Grant PUD *Tom Dresser*

**Subject:** 2024 Expanded Wanapum Fish Mode Operations

**Purpose:** Provide an update to Priest Rapids Coordinating Committee on 2024 expanded Wanapum Fish Mode Operations per Statement of Agreement 2022-03 (SOA 2022-03).

**Discussion:** The summary below covers Wanapum fish mode operations for 2024 and is a continuation of evaluating the change to the Wanapum Fish Mode lower operating range from 11.8-10.0 kcfs, which was first implemented in 2023. Actual unit starts and stops were counted from generating unit breaker state changes for each year (2023 & 2024).

To determine how the change in the lower operating range (10.0 kcfs) differed from the prior operating range of 11.8 kcfs in the number of turbine unit starts and stops, a unit dispatching model was run using the actual generation at Wanapum Dam to model an operating range at 11.8 kcfs and 10.0 kcfs.

The *10.0 Actual* and *10.0 Modeled* counts were then compared for each respective year to provide an 'actual to model' comparison to evaluate the accuracy of the model. The *10.0 Modeled* and *11.8 Modeled* counts were then used to directly compare the effect of the change to the lower range (i.e., and apples to apples comparison).

Based on the developed model, the number of Wanapum Unit starts and stops were reduced by 41% during 2024.

**Table 1. Unit start/stop counts at Wanapum Dan in 2023 and 2024.**

Fish Mode Lower Range (kcfs) and method	2023	2024
10.0 Actual	992	1108
10.0 Modeled	1079	1201
11.8 Modeled	1815	2051
% Difference 11.8 to 10.0 ((10.0 modeled-11.8 modeled)/11.8 modeled))	-41%	-41%

**Background:** The Priest Rapids Coordinating Committee (PRCC) approved a change in the operational range of Fish Mode for the Wanapum Dam turbines from 11.8-15.7 kcfs to a new range of 10.0-15.7 kcfs on January 24, 2023 (SOA 2022-03). The PRCC agreed to this SOA with the understanding of the following provisions.

- The PRCC will be provided with information on the number of starts/stops documented for the Wanapum Turbine Units prior to December 31 of each year that this SOA is in effect or unless modified by the PRCC.
- This SOA will be terminated if the project-wide juvenile salmon and steelhead performance standard of 86.49% is not achieved on a species-by-species basis over the course of the 2025-2027 survival evaluations, unless there is compelling evidence that factors other than Wanapum Dam turbine operations reduced juvenile salmon and steelhead survival through the Priest Rapids Project.
- If the project-wide juvenile salmon and steelhead performance standard of 86.49% is achieved on a species-by-species basis over the course of the 2025-2027 survival evaluations, this SOA would remain in effect until performance standard check-ins are repeated in 2035-2037 unless the survival performance of 86.49% is not achieved on a species-by-species basis.

Based on 2022 Wanapum Dam operations, this additional operational flexibility was anticipated to potentially reduce the frequency of turbine unit startups and shutdowns by an estimated 53%. In addition, the reduction of starts and stops could reduce migrating juvenile salmon and steelhead exposure to cavitation events. It is recognized that a biological benefit would be extremely hard to quantify, however it is general knowledge that exposure to cavitation events may cause harm to juvenile salmon and steelhead.

MEMORANDUM

November 19, 2024

**To:** Priest Rapids Coordinating Committee Members

**From:** Tom Dresser, Grant PUD *Tom Dresser*

**Subject:** No-Net-Impact Project - Avian Predation on Juvenile Steelhead

**Purpose:** Provide an update to Priest Rapids Coordinating Committee regarding work being completed by Real Time Research accessing avian predation on juvenile steelhead.

**Status Update (Preliminary Data):** A total of 3,800 UCR steelhead were sampled and available for predation and survival analyses in 2024, which includes 3,472 newly tagged smolts and 328 recaptured smolts (i.e., previously tagged). The number of steelhead smolts available for predation analyses in 2024 was well below the target sample size goal of approximately 7,000 fish. This was due to a record low number of steelhead smolts being collected at the RIS trap in 2024 ( $n = 3,884$ ) compared with the annual average of 13,050 smolts (range = 7,168 to 30,368) during 1997–2023 (DART 2024).

