

Coastal Multi-Species Conservation and Management Plan
2021 Implementation Report

Oregon Department of Fish & Wildlife
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Introduction

The *Coastal Multi-Species Conservation and Management Plan* (CMP) was developed to ensure the continued viability and conservation of Chinook salmon, spring Chinook salmon, chum salmon, winter and summer steelhead trout, and cutthroat trout Species Management Units (SMUs) along the Oregon Coast from the Necanicum River in the north to the Elk River in the south, and to achieve a desired status that provides substantial ecological and societal benefits. The plan also provides a framework for how hatchery salmon and steelhead and fisheries are to be managed. The CMP is consistent with requirements for conservation plans described in the Oregon Native Fish Conservation Policy (OAR 635-007-0502 to 0509) and was adopted by the Oregon Fish and Wildlife Commission in June 2014. CMP implementation is also guided by the Climate and Ocean Change Policy (OAR 635-900-0001 to 0020) adopted by the Oregon Fish and Wild Commission in July 2020. To track progress toward plan goals, the CMP calls for annual reports of monitoring information through *Hatchery Program Summaries* and *Wild Fish Monitoring Summaries*, as well as annual updates on plan implementation. This report summarizes CMP implementation and SMU metrics in 2021¹.

Progress Toward Desired Status

Since the adoption of the CMP in 2014, coastal salmon and steelhead have experienced multiple years of severe to extreme drought, declines in ocean productivity, and anomalous warm ocean temperatures (e.g., the Blob). These conditions resulted in declines in abundances of coastal salmon and steelhead stocks from recent highs in 2014 and 2015. Coastal hatchery returns have also been adversely affected (see *Hatchery Program Summaries*). This is similar to observations in many other salmon and steelhead stocks throughout Oregon and the Northwest. Coastal salmon and steelhead population abundances are cyclical, as evident in historical trends, and many populations appear to be rebounding as ocean conditions improve. The degree of improvement varies among species and locations within the SMU, and some populations have not rebounded or have continued to decline. Therefore, actions to reduce and buffer risk to wild fish will continue to be necessary in coming years. Summaries of each SMU are provided below, and data and additional details are available in the report's *Wild Fish Monitoring Summaries*.

Oregon Coastal Chinook Salmon

Chinook populations in the Coastal Chinook SMU include early returning (spring or summer) and late returning (fall) adult components. In the CMP, early components, where they occur, are referred to as spring-run or summer-run Chinook, while the more abundant late components are referred to as fall-run Chinook. Two independent populations of spring returning Chinook are called spring Chinook (as opposed to spring-run Chinook), and these are considered to be a separate Spring Chinook SMU (see below). Monitoring has indicated substantial declines in returns of Oregon Coastal Chinook Salmon populations in the years following CMP adoption. Abundances were particularly low in 2018 and 2019, with the most pronounced declines occurring in the Coquille (where declines were exacerbated by non-

¹ Though this report was completed in 2022, the data, actions and summaries are reflections of what occurred in 2021. Therefore, there are actions and data from the current year that are not included here.

native fish predators) and Siuslaw populations. Chinook returns increased for all populations in 2020 compared to 2019, but abundances in most populations declined again in 2021, including the Tillamook, Siuslaw, Floras, and Coquille populations falling below CMP critical abundance thresholds. This is the fourth consecutive year of critically low spawner abundance in the Coquille Population. ODFW enacted angling regulation changes in 2020 and 2021 to protect wild fish in many populations. Forecasts indicate that returns in 2022 will be similar to those observed in 2021 with modest increases or decreases for some populations. Where they occur, recent abundance trends for the early-run components of coastal Chinook populations have varied, and ODFW will continue to monitor this run component as time and resources allow. It should be noted that the CMP's Desired and Critical Abundance thresholds for Coastal Chinook Salmon populations were recalculated in 2019 after significant revisions to the abundance time series on which the thresholds are based. These revised abundance criteria replace the plan's original criteria and are detailed in the report's *Wild Fish Monitoring Summaries*.

