

**ANNUAL PROGRESS REPORT FOR 2018
FALL CHINOOK SALMON CONSERVATION PLAN
ROGUE SPECIES MANAGEMENT UNIT
OREGON DEPARTMENT OF FISH AND WILDLIFE
ROGUE WATERSHED DISTRICT**

INTRODUCTION

In January of 2013, the Oregon Fish and Wildlife Commission formally adopted a conservation plan for fall Chinook salmon in the Rogue Species Management Unit (SMU). This 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 report summarizes the status of the SMU in relation to desired status and conservation status through the 2018 return year, completed management actions, and 2019 preseason forecasts in relation to conservation status and maximum sustained yield.

A copy of the conservation plan, and annual progress reports, is available on the ODFW website at:

http://www.dfw.state.or.us/fish/CRP/rogue_fall_chinook_conservation_plan.asp

SUMMARY OF SMU STATUS

Two population strata compose the SMU: (1) the Rogue stratum and (2) the coastal stratum. The two strata are differentiated by life history and genetic differences within the constituent independent populations of naturally produced fall Chinook salmon (NP CHF). Where possible, status criteria were developed for each independent population monitored by ODFW. Populations in the Rogue stratum are monitored as an aggregate by sampling at Huntley Park near the mouth of the Rogue River, except that NP CHF in the Lower Rogue population area are also monitored annually by conducting spawning ground surveys.

Monitoring of SMU attributes is designed to produce metrics that are to be used to characterize the current status of the SMU. All monitoring needed to update SMU status was completed by ODFW in 2018, and the results are included in tables 1 and 2.

Table 1. Comparisons of singular elements of current and **desired** status for naturally produced fall Chinook salmon in the Rogue Species Management Unit. Desired status criteria are described in the conservation plan, and **both metrics cover the most recent ten year period.** Underlined metrics of current status did not meet desired status criteria.

Status Element	Desired Status	Current Status	2018 ⁱ Estimate
ROGUE AGGREGATE POPULATIONS			
Adult Abundance ^a	≥54,400	57,400	39,497
Age Structure ^b	≥10%	<u>6%</u>	1%
Run Timing ^c	≥8%	10%	4%
Run Composition ^d	≤5%	4%	4%
LOWER ROGUE POPULATION			
Adult Abundance ^e	≥3,500	6,470	1,464
Spawner Composition ^f	≤10%	3%	1%
CHETCO POPULATION			
Adult Abundance ^e	≥3,800	4,466	898
Age Structure ^h	≥16%	21%	2.6%
Spawner Composition ^f	≤18%	9%	0%
WINCHUCK POPULATION			
Adult Abundance ^e	≥1,000	1,207	736
Juvenile Abundance ^g	≥125,000	167,032	167,520
Spawner Composition ^f	≤10%	4%	0%
PISTOL POPULATION			
Adult Abundance ^e	≥1,300	<u>1,257</u>	134
Spawner Composition ^f	≤5%	2%	0%
HUNTER POPULATION			
Adult Abundance ^e	≥560	767	67
Spawner Composition ^f	≤5%	2%	0%

^a Number of age 3-6 NP CHF that pass Huntley Park.

^b Relative abundance of age 5+6 fish among NP CHF that pass Huntley Park.

^c Relative abundance of October migrants among NP CHF that pass Huntley Park.

^d Relative abundance of hatchery fish among CHF that pass Huntley Park.

^e Number of NP CHF spawners.

^f Relative abundance of hatchery fish among CHF spawners.

^g Number of juvenile NP CHF produced in areas upstream of the South Fork.

^h Relative abundance of age 5+6 fish among NP CHF spawners.

ⁱ One year estimate

Table 2. Status of the Rogue Fall Chinook Salmon Species Management Unit as compared to **conservation** criteria. Conservation status criteria are described in the conservation plan and cover, unless otherwise noted, the most recent three year period. Underlined metrics of current status did not meet conservation status criteria.

Status Element	Conservation Criterion	Current Status	2018 ⁱ Estimate
ROGUE AGGREGATE POPULATIONS			
Adult Abundance ^a	<20,400 ⁱ	52,918	39,497
Age Structure ^b	<3%	6%	1%
Run Timing ^c	<5%	9%	4%
Run Composition ^d	>10%	5%	4%
LOWER ROGUE POPULATION			
Adult Abundance ^e	<1,500	3,253	1,464
Spawner Composition ^f	>15%	3%	1%
CHETCO POPULATION			
Adult Abundance ^e	<1,440 ⁱ	1837	898
Age Structure ^h	<5%	23%	3%
Spawner Composition ^f	>20%	4%	0%
WINCHUCK POPULATION			
Adult Abundance ^e	<300 ⁱ	816	736
Juvenile Abundance ^g	<50,000 ^j	172,547	167,520
Spawner Composition ^f	>15%	4%	0%
PISTOL POPULATION			
Adult Abundance ^e	<540	638	134
Spawner Composition ^f	>10%	3%	0%
HUNTER POPULATION			
Adult Abundance ^e	<300	<u>204</u>	67
Spawner Composition ^f	>10%	3%	0%

^a Number of age 3-6 NP CHF that pass Huntley Park.

^b Relative abundance of age 5+6 fish among NP CHF that pass Huntley Park.

^c Relative abundance of October migrants among NP CHF that pass Huntley Park.

