



# AGENDA ITEM SUMMARY

## BACKGROUND

The number of naturally-produced adult fall Chinook salmon returning to the Coquille River basin has been severely depressed since 2018 (Figure 1) and the population is at high risk of extirpation. The Oregon Department of Fish and Wildlife (Department), in coordination with the Coquille Indian Tribe (CIT), proposes to initiate a Conservation Hatchery Program as an emergency measure to boost natural production and provide time to address the limiting factors.

Annual spawning escapements have been far below the critical abundance threshold (2,833) identified in the Coastal Multi-Species Conservation and Management Plan (CMP) every year from 2018 to present. From 2018 to 2021, the average spawning escapement was 500 fish per year (range 275 to 879), compared to an average of 10,600 fish from 1986 to 2017.

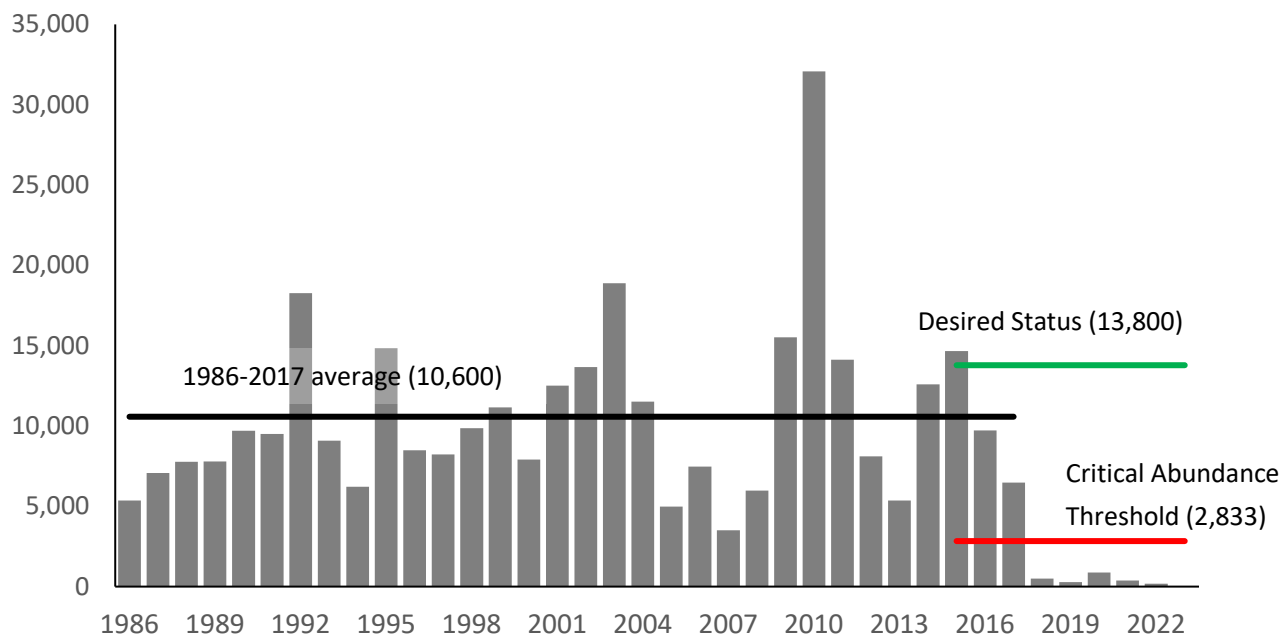


Figure 1. Annual spawning escapements in the Coquille fall Chinook population, 1986 to 2021 (and 2022 forecast). Horizontal lines are the 1986 to 2017 mean spawning escapement (black), CMP desired status (green), and CMP critical abundance threshold (red).

In 2020, the Department conducted a review and analysis of factors potentially contributing to the decline and continued depressed status of naturally-produced Coquille fall Chinook (see Appendix 1 in Attachment 2 “Coquille Fall Chinook Conservation Hatchery Program Operational Plan”). The assessment concluded that the likely primary factor explaining the recent decline was predation by non-native fish, particularly smallmouth bass, but including striped bass to a lesser degree. Poor ocean productivity during recent years was also a significant contributor, though as noted above, recent improvements in ocean conditions have not resulted in improved returns to the Coquille.

The analysis noted that freshwater productivity of the population is also hindered by high river temperatures, sediment load, lack of cover/shade, loss of off-channel transitory habitat for juveniles, low river flows in May/June, and high estuarine temperature. The analysis also indicated that at low population abundances in-basin harvest can be a limiting factor.

Based on these analyses, the Department, the CIT, and other collaborators have taken several actions to improve the survivorship and abundance of Coquille fall Chinook. However, actions to address the key limiting factors in freshwater will take many years to complete. Given the expectation for continued low runs, the Department and the CIT are recommending interim hatchery measures to ensure the genetic legacy of the population is preserved and that there are sufficient adults returning to avoid extirpation before other recovery actions can be completed.

The CMP rules (OAR 635-500-6775) require the approval of the Oregon Fish and Wildlife Commission to implement a new hatchery program.

## **PUBLIC INVOLVEMENT**

The draft conservation hatchery operational plan and invitation to comment was published on the Department’s website on July 14, 2022. A public virtual webinar was held on July 20, 2022. The public will also have the opportunity to provide input on the proposed conservation hatchery program through public testimony at the August 5, 2022 Oregon Fish and Wildlife Commission meeting in Salem.