Oregon Coastal Spring Chinook Salmon

Only two independent Spring Chinook populations are identified in the CMP – both in the upper Umpqua Basin. This SMU has followed a pattern similar to that observed for the Coastal Chinook SMU since CMP adoption. After a decline through 2018, adult returns in both of the SMU's independent populations (North Umpqua and South Umpqua) increased through 2020. The North Umpqua population fell below critical abundance for the first time in 2018 but increased above critical abundance in 2019 and 2020. Abundance of North Umpqua spring Chinook spawners declined in 2021 but remained slightly higher than the CMP critical abundance threshold. In the South Umpqua population, abundance declined more substantially through 2018 when the estimate of adult spawner abundance was only 24 fish. Returns have improved since 2018 but remain critically low. ODFW is concerned about recent low abundance in the South Umpqua and enacted a mark-selective fishery in the mainstem Umpqua River the last two years to protect wild South Umpqua spring Chinook. In the North Umpqua, ODFW is investigating the distribution of hatchery and wild spawners to assess the percentage of hatchery fish on natural spawning grounds (pHOS) more accurately and will implement actions to reduce pHOS if there is spatial overlap on natural spawning grounds above the pHOS limit.

Oregon Coastal Winter Steelhead

Current monitoring resources do not allow for population-scale assessment of CMP criteria in most of the SMU's constituent populations. Stratum-level abundances of winter steelhead indicate trajectories similar to other SMUs. The North Coast stratum fell below critical abundance in 2018 and 2019, and abundances approached the CMP critical abundance threshold for the 2021-22 run year. This is consistent with relatively low steelhead returns in some other conservation planning areas. Similar to the North Coast stratum, abundances have been variable in the Mid Coast stratum. After falling below the critical abundance threshold in 2017, abundance estimates for Mid Coast winter steelhead have generally fluctuated between the critical and desired abundance thresholds (2018 was > Desired Abundance). The Mid-South Coast stratum has alternated above and below the critical abundance threshold since 2017 (2017, 2019, and 2021 were below critical abundance). Annual abundance estimates in the Umpqua Stratum and North Umpqua population have generally remained closer to or

above desired abundances, with returns in 2021 approximately midway between the critical and desired abundance thresholds. It should be noted that the CMP's desired and critical abundance criteria for Coastal Winter Steelhead were updated in 2019 to ensure that both the criteria and annual abundance estimates share a common basis for converting redd abundance estimates to fish abundance estimates. These revised abundance criteria replace the plan's original criteria and are detailed in the report's *Wild Fish Monitoring Summaries*.

The CMP pHOS targets for steelhead are assessed as a nine-year moving average. Population-scale estimates of pHOS are not available for most winter steelhead populations; with few exceptions, pHOS can only be assessed at the stratum scale. Nine-year average pHOS estimates for the North Coast and Umpqua strata have been near or below the limits identified in the plans for their constituent populations. However, the Mid Coast and Mid-South Coast strata-level pHOS estimates have been above many of the population-scale limits identified in the plan. Monitoring indicates the nine-year average pHOS is declining toward 10% in the Mid-Coast but has stayed more consistently above pHOS targets in the Mid-South Coast. ODFW is currently evaluating specific locations contributing to the high strata pHOS estimates in the Mid-South Coast Stratum so adaptive management actions can be taken to reduce pHOS within constituent populations if needed.

Oregon Coastal Summer Steelhead

There are two native populations of Oregon Coastal Summer Steelhead, one in the Siletz River and the other in the North Umpqua River. In 2021, both populations experienced pronounced declines in abundance. Abundance estimates in the North Umpqua population were the lowest in the record dating to 1946, and the count of wild summer steelhead at Siletz Falls (Siletz Population) was similar to previous lows in the record from 1994-2021. Similar declines in summer steelhead returns in 2021 were observed elsewhere in Oregon, likely attributable to poor ocean conditions, and coincided with poor conditions (e.g., drought, high temperatures) for rearing and adult migration in 2021 and several preceding years. In the North Umpqua Population, counts of wild summer steelhead at Winchester dam have declined in recent years, but had remained above critical abundance until 2021. Available data suggests significant spatial segregation between hatchery and wild spawners in the North Umpqua, but pHOS estimates are likely higher than the CMP target even after accounting for differences in spawning distribution. No hatchery origin spawners are passed above Siletz Falls in the Siletz Population, and pHOS is expected to be below the CMP's 5% target upstream from the falls.

