Cowlitz Fish Technical Committee **2025-04**
Decision Document

Project Name	Mayfield Net Pen Coho Pilot Project
Date Proposal Submitted	May 6, 2025
Date of Requested Decision	June 3, 2025
Requested By	Eric Shoblom
Date of Decision[1]	June 3, 2025

[1] Decision will become final if committee members who were not present at this meeting do not oppose this proposed decision within 7 days.

FTC Decision and Justification

The FTC adopts the decision to implement Phase 2 of the Mayfield Net Pen Coho Pilot Project.

FTC representatives present: Melora Shelton (Tacoma), Bryce Glaser (WDFW), Andrew Luymes (ECY), and Jonathan Stumpf (TU).

Proposed Decision for Consideration

Based on the evaluation described in the Mayfield Net Pen Coho Pilot Project Plan (see attached, pg. 3) and the results to date, the FTC is recommending implementing Phase 2 of the Mayfield net pen, coho rearing plan. Assuming that phase 2 proceeds according to the original guiding document, this will include improved methods of estimated survival, for example, mark/recapture.

Background

The purpose of the Mayfield Net Pen Coho Pilot program is to identify the feasibility of shifting a portion of hatchery Coho production from the Cowlitz Salmon Hatchery (CSH) to the Mayfield Net Pens to create space within the hatchery for additional spring Chinook rearing capacity.

During the 2020 FHMP update and through the subsequent APR process the spring Chinook program was evaluated for options to increase adult returns. Adjustments to the size of release groups were agreed upon that created the need to shift Coho bio-programming.

In the 2022 Annual Program Review (APR) process, the FTC decided (DD 2022-04) to increase the poundage of spring Chinook. This required reallocating one pond of Coho production to the Mayfield net pens to create additional rearing space for spring Chinook. The proposal was to purchase nets, establish the project, and evaluate the approach for one year only. After the first year, new funding would be required to continue the program as the shift in production would exceed Tacoma's obligation above the 650k pound cap.

In a subsequent FTC meeting in 2023, Tacoma committed to funding a two-year phased pilot project with a smaller population of approximately 100k in the first year. If proven successful, a full-scale pilot project (250k, or one raceway of Coho) would be initiated the following year.

Once the two-year project is completed, the project will need to find outside funding to continue. The APR meeting provided several options if funding wasn't identified, including, but not limited to, discontinuing 250k Coho from the program. However, a preferred course of action in the absence of funding was not established, leaving room for future decisions. Additionally, discussions of transitioning this program into a Tacoma funded, Satellite Rearing Program occurred, although no decisions were reached.

The first phase (Phase 1 / pre-pilot) involved approximately 100K BY 2023 Coho. These fish were transferred to the Mayfield Net Pens in late 2024 and were released on April 28, 2025.To inform the decision on program continuation for the next year, a comparison was done between in-net pen and in-hatchery survival performance during this phase. Survival in the net pens was equal to or greater than the five-year average of in-hatchery survival. Therefore, the project was deemed successful and should move to the next phase. Phase 2 will involve approximately 250K BY 2024 Coho that will be transferred to the Mayfield Net Pens in late 2025 and released in 2026.

Coordination Need

Tacoma and WDFW will collaborate on the budget and logistics necessary to implement Phase 2 of the project and provide regular updates to the FTC.

The FTC directs the Cowlitz FTC M&E and HOM subgroups to convene to discuss and develop a summary document that includes a tertiary population estimate for the evaluation phase of Phase 2 by October 2025.

Summary of Potential Changes

Implement and evaluate Phase 2 of the Mayfield Net Pen Coho Pilot Project. See plan for further details (attached).