Of the tagged smolts from 2024, 3,038 and 762 were classified as hatchery and wild, respectively. Steelhead were tagged and released from 12 April to 13 June, a period which accounted for >99% of all steelhead encountered in the trap in 2024. Mean fork length was 197 mm (standard deviation [SD] = 25 mm; range = 90–303 mm).

An evaluation of external fish condition indicated that most steelhead were in good over-all external condition in 2024, with 5.4% of steelhead observed with disease (bacterial, fungal, or viral infections), severe body injuries (subcutaneous wounds/scars), severe descaling (>20% of scales missing), and/or major fin damage (>50% of fin tissue missing). For comparison, on average, 9.7% of steelhead tagged at RIS in previous years were classified as being in compromised conditions (Evans et al. 2014, Evans et al. 2024). The most common type of anomaly in 2024 was descaling, followed by body injuries. “

The number of 2024 migration year pit-tagged steelhead smolts released at Rock Island Dam and subsequently detected on bird colonies located throughout the Columbia River Basin as part of the PRCC funded Avian Predation Project is illustrated in Table 1. Table 2 includes information illustrating the number of 2024 Migration Year PIT-tagged smolts detected on bird colonies in the Columbia River Basin as part of the BPA & PRCC funded Avian Predation Project.

RTR continues to have a raft Annual Report to the PRCC on January 31, 2025.

**Table 1. Numbers of 2024 Migration Year (MY) PIT-tagged steelhead smolts released at Rock Island Dam and subsequently detected on bird colonies located throughout the Columbia River Basin as part of the PRCC funded Avian Predation Project. Bird species include Caspian terns (CATE), double-crested cormorants (DCCO), Brandt's cormorants (BRAC), California and Ring-billed gulls (LAXX), American white pelicans (AWPE), Great Blue Herons (GBHE), Greg Egrets (GREG), and mixed species colonies/loafing sites. The number of tags recovered does not account for on-colony PIT tag deposition or detection probabilities and thus represents the minimum number of tagged fish consumed by birds at each colony. Numbers should be considered preliminary until finalized as part of the 2024 Avian Predation Annual Report.**

Location	River Reach	Bird Colony	Rock Island Tagged Steelhead	
			Hatchery	Wild
East Sand Island <sup>1</sup>	Estuary	DCCO	<i>In-prep</i>	
		DCCO (Loafing)		
		CATE (main)		
		CATE (Sat)		
		LAXX		
Lois Island	Estuary	GBHE/GREG	NA	NA
Pier 1	Estuary	Mix (loafing)	0	0
Pier 3	Estuary	CATE (loafing)	0	0
Tongue Point Pier 5	Estuary	Mix (loafing)	0	0
Astoria Megler Bridge <sup>2</sup>	Estuary	DCCO (North Crib)	1	0
		DCCO (North Fender)	0	0
		BRAC	0	0
		DCCO & BRAC (mix)	0	0
		Mix (loafing)	0	0
Rice Island	Estuary	CATE	NA	NA
		LAXX	0	0
		Mix	0	0
		Mix (loafing)	NA	NA
Channel Markers	Estuary	DCCO	0	1
Miller Sands	Estuary	AWPE	NA	NA
		Mix (loafing)	NA	NA
Port of Longview	Estuary	GBHE	0	0
Lewis and Clark Bridge <sup>2</sup>	Estuary	DCCO	0	0
Port of Woodland	Estuary	GBHE/GREG	NA	NA
Troutdale Towers	Estuary	DCCO	11	1
		Mix (loafing)	NA	NA
Murdock Towers	Bonneville Res.	DCCO	4	0
		Mix (loafing)	1	0
Miller Rocks	The Dalles Res.	LAXX	13	5
		LAXX (loafing)	1	0
Straight Six	John Day Res.	LAXX	NC	NC
Anvil Island	John Day Res.	LAXX	8	2