Oregon Coastal Chum Salmon

The CMP does not include abundance thresholds for Oregon Coastal Chum Salmon, but abundance of spawners is indexed at a series of standard survey sites. Peak densities on standard surveys have tended to increase through time, with recent declines less pronounced than observed in many other salmon and steelhead SMUs. In 2020 and 2021, peak counts on standard surveys were higher than the past few years in most populations, with estimates at or above the 5-year average prior to approval of the plan. Staffing limitations in 2021 resulted in lower survey effort for chum salmon in some North Coast survey areas.

Oregon Coastal Cutthroat Trout

As with chum salmon, the CMP does not include specific abundance targets for coastal cutthroat trout. However, abundance of coastal cutthroat trout is indexed and tracked through resting hole counts in the North Coast (Wilson, Trask and Nestucca rivers) on surveys for early-run Chinook salmon, and at Winchester Dam on the North Umpqua. Resting hole densities in the Wilson and Nestucca basins reached post-CMP highs in 2021. Resting hole densities of cutthroat trout in the Trask basin have been trending downward in the post-CMP period. However, recent estimates have generally been higher than during the 1980s and 90s, and long-term averages have been stable in all three survey basins. In the North Umpqua, counts of coastal cutthroat trout climbed to post-CMP highs in the 2019-20 and 2020-21 counting period before declining substantially in the 2021-22 period. The most recent count (n = 85) is at the 21st percentile of past 25 years, but it is higher than previous lows in the late 1980s and early 1990s.

Management Actions

To address the limiting factors causing the gap between Current and Desired Status, as well as provide greater population resilience to potential adverse climate change and development impacts, the CMP identifies short- and long-term strategies and actions in four categories (*Hatchery Fish Actions*, *Fishing/Harvest Actions*, *Predation Actions*, and *Habitat Actions*). The following sections provide several implementation highlights for each of those categories in 2021. Many habitat actions are occurring across the SMUs at various scales; a sampling of those actions completed or initiated in 2021 are included in the highlights below. For a more comprehensive summary of implementation actions since plan adoption, including many ongoing actions that continued in 2021, see reports from previous years [here](#).

Hatchery Fish Actions

- In the Elk River, ODFW continued to implement actions to decrease pHOS and improve the viability of wild **fall Chinook salmon**. In the eight years since CMP adoption, pHOS in the Elk River has averaged 26%, which is below the 30% target in the plan and half the 9-year average at the time of plan adoption (see *Wild Fish Monitoring Summaries*). Additional actions to assure that pHOS remains below the plan target are in progress (see **Research and Monitoring; Evaluation and Adaptive Management**).
- In the Necanicum River, ODFW completed field work for a multi-year study that used creel surveys, remote site trapping, and live capture surveys to evaluate straying and fishery contribution for different hatchery **winter steelhead** release locations. ODFW staff began analyzing results of the study, which will inform actions to reduce pHOS and maintain or increase harvest of hatchery winter steelhead in the Necanicum population.

Fishing/Harvest Actions

- In 2021, implementation of the wild **fall Chinook salmon** harvest sliding scale ([click here for methods](#)) resulted in few changes from permanent regulations. In the Mid-South Coast stratum, the sliding scale abundance category was medium, which reduced the annual wild Chinook bag limit in the Coos population from 20 fish to 10 fish. The only population that met the criteria for a wild Chinook conservation closure was the Coquille. In several basins, including the Coquille, ODFW implemented additional precautionary regulation changes to protect wild fall Chinook salmon (see **Evaluation and Adaptive Management** section).
- ODFW developed a harvest sliding scale for wild **spring Chinook salmon** in the Umpqua basin ([click here for methods](#)) based on observed and forecast returns to the North Umpqua population (see **Evaluation and Adaptive Management** section for additional information). The sliding scale will be applied for the first time to determine bag limits for the 2022 fishery.