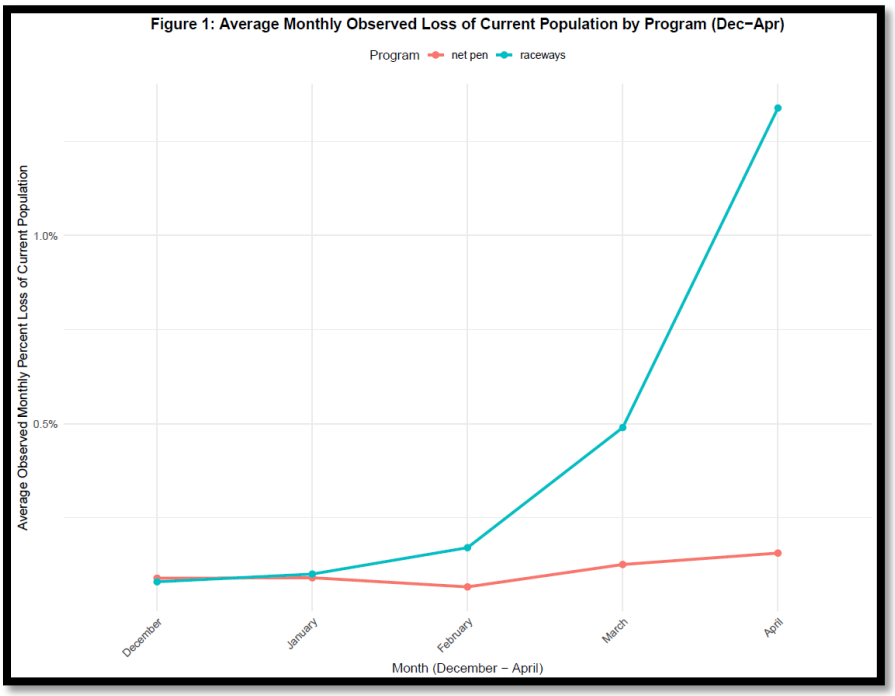
Mayfield Net Pen Phase One Evaluation

On May 16, 2025, the Hatchery Operations and Management (HOM) group convened to assess the performance of Phase One of the program. During the first year of operations, 15 fish were recovered at the Mayfield Trap, indicating a limited degree of escapement from the net pens. A subsequent investigation determined that the escapement resulted from a minor breach due to a retaining loop failure in one pen. Given the prompt response by staff, the low number of fish recovered, and the corresponding volumetric inventory data, program managers conclude that the escapement was minimal.

The HOM group recognizes that this incident, along with the potential for unobserved mortality, suggests that the overall mortality rate may be underestimated. However, the observed net pen mortality rate for the season was recorded at 0.52%, compared to an average in-hatchery mortality rate of 2.84% (See table 1 and figure 1 below). Based on the low mortality rate, the positive assessment from Fish Health Staff, and consistent volumetric evaluations, the HOM group recommends proceeding to Phase Two.

Table 1: Mean Observed Percent Loss by Program and Brood Year (Dec–Apr)

Brood Year	Program	Mean Percent Loss	Standard Deviation of Percent Loss
2023	net pen	0.52	0.31
2021	raceways	0.96	0.35
2022	raceways	1.99	0.49
2023	raceways	2.84	1.75



Development of the Mayfield Net Pen Coho Pilot Project

A Guiding Document Authored in Collaboration with Tacoma Power and the Washington State Department of Fish and Wildlife

Last updated: May 2024

Purpose:

The purpose of this program is to identify the feasibility of shifting a portion of hatchery coho production from the Cowlitz Salmon Hatchery (CSH) into the Mayfield Net Pens (net pens) to create space within the hatchery for additional Spring Chinook rearing capacity.

The objective of this document is to furnish explicit information regarding program intent, population sizes, performance evaluation, decision points, timelines, and operational details. These details were still pending determination during the creation of the 2023 Fisheries Technical Committee (FTC) Decision Document.

Background:

During the 2020 FHMP update and through the subsequent APR process the Spring Chinook program was evaluated for options to increase adult returns. Adjustments to the size of release groups were agreed upon that created the need to shift bio-programming of the Coho program.

In the 2022 Annual Program Review (APR) process, the FTC decided (DD 2022-04) to officially increase the poundage of Spring Chinook which required reallocating one pond of coho production to the Mayfield net pens to create additional rearing space for spring Chinook. The proposal was to purchase nets, establish the project and evaluate the approach for one year only. After the first-year, new funding would be required to continue the program as the shift in production would exceed Tacoma's 650k pound cap.

In a subsequent FTC meeting in 2023, Tacoma committed to funding a two-year phased pilot project with a small population of approximately 100k in the first year. If proven successful, a full-scale pilot project (250k, or one raceway of Coho) would be initiated the following year. Once the two-year project is completed, the project will need to find outside funding to continue. The APR meeting provided several options if funding wasn't identified, including, but not limited to, discontinuing 250k coho from the program. However, a preferred course of action in the absence of funding was not established, leaving room for future decisions. Additionally, discussions of transitioning this program into a Satellite Rearing Program occurred although no decisions were reached.

