ANNUAL PROGRESS REPORT FOR 2020
ROGUE RIVER SPRING CHINOOK SALMON CONSERVATION PLAN
ROGUE WATERSHED DISTRICT
OREGON DEPARTMENT OF FISH AND WILDLIFE

INTRODUCTION

In September of 2007, the Oregon Fish and Wildlife Commission formally adopted a conservation plan for spring Chinook salmon in the Rogue Species Management Unit (SMU). The plan calls for the Oregon Department of Fish and Wildlife (ODFW) to complete annual reports that will include, at least, the following elements: (1) SMU status in relation to the desired status and conservation status statements embedded in the conservation plan, (2) summaries of annual efforts to monitor SMU attributes, (3) implications of any research or evaluation projects completed during the reporting year, (4) any updated assessments of population attributes completed during the reporting year, and (5) presentation of the rationale associated with any changes in management actions made during the reporting year.

This document is the thirteenth annual report to be completed. A copy of the conservation plan, the comprehensive assessment and update, along with annual progress reports previously completed are available on the ODFW website at:
http://www.dfw.state.or.us/fish/CRP/rogue_spring_chinook_conservation_plan.asp

MONITORING RESULTS AND SMU STATUS

Monitoring of SMU attributes is designed to produce metrics that are to be used to characterize the current status of the SMU. All possible monitoring needed to update SMU status was completed by ODFW in 2020, with results presented in Table 1 and Table 2.

The ability to monitor naturally produced spring Chinook salmon changed significantly with the removal of Gold Ray Dam in 2010 and the allied loss of the fish counting station. Beginning in 2011, all monitoring is now based on counts of spring Chinook salmon carcasses found (1) in the Rogue River between Cole M. Rivers Hatchery and the historical pool upstream of Gold Ray Dam and (2) in the lower mile of Big Butte Creek. These locations are the primary spawning areas of naturally produced spring Chinook salmon in the Rogue River Basin.

ODFW used results from the spawner surveys to hindcast the number of naturally produced spring Chinook salmon that would have passed Gold Ray Dam in 2020; had the dam and fish counting station not been removed. During the 2004-2010 surveys of fish that spawned in September, carcass counts of naturally produced fish averaged 15% (95% confidence interval = ±2%) of the number of live counterparts that passed Gold Ray Dam. This relationship between carcass and dam counts is used to estimate the number of live fish that passed the historical site of Gold Ray Dam. No analogous methods could be devised to hindcast two other metrics in the plan: the percentage of jacks in the run and adult migration timing at Gold Ray Dam. These two management criteria for naturally produced spring Chinook salmon in the Rogue SMU were thus abandoned; beginning in 2011.

An estimated 3,620 naturally produced spring Chinook salmon passed the historical site of Gold Ray Dam during 2020. This estimate was derived from the recovery of 533 carcasses of unmarked fish and 10 carcasses of unexamined fish (all assumed to be naturally produced).

Table 1. Comparisons of singular elements of current and desired status for naturally produced spring Chinook salmon in the Rogue Spring Chinook Salmon Species Management Unit. Desired status elements are described in the conservation plan, and the plan also called for the description of current status based on average values noted during the previous ten years (where available). Two conservation plan elements of desired status (migration timing and age structure) can no longer be estimated as a result of the removal of Gold Ray Dam in 2010.

Status Element	Desired Status	Current Status	2020 Estimate
Abundance (at Gold Ray Dam)	**≥15,000**	**9,691(2011-2020)**	**3,620**
Sept. Spawner Distribution[b] (% above Shady Cove)	**≥40%**	**61% (2011-2020)**	**65%**
Spawner Composition (% hatchery)	**≤15%**	**3% (2011-2020)**	**2%**

[a] *Metric estimated as described in the text.*
[b] *This element only covers September spawners because October spawners cannot be distinguished from fall Chinook salmon that spawn in overlapping areas.*

Table 2. Status of the Rogue Spring Chinook Salmon Species Management Unit as compared to adopted conservation criteria. Conservation criteria are based on a three year running average, except where noted. Two conservation plan elements of desired status (migration timing and age structure) can no longer be estimated as a result of the removal of Gold Ray Dam in 2010.

Status Element	Conservation Criterion	Conservation Status (years)
Abundance[a] (at Gold Ray Dam)	**<3,500**	**3,620 (2020)[b]**
Abundance (at Gold Ray Dam)	**<5,000**	**6,447 (2018-2020)**
Sept. Spawner Distribution[c] (% above Shady Cove)	**<30%**	**69% (2018-2020)**
Spawner Composition[d] (% hatchery)	**>25%**	**3% (2019-2020)**

[a] *During any single year.*
[b] *Metric estimated as described in the text.*
[c] *This element only covers September spawners because October spawners cannot be distinguished from fall Chinook salmon that spawn in overlapping areas.*
[d] *Average during two consecutive years*

COMPLETED MANAGEMENT ACTIONS

The Oregon Fish and Wildlife Commission adopted Alternative 9, outlined in the conservation plan, as the preferred suite of management strategies to be employed by ODFW. Some of the relevant actions, completed by ODFW during 2020, are briefly discussed below.