Predation Actions

- Double-crested cormorant numbers have declined approximately 10-20% along the Oregon Coast since CMP implementation. The decline is likely associated with increasing bald eagle abundance and possibly effects related to management in the Columbia River estuary.
- In 2021, avian hazing efforts occurred in the Nehalem, Tillamook, Nestucca, Alsea, Siuslaw, Coquille, and Coos Bay estuaries.
- ODFW worked extensively with the Coquille Indian Tribe and volunteers to remove invasive smallmouth bass from the Coquille River and its tributaries, primarily through boat electrofishing. ODFW also conducted public outreach to encourage smallmouth bass removal and implemented a temporary regulation allowing the use of bait, spears, and spear guns to harvest bass in the Coquille River system. In addition, ODFW biologists, Coquille Indian Tribe staff, and Trout Unlimited volunteers (approximately 30 people in total) spent a week conducting a comprehensive assessment of the smallmouth bass population throughout their distribution in the Coquille Basin. Data from this event is being analyzed by the ODFW REDD program to inform possible smallmouth bass control strategies to benefit Chinook salmon and other native fishes.

Habitat Actions

- Instream water rights are the state's mechanism to provide stream flows that support healthy ecosystems and multiple public uses for fish and wildlife, water quality, recreation, scenic attraction, tourism, cultural values, and healthy economies. In 2021, the Oregon Water Resources Department (OWRD) completed review of the 133- instream water right applications submitted by ODFW to establish biological flow targets for various reaches in the Umpqua and Mid-South Coast strata. All were proposed to approve and are moving through OWRD's process.

- ODFW participated and provided guidance in the Private Forest Accord (PFA) negotiation process, which concluded in October 2021 with an agreement to modify Oregon’s forest practice laws and regulations to craft a Habitat Conservation Plan (HCP) for aquatic species. The new rules being developed by the Oregon Department of Forestry (click [here](#) for more information) will provide more protection for aquatic habitats by increasing stream buffers, creating new standards for forest roads, and retaining more trees on steep slopes, among other changes.
- ODFW continued a statewide effort to identify priority watersheds for protection and restoration based on habitat quality and climate resilience.
- ODFW Fish Passage and research staff continued collaboration on a tide gate prioritization tool to identify locations where improved fish passage is likely to have the greatest benefit for salmonids and other native fish.
- ODFW’s Western Oregon Stream Restoration Program biologists provided a significant amount of support in coordinating, planning, and implementing Oregon Watershed Enhancement Board (OWEB) restoration investments in the North Coast and Umpqua strata where these biologists are located. Many of these projects involved coordination with the Oregon Department of Forestry and private industrial timberland partners.
- In the North Coast Stratum, fish passage was improved to at least 15 miles of stream in two river basins, and approximately 2.95 miles of stream habitat was improved with the addition of large wood structures and riparian plantings. This includes large wood structures and two beaver dam analogs installed in Grand Rapids Creek in the NF Nehalem River Basin to complement previous habitat restoration in upstream tributaries.
- In the Mid-Coast Stratum, district staff are focused on evaluating and retreating high priority areas with large woody debris to address stream complexity needs. In 2021, approximately 1.1 miles of stream were treated with 225 logs.
- In the Umpqua Stratum, 18.3 miles of stream enhancement was completed, and 1.5 miles of fish habitat was reconnected. These actions included 238 sites, using 1,900 boulders and 2,444 trees.
- In the Mid-South Coast Stratum, ODFW district staff worked with the Tenmile Lakes Basin Partnership on planning future habitat restoration work in the Tenmile Lakes Basin, including three wetland restoration projects. The Tenmile Lakes Beaver Analogue Project, designed to encourage beaver activity and improve summer rearing habitat, was completed. District staff assisted in the Coos and Coquille basins with restoring fish passage to over 10 miles of spawning and rearing streams, installing logjam structures to increase stream complexity, restoring riparian condition, and livestock exclusion. District staff also supported local partners in efforts to remove invasive vegetation on property owned by ODFW on the lower Elk River.