Phase 1

Program details:

Tacoma will fund all operations during phase one. WDFW will operate the net pens under mutually agreed to task orders. Further details will be captured as needed in a jointly developed summary sheet.

During this phase, managers will be comparing the rearing survival performance of Coho in net pens vs. the hatchery at two different densities within the net pens. In late November or early December of 2024, WDFW will transfer ~98,000 hatchery coho from the CSH to the net pens. The initial program will require 4 pens. Two pens will be programmed to a final density of 0.3 Lbs/Cuft, the other two pens will be programmed to a final density of 0.5 Lbs/Cuft. Both groups will have an additional 2% added to account for mortality that is typically seen in the hatchery.

Size at stocking of NP: ~35fpp (December)		**Size at release**: 15fpp (May1st)	
Starting Population:	2 pens at 18,400		
	2 pens at 30,600		
	98,000		
Ending Pop. w/ 2% mortality:	2 pens at 18,000	Density:	0.3 lbs/cuft
	2 pens at 30,000	Density:	0.5 lbs/cuft
	96,000		

WDFW staff will pump these fish into Tacoma transport trucks for release at the CSH Barrier Dam boat launch in early May 2025. Both the hatchery population and two net pen strategies will be monitored by WDFW in the same manner. Typical in-hatchery metrics will be tracked to include, picked mortality, growth rate, CV, and monthly Fish Health inspections (as determined by WDFW Fish Health Staff).

All fish will receive an adipose clip to identify them as hatchery origin. As a relatively small pilot project with varying densities, the primary intent of this project is to compare two net pen densities vs. hatchery survival performance during their respective juvenile rearing duration. Using standard hatchery practices, coded wire tags (CWTs) or other distinguishing marks are not required to evaluate "in-hatchery" rearing survival.

However, to support future SAR analysis, 50k CWTs comprised of two different tag codes will be used to differentiate the two net pen density strategies from the standard in-hatchery program to evaluate relative performance over time. These 50k tags will be a subset of the existing 200k CWTs that are available for the Coho program to achieve an index group in all three rearing strategies. This will result in a 150K CWT group in the Coho reared and released at CSH as part of the standard Coho

program, a 25K CWT group in the 0.3 Lbs/Cuft net pen group and a 25K CWT group in the 0.5 Lbs/Cuft net pen group.

Predator netting will be installed by TPU and WDFW staff and maintained by WDFW staff to minimize risk of both piscivorous and avian predation for each of the pilot programs. After release, WDFW staff will remove, clean, and store the net pens and predator netting.

Evaluation:

Once fish are moved to the net pens, WDFW will monitor operations and provide a weekly status report to Tacoma. These short updates will be summarized and shared with the FTC monthly by Tacoma in the "Facilities Update" to help inform real time evaluation of the program. The report will include at a minimum, mortality tracking, population growth rates, CV's, any fish health issues, predation, or other events of concern.

To inform the decision on program continuation for the next year, a comparison between in-pen survival and in-hatchery survival performance will occur. If survival in the net pens in either density group is equal to or greater than the five-year average of in-hatchery survival for that period than the project should move to the next phase utilizing the optimal density (if there is one). If both density groups perform identically Tacoma and WDFW will make a mutually agreed to recommendation for the subsequent year.

It will be important to retain as accurately as possible volumetric readings of the tanker trucks during both stocking and release to identify any loss from the net pens that could not be captured through routine mortality picking. The accuracy of volumetric measurements is not typically high, therefore data from this method must only be used if necessary.

Prior to transfer to the net pens, a tertiary estimate- likely a mark-recapture approach, will be developed by WDFW to give greater accuracy to the release estimates.

Tacoma owns and operates the Mayfield Juvenile Bypass System located immediately downstream of the net pen array. Tacoma staff will be on alert to provide immediate feedback should they begin to encounter ad-clipped coho in their collections.