		Mix (loafing)	1	0
Blalocks	John Day Res.	CATE	NC	NC
		Mix (loafing)	0	0
Rock Island	John Day Res.	Mix (loafing)	1	1
Crescent	McNary Res.	LAXX	9	1
		CATE	8	3
		DCCO	4	0
		AWPE	0	0
Burbank Slough	McNary Res.	CATE	0	0
Badger Island	McNary Res.	LAXX	0	0
		AWPE	NA	NA
		CATE	NC	NC
		AWPE & LAXX	8	0
		Mix (loafing)	0	0
Foundation Island	McNary Res.	DCCO	NC	NC
		Mix (loafing)	0	0
Island 20	Hanford Reach	LAXX	43	1
		DCCO/GBHE	0	0
		GREG	0	0
		Mix (loafing)	0	0
Hanford Reach-Island A	Hanford Reach	DCCO	0	1
		Mix (loafing)	1	0
Hanford Reach-Island 5	Hanford Reach	Mix (loafing)	0	0
Okanogan		DCCO	0	0
Goose Island	Off-river (Potholes Res)	CATE	10	3
		CATE (loafing)	0	0
		LAXX <sup>2</sup>	NA	NA
		DCCO	0	1
North Potholes	Off-river (Potholes Res)	CATE	27	3
Lenore Lake	Off-river (Lenore Lake)	CATE, LAXX	23	4
		DCCO	NA	NA
Banks Lake	Harper	CATE	0	0
Sprague Lake	Harper	DCCO	0	0
<b>ALL</b>			<b>174</b>	<b>27</b>

**Table 2. Numbers of 2024 Migration Year PIT-tagged smolts detected on bird colonies in the Columbia River Basin as part of the BPA & PRCC funded Avian Predation Project. Avian predator acronyms are listed above. All data should be considered preliminary.**

Location	River Reach	Bird Colony	2024 Migration Year (MY) Smolt Tags				2024 Other		2024 MY ALL	2023 MY ALL
			Chinook	Coho	Steelhead	Sockeye	Other	Orphan		
East Sand Island <sup>1</sup>	Estuary	DCCO							50	
		DCCO (Loafing)							NA	
		CATE (main)		<i>In-prep</i>			<i>In-prep</i>		<i>In-prep</i>	3,221
		CATE (Sat)							NA	
		LAXX							NA	
Lois Island	Estuary	GBHE/GREG	NA	NA	NA	NA	NA	NA	10	
Pier 1	Estuary	Mix (loafing)	1	0	1	0	0	0	2	
Pier 3	Estuary	CATE (loafing)	3	0	14	0	0	0	17	
Tongue Point Pier 5	Estuary	Mix (loafing)	19	2	58	0	0	4	83	
Astoria Megler Bridge <sup>2</sup>	Estuary	DCCO (North Crib)	760	77	489	30	5	17	1,378	1,945
		DCCO (North Fender)	485	59	343	10	2	10	909	1,105
		BRAC	54	2	18	4	0	3	81	120
		DCCO & BRAC (mix)	171	10	98	1	0	5	285	310
		Mix (loafing)	867	81	437	28	2	18	1,433	733
Rice Island	Estuary	CATE	NA	NA	NA	NA	NA	NA	NA	1,224
		LAXX	24	0	9	0	0	1	34	NA
		Mix	30	1	43	1	1	2	78	NA
		Mix (loafing)	NA	NA	NA	NA	NA	NA	NA	NA
Channel Markers	Estuary	DCCO	97	11	52	3	0	4	167	458
		AWPE	NA	NA	NA	NA	NA	NA	NA	75
Miller Sands	Estuary	Mix (loafing)	NA	NA	NA	NA	NA	NA	7	
Port of Longview	Estuary	GBHE	11	2	9	1	1	6	30	51
Lewis and Clark Bridge	Estuary	DCCO	98	8	85	4	3	9	207	NA
Port of Woodland	Estuary	GBHE/GREG	NA	NA	NA	NA	NA	NA	NA	8
Troutdale Towers	Estuary	DCCO	1,476	148	1,279	101	4	64	3,072	1,781
		Mix (loafing)	NA	NA	NA	NA	NA	NA	NA	6
Murdock Towers	Bonneville Res.	DCCO	318	66	113	39	1	6	543	NA
		Mix (loafing)	159	18	64	16	0	0	257	NA
Miller Rocks	The Dalles Res.	LAXX	785	202	1,039	140	0	87	2,253	2,514
		LAXX (loafing)	4	4	12	3	0	2	25	79
Straight Six	John Day Res.	LAXX	NC	NC	NC	NC	NC	NC	NC	NC
		LAXX	136	21	541	42	0	15	755	988
Anvil Island	John Day Res.	Mix (loafing)	8	1	30	3	0	4	46	99
		CATE	NC	NC	NC	NC	NC	NC	NC	NC
Blalocks	John Day Res.	Mix (loafing)	25	1	14	0	0	53	93	41
		Mix (loafing)	28	3	17	2	0	23	73	79
Rock Island	John Day Res.	LAXX	367	56	794	139	0	28	1,384	585
		CATE	299	26	533	29	0	22	909	846
		DCCO	1,971	129	1,142	420	1	20	3,683	1,215
		AWPE	5	0	15	4	0	0	24	NC
		CATE	58	2	109	13	0	0	182	99
Burbank Slough	McNary Res.	LAXX	35	11	106	4	0	13	169	455
		AWPE	NA	NA	NA	NA	NA	NA	NA	291
Badger Island	McNary Res.	CATE	NC	NC	NC	NC	NC	NC	NC	2,185
		AWPE & LAXX	3,875	578	1,923	132	1	438	6,947	8,456
		Mix (loafing)	66	19	67	1	0	6	159	986
		DCCO	NC	NC	NC	NC	NC	NC	NC	1,187
		Mix (loafing)	12	2	11	1	0	4	30	482
Foundation Island	McNary Res.	LAXX	476	125	1,256	64	0	69	1,990	763
		DCCO/GBHE	204	86	18	5	0	1	314	NC
		GREG	225	203	23	2	0	8	461	NA
		Mix (loafing)	3	0	5	0	0	1	9	33
Hanford Reach-Island A	Hanford Reach	DCCO	166	10	25	2	0	4	207	303
		Mix (loafing)	43	1	4	0	0	1	49	91
Hanford Reach-Island 5	Hanford Reach	Mix (loafing)	12	0	8	0	0	2	22	NA
		DCCO	109	116	291	3	0	172	691	506
Okanogan	Off-river (Potholes Res)	CATE	19	12	90	1	0	12	134	111
		CATE (loafing)	8	1	0	0	0	0	9	19
		LAXX <sup>2</sup>	NA	NA	NA	NA	NA	NA	NA	NA
		DCCO	16	0	5	0	0	1	22	NA
North Potholes	Off-river (Potholes Res)	CATE	93	8	500	5	0	14	620	NC
		CATE	47	8	263	3	0	19	340	257
Lenore Lake	Off-river (Lenore Lake)	DCCO	NA	NA	NA	NA	NA	NA	NA	NA
		CATE	8	0	21	0	0	1	30	NC
Banks Lake	Harper	DCCO	36	2	4	2	0	44	NA	
Sprague Lake	Harper	DCCO	36	2	4	2	0	44	NA	
<b>ALL</b>			<b>13,712</b>	<b>2,112</b>	<b>11,978</b>	<b>1,258</b>	<b>21</b>	<b>1,169</b>	<b>30,250</b>	<b>34,105</b>