Research and Monitoring

[Table A-V: 4](#) of the CMP provides an overview of base monitoring components being conducted within SMUs to track measurable criteria that inform progress toward desired status. Data produced from the monitoring will be used to re-assess species productivity, persistence, spatial structure, and diversity every 12-years as called for in the plan. The CMP also identified several critical uncertainties relative to each SMU that require additional research to address ([Appendix V](#)). Research and monitoring developments in 2021 include the following:

- The Oregon Hatchery Research Center (OHRC) continued research on olfactory imprinting and homing at Elk River Hatchery. In 2021, researchers and hatchery staff collected coded wire tags from adult **fall Chinook salmon** that had previously been incubated as embryos at the hatchery in either well or river water. Also in 2021, the second experimental cohort of juvenile fall Chinook salmon was released from the hatchery. These fish were exposed to higher concentrations of a naturally-occurring chemical odorant during hatchery rearing. Additional experimental releases will occur in 2022. Adult returns from treatment and control groups will be monitored to determine how odorant exposure affects homing rates to the hatchery. This study promises to inform future efforts to reduce straying by hatchery fish in the Elk River and other basins.
- ODFW continued developing analytical methods to estimate pHOS in coastal **fall Chinook salmon** populations (see *Wild Fish Monitoring Summaries*).
- ODFW operated a trap in the ladder at South Umpqua Falls to monitor **spring Chinook salmon** abundance and migration timing, and to collect tissue samples for genetic analysis. ODFW also continued working with partners to plan a comprehensive survey of all known or suspected spawning habitat in the South Umpqua to evaluate the precision of resting-hole counts as an indicator of spring Chinook salmon spawner abundance.
- ODFW biologists continued working with Oregon's State Fisheries Genomics Lab (<https://agsci.oregonstate.edu/state-fisheries-genomics-lab>) to test for associations between variation at genetic markers and the return timing of adult **Chinook salmon** to coastal rivers. This research is designed to first evaluate the utility of markers used in other river systems, then document the diversity of these markers among hatchery and wild populations of Chinook salmon. Results will offer managers new information and tools to protect the genetic diversity that underpins run timing in Oregon's coastal Chinook salmon populations.
- ODFW continued to investigate options for developing stratum-scale abundance forecasts or categorical indicators of low expected returns for **winter steelhead** to allow for more proactive, timely actions in response to population downturns. At the time of CMP development, ODFW did not have adequate data for this, but with additional years of monitoring data now available it may be possible.
- The State Fisheries Genomics Lab at Oregon State University analyzed **chum salmon** tissue samples collected from carcasses in several coastal basins in 2019. Samples were genotyped

using a single nucleotide polymorphism (SNP) panel developed by the Washington Department of Fish and Wildlife. Staff from the State Fisheries Genomics Lab and ODFW began preparing a report with the genotyping results and an analysis of population genetic structure.

- ODFW staff and collaborators completed a study on thermal tolerance of **coastal cutthroat trout**, including fish sampled from the Siletz and Alsea populations ([click here for more information](#)).

Evaluation and Adaptive Management

The previously discussed monitoring efforts and subsequent evaluation and adaptive management are important components of CMP implementation. Key evaluation and adaptive management actions that occurred in 2021 include the following:

- In addition to implementing the wild **fall Chinook salmon** harvest sliding scale (see *Fishing/Harvest Actions*), ODFW implemented additional precautionary regulation changes in several rivers to protect wild fall Chinook salmon. These actions included:
 - Reducing daily and seasonal bag limits in the Umpqua River.
 - Closing the salmon fishery in the Coquille River (see additional details below).
 - Reducing the annual Chinook salmon bag limit in Floras Creek/New River to one fish.
 - Implementing a low flow closure in the Sixes River from the mouth of Crystal Creek downstream to Hughes House Boat Ramp from October 1–26.
 - Closing the Elk River to retention of wild Chinook salmon.
- In the Coquille River, **fall Chinook salmon** abundance was far below the critical abundance threshold for the fourth consecutive year in 2021. Based on recent returns and the preseason forecast, ODFW implemented a complete closure of the Coquille salmon fishery in 2021 to eliminate the risk of hooking mortality for wild Chinook salmon. In addition, no wild Chinook salmon were collected for broodstock for the harvest augmentation hatchery program, consistent with direction in the CMP.
- Broodstock availability has limited production for the Coquille **fall Chinook salmon** hatchery program in recent years (see *Hatchery Program Summaries*). To facilitate broodstock collection at Bandon Hatchery and rebuild the program, all releases for the 2018–2020 brood years have occurred at Ferry Creek. In 2021, ODFW also constructed a seal excluder in lower Ferry Creek to reduce predation on returning adult Chinook salmon and partnered with the Coquille Indian Tribe to capture hatchery broodstock outside Ferry Creek.
- As noted above, the Elk River was closed to the retention of wild **fall Chinook salmon** for the second consecutive year in 2021. A mark-selective fishery was implemented to maximize hatchery salmon harvest and wild fish escapement as part of ongoing efforts to reduce pHOS.
- For the second consecutive year, ODFW enacted temporary regulations closing the mainstem Umpqua River to wild Chinook salmon retention from February 1–June 30 to protect South Umpqua **spring Chinook salmon**. Starting in 2022, a newly developed harvest sliding scale will

be used to determine bag limits for wild spring Chinook in the mainstem Umpqua River and North Umpqua River.