If the net pen mortality is less than 5% for both density groups and fish health does not have concerns for the remaining fish (i.e., lingering disease or persistent environmental concerns) then the program will be cleared to continue to Phase 2. The adjustment to stocking of the net pen in Phase 2 could be made up to the 5% threshold as identified in table 1.0.

If mortality exceeds the 5% threshold it will be a policy call by the FTC on whether the loss of Coho production above this point is adequately compensated for with the increase in Spring Chinook production.

During evaluation, it's also essential to consider whether performance can be enhanced through infrastructure or management changes. For example, if growth is subpar but fish health and survival match or surpass those of the hatchery, it might be prudent to advance to the next phase, focusing on

improved feeds or alternative feeding approaches. Additionally, factors like natural events, vandalism, staff learning curves, and issues with fish food should be carefully assessed. If the Hatchery Operation Managers agree that adjustments can mitigate or significantly reduce the risk of recurrence, the program should proceed to the next phase.

Table 1.0				
		Additional		Females
Mortality	Fish	Fish	Lbs at 35fpp	Required
2%	**255,000**	**0**	**0**	**0**
3%	257,500	2,500	71	2
4%	260,000	5,000	143	3
5%	262,500	7,500	214	4
6%	265,000	10,000	286	6
7%	267,500	12,500	357	7
8%	270,000	15,000	429	8
9%	272,500	17,500	500	10
10%	275,000	20,000	571	11
11%	277,500	22,500	643	12
12%	280,000	25,000	714	14
13%	282,500	27,500	786	15
14%	285,000	30,000	857	16
15%	287,500	32,500	929	18
In-Hatchery survival from 35fpp to release is about 2%				

Note: Budget managers will need to assume the net pen program will continue into phase 2 prior to releasing and final evaluation of the fish from phase 1. WDFW and Tacoma task order budgets will need to account for the labor, tagging, and feed for Phase 2 in both the net pen program and the increased amount of spring chinook feed. Additional net pen purchases for Phase 2 will also need to occur prior to the release and final evaluation of Phase 1. Due to these early decision points, the net pen program will be evaluated monthly by the HOM team to look for fatal flaws that may indicate the need for an earlier FTC decision prior to final evaluation.

Review and Recommendation:

After the fish are released in May of 2025, a short memo and data summary will be jointly compiled by WDFW staff, Fish Health staff and Tacoma staff based on the evaluation above. The findings and resulting recommendation on program continuation will be presented to the FTC in the form of a Decision Document by June 3rd, 2025, to allow for budgeting and planning for the next phase.

Phase 2

Program details:

Tacoma will fund all operations during phase two. WDFW will operate the net pens under mutually agreed to task orders. Further details will be captured as needed in a jointly developed summary sheet.

If deemed appropriate to move forward, the phase 2 net pen loading strategy (i.e., preferred density) will be finalized based on the evaluation in phase 1 by the HOM team. The actual number of fish will be based on the survival witnessed in Phase 1 and fish will be distributed based on the selected density with any necessary adjustments made mutually by operation managers. Below is an example of the two scenarios utilizing a 5% buffer for mortality.

At **0.3** Lbs/Cuft:

In late November/early December of 2025, transfer 262,500 hatchery coho from the CSH to the net pens. This program will require 14 pens at 18,750 coho per pen. These fish would be pumped into transport trucks and released at the CSH Barrier Dam boat launch in May.

At **0.5** Lbs/Cuft:

In late November/early December of 2025, transfer 262,500 hatchery coho from the CSH to the net pens. This program will require 9 pens at 29,167 coho per pen. These fish would be pumped into transport trucks and released at the CSH Barrier Dam boat launch in May.

All fish will receive an adipose clip to identify them as hatchery origin and approximately 45k would receive CWTs based on WDFW's regional standard for Coho programs. The CWTs could be reprogrammed from the existing tag group or potentially funded in addition.

Evaluation:

Once fish are moved to the net pens, WDFW will monitor operations and provide a weekly status report to Tacoma. These short updates will be summarized and shared with the FTC monthly by Tacoma in the "Facilities Update" to help inform real time evaluation of the program. The report will include at a minimum, mortality tracking, population growth rates, CV's, any fish health issues, predation, or other events of concern.

The evaluation for phase two will follow the same format as phase one (excluding the density evaluation) with any mutually agreed to modifications.

