ANNUAL PROGRESS REPORT FOR 2018
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 twelfth annual report to be completed. A copy of the conservation plan, the comprehensive assessment and update, along with annual progress reports previously completed, is 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 2018, 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 2018; 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 10,353 naturally produced spring Chinook salmon passed the historical site of Gold Ray Dam during 2018. This estimate was derived from the recovery of 1,507 carcasses of unmarked fish and 46 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	2018 Estimate
Abundance (at Gold Ray Dam)	**≥15,000**	**10,271(2009-2018)**	**10,353**
Sept. Spawner Distribution[b] (% above Shady Cove)	**≥40%**	**58% (2009-2018)**	**73%**
Spawner Composition (% hatchery)	**≤15%**	**4% 2009-2018)**	**3%**

[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**	**10,353 (2018)[b]**
Abundance (at Gold Ray Dam)	**<5,000**	**10,055 (2016-2018)**
Sept. Spawner Distribution[c] (% above Shady Cove)	**<30%**	**62% (2016-2018)**
Spawner Composition[d] (% hatchery)	**>25%**	**2% (2017-2018)**

[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 2018, 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 2018 despite a challenging, very low precipitation winter which led to uncertainty of Lost Creek Reservoir filling. However, a storm in April provided the additional water to fill Lost Creek by May 1. A full reservoir coupled with mild late spring/early summer temperatures led to USACE being able to release sufficient water to manage temperatures at the Agness gage and adult spring Chinook were able to migrate to the upper river without high river temperatures causing stress or disease.

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 done 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 Big Butte Creek in 2018. However, past projects have been successful and ODFW is actively pursuing gravel placement in Big Butte on federal and private land.

Management Strategy 9.3

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

In the Rogue Spring Chinook Conservation Plan Comprehensive Assessment and Update, finalized in 2019, ODFW proposed an opportunity for additional harvest of wild (naturally produced) spring Chinook as the population builds. Opportunity will be based on and tiered to abundance as displayed in the framework below. Wild harvest addbacks would take place through in-season regulation changes when criteria are met. In 2019, the abundance triggers for additional harvest opportunity were not met.

Inseason openers to add wild harvest seasonally

Abundance trigger	Below Fishers Ferry	Fishers Ferry to Dodge Br
12,000*	Wild opens May 21 1 per day/3 per yr	Wild opens June 21 1 per day/3 per yr
13,500** Preseason over 17,500***	Wild opens May 11 2 per day/10 per yr	Wild opens June 11 2 per day/10 per yr
Desired status****	Wild opens April 1 2 per day/10 per yr	Wild opens May 1 2 per day/10 per yr

*Average of count over last two years and preseason forecast
** Average of count over last two years and preseason forecast
***Preseason forecast over 17,500
****10 year average exceeds 15,000; forecast over 15,000

Management Strategy 9.5

ODFW did not complete any work related to the only action item that was relevant to this management strategy during 2018.

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

ODFW completed the final year of collecting genetic samples from carcasses collected throughout Chinook spawning in the upper Rogue. Samples are currently undergoing analysis and results are expected within the next year.

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 naturally produced spring Chinook carcasses, which provide necessary age data. Two separate forecasting models are used, and their predictions are combined into a single ensemble forecast. The model outputs and preseason ensemble forecast for 2019 follows:

Technique	Covariates	2019 Prediction	Mean Absolute Percentage Error	1/MAPE	Weight
Sibling Regression	None	14,074	0.23345	4.283572	0.555528
ARIMAX	Flow	15,211	0.29178	3.42724	0.444472
Ensemble Forecast		**14,579**			

The 2018 prediction as described in the Rogue Spring Chinook Salmon Conservation Plan Comprehensive Assessment and Update (ODFW 2019, p. 41, table 6.) for the 2018 return year was 10,716 spring Chinook. ODFW's estimate of spawners from spawning ground surveys is 10,353.