- The new Umpqua River **spring Chinook** sliding scale ([click here for methods](#)) generally follows the structure identified in the CMP. However, due to increased conservation concern for these unique populations, the sliding scale has reduced bag limits relative to those identified in the plan. In addition, the sliding scale establishes a new critical abundance threshold for South Umpqua spring Chinook (n = 150) that can trigger a conservation closure for harvest of wild spring Chinook in the mainstem Umpqua River.
- Due to historically low **summer steelhead** counts at Winchester Dam, ODFW closed the North Umpqua River to all angling from August 10 to November 30, 2021. The final escapement estimate of 449 summer steelhead for 2021 was below the critical abundance threshold (1,200 fish) and was the lowest escapement estimate in the record from 1946–2021. This low return, combined with recent environmental conditions affecting summer steelhead in the basin (wildfires, drought, low flows, high stream temperatures, ocean conditions), prompted ODFW staff to reassess the population and factors that could be limiting their abundance. The assessment was completed in 2022 and can be accessed [here](#).
- In response to severe drought conditions and an unprecedented early summer heat wave, ODFW implemented several [emergency angling regulations](#) on July 1, 2021. These regulations included:
 - Closing fishing for salmon, steelhead, sturgeon, and trout from 2 p.m. until one hour before sunrise in rivers and streams (“Hoot owl” regulations to end fishing before water temperatures are at their warmest).
 - Closing the Nehalem River upstream of the Miami-Foley Road Bridge (and tributaries upstream of bridge) to all angling July 1-Sept. 30.
 - Angling closure within 200 feet of mouths of tributaries in portions of the Umpqua and North Umpqua Rivers to allow fish to gather in these cooler areas without angling pressure. This regulation was later followed by a complete angling closure on the North Umpqua River.
- Due to abnormally low water conditions in spring 2021, ODFW issued a news release asking the public to avoid driving vehicles across southern Oregon coastal streams, including the Elk River, to avoid damaging salmon, steelhead, and Pacific lamprey redds.
- In 2021, ODFW staff made significant adjustments involving multiple facilities to maintain fish production for Umpqua hatchery programs after the loss of Rock Creek Hatchery in the September 2020 wildfires.

Summary

Since adoption of the CMP in 2014, coastal salmon, steelhead, and cutthroat trout have experienced multiple years of severe drought and poor ocean conditions. The effects of these adverse environmental

conditions have been apparent in wild populations and hatchery returns, although the magnitude and timing of effects have varied substantially among populations and SMUs. Recent trends have underscored the importance of implementing plan actions that reduce risk for these populations, as well as the need for robust monitoring and adaptive management. Most populations have demonstrated resilience in recent years, but several populations warrant particularly close attention given recent declines. These populations include Coquille Chinook salmon, North Umpqua summer steelhead, South Umpqua spring Chinook salmon, and Siuslaw Chinook salmon. Implementation priorities for 2022 include: 1) investigating potential causes of the historically low North Umpqua summer steelhead return and implementing appropriate adaptive management actions; 2) developing and initiating a conservation hatchery program for Coquille fall Chinook salmon in partnership with the Coquille Indian Tribe; 3) continuing to work with Coquille Indian Tribe to reduce bass predation risk for Chinook salmon and other native species in the Coquille River Basin; 4) where pHOS estimates appear to be above plan thresholds, exploring details of hatchery fish presence on natural spawning grounds in order to understand adaptive management needs; and 4) investigating methods for forecasting winter steelhead abundance at the stratum scale. ODFW will continue to be responsive to variable and changing conditions by implementing meaningful adaptive management actions informed by monitoring.