Review and Recommendation:

After the fish are released in May of 2026, a short memo and data summary will be jointly compiled by WDFW staff, Fish Health staff and Tacoma staff. The findings and resulting recommendation on program continuation will be presented to the FTC in the form of a Decision Document by June 2nd, 2026, to allow for budgeting and planning for the final phase.

Phase 3

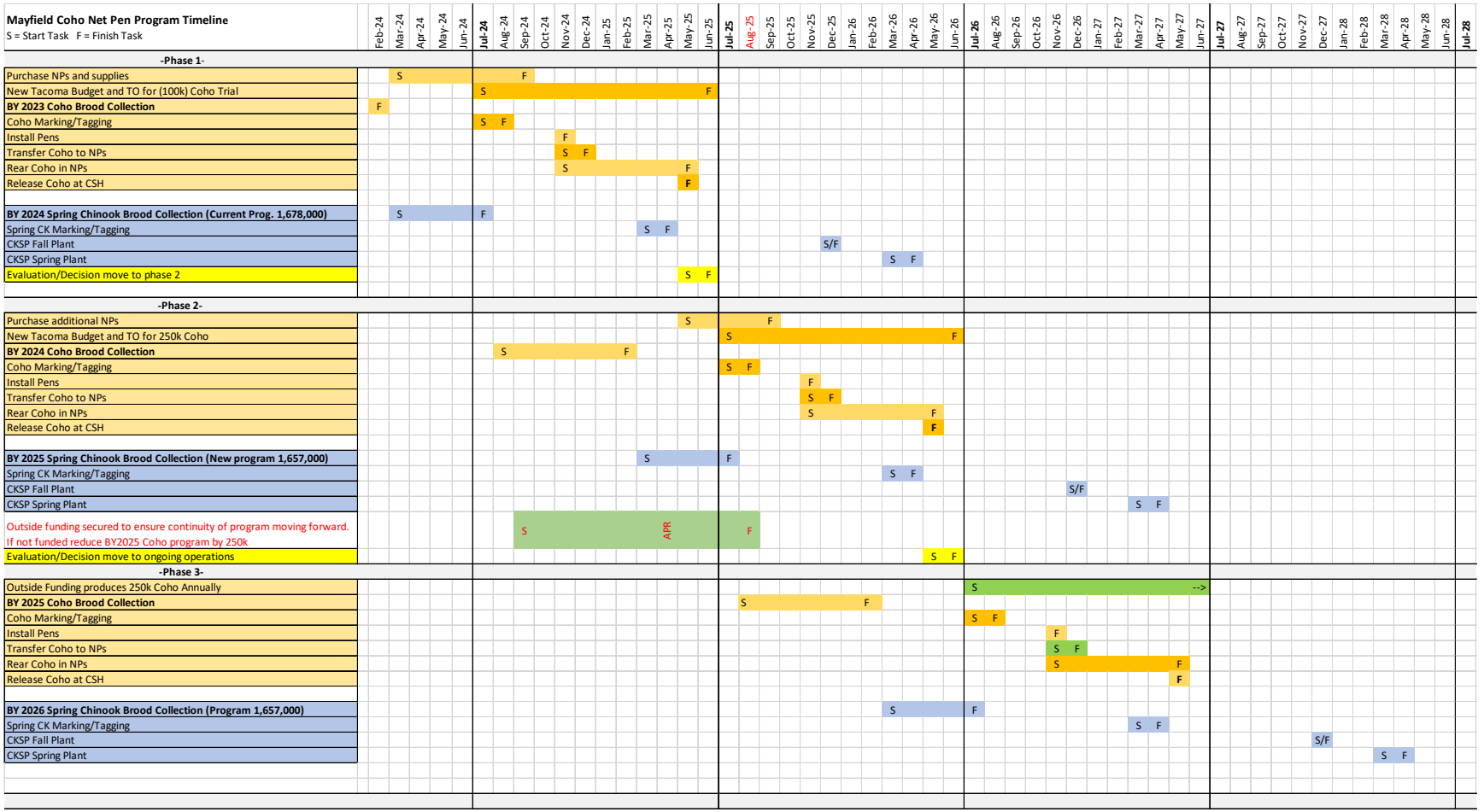
If the FTC considers phase 2 a success and outside funding has been identified, Coho production will occur in the Mayfield Net Pens and the additional pounds of Spring Chinook production will

continue, contingent on APR and FTC approval. If phase 2 is unsuccessful and or outside funding cannot be identified, the FTC will need to re-evaluate alternatives for distributing production within the 650K poundage cap. One alternative would be to reduce BY2025 Coho production to accommodate the increase in Spring Chinook poundage.