Management Strategy 9.1

1. Most of the action items within this management strategy relate to seasonal operations of Lost Creek Reservoir by the United States Army Corps of Engineers (USACE). ODFW worked cooperatively with the USACE to identify and implement reservoir release strategies designed to enhance naturally produced spring Chinook salmon. A weekly conference call was implemented to facilitate communication. ODFW provides an orientation session on fish needs to dam operations staff and participated in the Corps' annual winter management coordination meeting. Coordination on reservoir management continues to be a very large workload for ODFW staff to protect spring Chinook.

USACE completed successful operations for fish in 2020 despite snowpack melting off completely by late May, parts of southwest Oregon being in the "severe/extreme drought" categories and Lost Creek Reservoir not filling completely. However, due to very low inflow through the summer of 2020 the reservoir volume had to be decreased to elevation 1,800 feet which is twelve feet lower than normal.

2. ODFW continued to participate in a wide variety of habitat protection activities (Action 1.14 in the conservation plan), including the following:

- ODFW reviewed and commented on numerous plans and permit applications for development activities, fill and removal projects, mining operations, forest operations, and water rights to ensure that activities were completed in a way that minimized impacts to fisheries resources.

3. ODFW continued to implement projects to encourage good stewardship by streamside landowners, primarily through activities in the Salmon Trout Enhancement Program (Action 1.15 in the conservation plan).

Management Strategy 9.2

No additional gravel was placed in the mainstem or Big Butte Creek in 2020. However, past projects have been successful and ODFW is actively pursuing gravel placement in the mainstem Rogue River and Big Butte Creek on federal and private land.

Management Strategy 9.3

A pilot project to encourage Umpqua Pikeminnow removal was initiated in the Grants Pass area of the Rogue River in 2019. The project was in the form of a derby with donated gifts available to anglers with the largest and most fish caught. The derby was repeated in 2020.

A full time watercraft inspection technician is stationed in the Rogue Watershed District office.

Management Strategy 9.4

6D. Actions 4.6 and 4.7

Beginning with the 2013 brood year, the production goal for Coho salmon at Cole Rivers Hatchery has been decreased, and the production goal for spring Chinook has been increased (Action 9.4.7 in the conservation plan). The September smolt release group has been increased to 193,250 smolts from 162,000 smolts. In addition, ODFW has re-started a yearling release. In March, at least 50,000 smolts are released near Gold Hill. Coded wire tagging of the March release will facilitate evaluation of this release.

6E. Management Changes

The Rogue Spring Conservation Plan Comprehensive Assessment and Update, completed by ODFW in 2019, included a framework for providing additional harvest opportunity for wild (naturally produced) spring Chinook as the population builds toward desired status. The abundance triggers and associated changes in seasons and bag limits are described in the 2019 Comprehensive Assessment and Update (see Table 4 on page 32) and the Rogue Spring Chinook Annual Progress Report for 2019. In 2020, the abundance triggers for additional harvest opportunity were not met.

Management Strategy 9.5

ODFW did not complete any work related to the only action item that was relevant to this management strategy during 2020.

10. Monitoring, Evaluation and Research Needs

The Plan acknowledged that not all the tasks identified in this section would be completed and that prioritization would be needed. Adaptive management was likely to identify additional monitoring, evaluation and research needs.

9A. Monitoring Needs

In 2016–2018, ODFW collected genetic samples from carcasses collected throughout Chinook spawning habitat in the upper Rogue River. With funding from the US Army Corps of Engineers, the samples were analyzed at the State Fisheries Genomics Lab at Oregon State University. A report with the results of the analysis entitled "An evaluation of "early" and "late" run alleles in Rogue River Chinook salmon (*Oncorhynchus tshawytscha*)" is available at the following link: https://agsci.oregonstate.edu/state-fisheries-lab/reports

9C. Research Needs

Preseason forecasts of abundance for naturally produced Rogue spring Chinook are now available as ODFW continues to collect scales from spawned out spring Chinook carcasses which provide necessary age data. In previous years, two separate forecasting models have been used, and their predictions were combined into a single ensemble forecast. . In light of the sibling regression technique considerably outperforming the ARIMAX model (see below), ODFW will use only sibling regression for forecasting until more work to refine the ARIMAX model can be conducted. The preseason forecast for 2021 follows:

Technique	Covariates	2021 Prediction
Sibling Regression	**None**	**9,638**
ARIMAX	Flow	15,741

The 2020 ensemble forecast, as described in the Rogue Spring Chinook Annual Progress Report for 2019, was for 11,182 naturally produced spring Chinook to pass the former Gold Ray Dam site. ODFW's estimate of spawners from spawning ground surveys is 3,620. The sibling regression forecast for 2020 was for 5,316 naturally produced spring Chinook to return to Gold Ray Dam, which is much closer to the observed return.