## **ISSUE**

### **Initiation of a Coquille Fall Chinook Conservation Hatchery Program**

## **ANALYSIS**

The 2022 Coquille fall Chinook return is expected to be as poor as the last several years and will mark five straight years of highly depressed returns. Such extremely low abundances result in high risk of negative demographic consequences (e.g., adult densities so low that spawning success-per-adult is depressed) and genetic effects (e.g., bottlenecks) that may affect future population sustainability and could lead to extirpation. The implementation of a conservation hatchery program is a tool to avoid such particularly dire outcomes. Department staff, in partnership with the CIT, have developed the Coquille Fall Chinook Conservation Hatchery Program Operational Plan (CHP) (Attachment 2) and propose to begin broodstock collection in the fall 2022.

Hatchery programs are operated in accordance with ODFW’s Fish Hatchery Management Policy, which outlines the objectives for both harvest and conservation hatcheries. Harvest hatchery programs operate to enhance or maintain fisheries without impairing naturally-reproducing populations. Conservation hatchery programs operate to maintain or increase the number of naturally-produced fish without reducing the productivity of naturally-produced fish populations. In both cases, a variety of tactics may be employed to meet program objectives.

There are several forms of potential conservation hatchery programs and the proposed program for Coquille fall Chinook would be a *supplementation* conservation hatchery program (see OAR 635-007-0545(11)(a)). The Department already operates a number of supplementation conservation hatchery programs within the Columbia River basin due to the depressed status of many stocks and lack of habitat access. These include six spring Chinook, one fall Chinook, and

three summer steelhead programs. The proposed conservation hatchery program for Coquille fall Chinook marks the first time such a program has been necessary for an Oregon coastal population.

Consistent with guidance in the Native Fish Conservation Policy and the Fish Hatchery Management Policy, the Department and the CIT have established specific objectives and sideboards to guide the initial implementation and evaluation of the program. The program objectives are:

1. Prevent extirpation of naturally-produced fall Chinook in the Coquille River Basin while concurrently taking actions to address primary limiting factors for freshwater productivity.
2. Conserve the genetic diversity of naturally-produced fall Chinook in the Coquille Basin.
3. Increase the abundance of naturally-produced fall Chinook to a self-sustaining level, defined here as a level at which returns of unmarked fall Chinook spawners exceed the CMP critical abundance threshold of 2,833 fish for four consecutive years.

These objectives support the overarching goal of assuring that the Coquille fall Chinook population remains extant and its genetic resources remain viable. This goal will be achieved by using the conservation hatchery program to increase the abundance of naturally-produced spawners. The Department and the CIT will implement broodstock collection, utilize juvenile rearing and release strategies that mitigate limiting factors, and target program levels as described in the CHP.

The program is *not* a harvest augmentation program, though it will support rebuilding the population to a level in the future that could provide greater ecological and fisheries benefits than are currently being provided at this time, consistent with CMP desired status (ODFW 2014).

The program will be adaptively managed and multiple factors will influence the scale of production from the conservation hatchery program (within the range of production goals specified in Table 1), including:

- Hatchery capacity — rearing space, water availability, and rearing logistics by facility.
- Broodstock availability — adult return numbers and the ability to capture fish.
- Harvest augmentation program production level — given limited rearing capacity in the hatchery system, the size of the augmentation program affects how space is used at hatcheries.

Table 1. Estimated brood and capacity needs for three example conservation hatchery production levels. Program size will not exceed 100,000 smolts, but lesser releases are likely for the near term.

	Low	Medium	Maximum
Smolt release goal	50,000	75,000	100,000
Green eggs needed	56,000	93,000	124,000
Brood pairs needed	16	26	34

Broodstock will be collected from the river by a variety of methods, including but not limited to netting and traps. Spawning protocols will maximize genetic diversity, and only naturally-produced adults will be used as brood.

Smolts from the program will be 100% coded-wire tagged so that adult returns from the releases can be differentiated from naturally-produced adult spawners on the spawning grounds, but will not be externally marked. The Department is also evaluating whether Parental-Based Tagging (referred to as “PBT,” which is a method to define genetic pedigrees) may be used to assess program outcomes. Smolts from the existing hatchery augmentation program will continue to be 100% adipose fin-clipped. While the conservation hatchery program is in operation, it is

anticipated that any in-basin recreational Chinook fisheries would be implemented as mark-selective harvest only.

The Department and the CIT will review the status of naturally-produced fall Chinook each spring and will develop a monitoring and evaluation (M&E) plan for the conservation hatchery program. This M&E will be in addition to, and coordinated with, existing M&E conducted in the basin to assess wild population status. The goal of additional monitoring is to assess the performance and contribution of the conservation hatchery program to the naturally-spawning population. It will also inform adaptive management actions for ongoing management in the basin, including hatchery programs, for future consideration by the Commission as necessary. The Department and the CIT will review the program periodically and conduct a comprehensive review as described below. The review will determine whether continued conservation hatchery production is necessary and whether actions to address limiting factors are effective to ensure population sustainability and lead to additional goals, such as the ability for the natural population to support meaningful harvest opportunity and continued progress toward desired status identified in the CMP (ODFW 2014).

If naturally-produced spawner abundances exceed the critical abundance threshold (2,833 fish) for four consecutive years, and analyses from information collected by the M&E program indicate that the population can be expected to regularly remain above the threshold in the absence of the conservation hatchery program, the program will terminate. The program may also terminate if it is determined that primary limiting factors cannot be adequately controlled or mitigated. The conservation hatchery program will be included as a review item under the CMP, and as such will be included in annual and periodic (every 12 years; 2026, 2038...) reviews.

## **OPTIONS**

1. Have the Department add a new Coquille Fall Chinook Conservation Hatchery Program in the Coquille basin.
2. Do not have the Department add a new Coquille Fall Chinook Conservation Hatchery Program in the Coquille basin.

## **STAFF RECOMMENDATION**

1. Option 1

## **DRAFT MOTION**

I move to have the Department add a new Coquille Fall Chinook Conservation Hatchery Program in the Coquille basin.

**EFFECTIVE DATE:** Immediately