Decision Point Deadlines

- ***March 1, 2025*** *– Programmatic Change No Decision Needed* - Start Brood Collection on new CKSP BY2025 Program of 1.657M as described in previous APR.
- **April 1, 2025** - Decide on CWT group for Mayfield NP BY2024 Coho
    - Tagging occurs in July of 2025 and tags need to be ordered 90 days ahead of time to avoid additional fees.
- **May 23, 2025** – Complete phase 1 evaluation and recommendation of Coho Mayfield NP project. Send out ahead of the meeting for a DD and decision at June FTC Meeting.
- **June 3, 2025** – FTC to approve program moving to phase 2.
    - If not approved reduce BY2025 Coho.
- **August 15, 2025** – Outside funding needs to be secured to support ongoing production of 250k BY2025 Coho in the Mayfield NPs.
    - If there is no funding*, plan to sunset the program after phase 2 (May 2026) and reduce BY2025 Coho brood stock commensurately (to achieve 250k reduction).*
- **April 1, 2026** - Order CWT group for Mayfield NP BY2025 Coho (**Needs to be outside funded**)
    - Tagging occurs in July of 2026 and tags need to be ordered 90 days ahead of time to avoid additional fees.
- **May 21, 2026** – Complete phase 2 evaluation and recommendation of Coho Mayfield NP project. Send out ahead of the meeting for a DD and decision at June FTC Meeting.
- **June 2, 2026** – FTC to approve program moving to phase 3
    - If not approved reduce BY2025 Coho program to accommodate Spring Chinook Production.

Timeline


Mayfield Coho Net Pen Program Timeline
S = Start Task F = Finish Task
Feb-24 Mar-24 Apr-24 May-24 Jun-24 Jul-24 Aug-24 Sep-24 Oct-24 Nov-24 Dec-24 Jan-25 Feb-25 Mar-25 Apr-25 May-25 Jun-25 Jul-25 Aug-25 Sep-25 Oct-25 Nov-25 Dec-25 Jan-26 Feb-26 Mar-26 Apr-26 May-26 Jun-26 Jul-26 Aug-26 Sep-26 Oct-26 Nov-26 Dec-26 Jan-27 Feb-27 Mar-27 Apr-27 May-27 Jun-27 Jul-27 Aug-27 Sep-27 Oct-27 Nov-27 Dec-27 Jan-28 Feb-28 Mar-28 Apr-28 May-28 Jun-28 Jul-28
-Phase 1-
Purchase NPs and supplies
New Tacoma Budget and TO for (100k) Coho Trial
BY 2023 Coho Brood Collection
Coho Marking/Tagging
Install Pens
Transfer Coho to NPs
Rear Coho in NPs
Release Coho at CSH
BY 2024 Spring Chinook Brood Collection (Current Prog. 1,678,000)
Spring CK Marking/Tagging
CKSP Fall Plant
CKSP Spring Plant
Evaluation/Decision move to phase 2
-Phase 2-
Purchase additional NPs
New Tacoma Budget and TO for 250k Coho
BY 2024 Coho Brood Collection
Coho Marking/Tagging
Install Pens
Transfer Coho to NPs
Rear Coho in NPs
Release Coho at CSH
BY 2025 Spring Chinook Brood Collection (New program 1,657,000)
Spring CK Marking/Tagging
CKSP Fall Plant
CKSP Spring Plant
Outside funding secured to ensure continuity of program moving forward.
If not funded reduce BY2025 Coho program by 250k
APR
Evaluation/Decision move to ongoing operations
-Phase 3-
Outside Funding produces 250k Coho Annually
BY 2025 Coho Brood Collection
Coho Marking/Tagging
Install Pens
Transfer Coho to NPs
Rear Coho in NPs
Release Coho at CSH
BY 2026 Spring Chinook Brood Collection (Program 1,657,000)
Spring CK Marking/Tagging
CKSP Fall Plant
CKSP Spring Plant