Discussion Draft: 11/18/24 (Approved 11/18/24)

**Coordinating Committee Meeting schedule for 2025**

Date	PRCC meeting location	HCP meeting location	PRCC meeting time	HCP meeting time
January 28, 2025	Virtual	Virtual	AM	PM
February 25, 2025	Virtual	Virtual	AM	PM
March 25, 2025	CTC (CPUD host)	CTC (CPUD host)	AM	PM
April 22, 2025	CTC (CPUD host)	CTC (CPUD host)	AM	PM
May 27, 2025	CTC (CPUD host)	CTC (CPUD host)	AM	PM
June 24, 2025	CTC (CPUD host)	CTC (CPUD host)	AM	PM
July 22, 2025	Wanapum HOB 107	Wanapum HOB 107	PM	AM
August 26, 2024	Wanapum HOB 107	Wanapum HOB 107	PM	AM
September 23, 2025	Wanapum HOB 107	Wanapum HOB 107	PM	AM
October 28, 2025	Wanapum HOB 107	Wanapum HOB 107	PM	AM
November 25, 2025	Virtual	Virtual	PM	AM
December 23, 2025	Virtual	Virtual	PM	AM

Subyearling Joint Session 2 (tbd)

Thanksgiving Nov 27

Christmas Dec 25

CTC = Confluence Technology Center (285 Technology Center Way #102, Wenatchee WA 98801)

HOB = Hydro Office Building (14352 WA-243 S, Beverly WA 99321)

AM = 9:00 a.m. to 12:00 p.m.

PM = 1:00 p.m. to 4:00 p.m.