^d Relative abundance of hatchery fish among CHF that pass Huntley Park.

^e Number of NP CHF spawners.

^f Relative abundance of hatchery fish among CHF spawners.

^g Number of juvenile NP CHF produced upstream of the South Fork.

^h Relative abundance of age 5+6 fish among NP CHF spawners.

ⁱ Criteria are based on a running two year average.

^j Criterion covers every year.

COMPLETED MANAGEMENT ACTIONS - ROGUE STRATUM

The Oregon Fish and Wildlife Commission adopted Rogue Alternative 4, 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. A tabulated progress summary related to management actions described in the conservation plan is included in Table 3.

Management Strategy 4.1

Many of the actions within Management Strategy 4.1 relate to seasonal operations of Lost Creek and Applegate reservoirs 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 fall Chinook (actions 4.1.1, 4.1.2, 4.1.4, 4.1.5, 4.1.6, 4.1.7, 4.1.9). A weekly conference call, implemented in 2013 to facilitate communication, was continued in 2018. ODFW participated in the USACE annual winter management coordination meeting.

Applegate River flows were managed to maximize fall Chinook distribution and spawning success in 2018. Fish were observed spawning from the dam downstream to the mouth and no flow or temperature issues were encountered. Additionally, thousands of Chinook fry were observed in the Applegate during ODFW steelhead and Pacific lamprey spawning ground surveys.

Average flow at the USGS Agness gage was 2,375 cfs August 10 – September 10 (action 4.1.7). Flow exceeded ODFW recommendations during the fall Chinook migration due to higher than predicted inflow into Lost Creek Reservoir. Disease-related mortality of adult fall Chinook in 2018 was estimated at 1%. Mortality estimates are derived from flow-based models. Additional management actions would be triggered if disease-related losses were forecast to reach 40% (action 4.1.8).

The minimum flow needed to protect juvenile fish rearing in the mainstem in summer is estimated to be 1,000 cfs as measured at the USGS Grants Pass gage. The flow in 2018 exceeded this level, averaging 1,486 cfs at Grants Pass July 1 – August 10 (action 4.1.9). The lowest average daily flow during the period was 1,450 cfs on multiple days.

ODFW participated in a variety of habitat protection activities (action 4.1.14), including review of water right applications, removal/fill applications, R/F emergency authorizations, Conditional Use permits, and compliance monitoring of municipal and county riparian ordinances.

Management Strategy 4.2

ODFW's Aquatic Invasive Species program deployed two watercraft inspection crews in the Rogue Watershed District in 2018 (action 4.2.1). Crews based in Central Point and Brookings conducted boat inspections, primarily on the I-5, Hwy 97, and Hwy 101 corridors, from late spring through early fall.

Management Strategy 4.3

The minimum flow needed to protect juvenile fish rearing in the mainstem in summer is 1,000 cfs as measured at the Grants Pass gage. The flow in 2018 exceeded this level, averaging 1,486 cfs at Grants Pass July 1 – August 10. Lower water temperatures in downstream areas, as a result of the increased flow, result in fewer predation losses because of decreases in pikeminnow metabolic rates (action 4.3.2), using storage that is not needed to protect adult spring Chinook and adult fall Chinook.

Management Strategy 4.4

Zone regulations were employed in 2018 because fall Chinook escapement was forecasted to exceed escapement goals related to conservation criteria (action 4.4.1).

Management Strategy 4.5

ODFW did not complete any work specific to Management Strategy 4.5 in 2018.

COMPLETED MANAGEMENT ACTIONS - COASTAL STRATUM

The Oregon Fish and Wildlife Commission adopted Coastal Alternative 6, 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. A tabulated progress summary related to management actions described in the conservation plan is included in Table 4.

Management Strategy 6.1

ODFW participated in a variety of habitat protection activities (actions 6.1.2, 6.1.8), including review of water right applications, removal/fill applications, R/F emergency authorizations, General Authorizations for recreational placer mining, Conditional Use permits, and compliance monitoring of municipal and county riparian ordinances.

Management Strategy 6.2

ODFW's Aquatic Invasive Species program deployed two watercraft inspection crews in the Rogue Watershed District in 2018 (action 6.2.1). Crews based in Central Point and Brookings conducted boat inspections, primarily on the I-5, Hwy 97, and Hwy 101 corridors, from late spring through early fall.

Management Strategy 6.3

Zone regulations were employed in 2018 because fall Chinook escapement was forecasted to exceed escapement goals related to conservation criteria (action 6.3.1), with the exception of Hunter Creek. Hunter Creek was closed to Chinook harvest. Zone regulations include gear restrictions (bobber rule) on the Chetco and Winchuck rivers between September 1 and November 3. Permanent adoption of the bobber rule on the Chetco and Winchuck rivers was aimed at reducing snagging activity during low flow conditions, while still providing early season harvest opportunity (action 6.3.8). The bobber rule was extended to November 27 due to low flow conditions.

Regulations for the Chetco ocean terminal area fishery in 2018 were restricted as compared to recent years. Based on both the Chetco and Winchuck preseason forecasts falling to near S_{MSY} the harvest guideline was reduced to 600 Chinook (action 6.3.5). The recreational fishery was reduced to 4 days to balance harvest between the recreational and commercial fisheries (action 6.3.8). The recreational season was open October 6,7 and 13,14. Harvest was estimated at 429 Chinook. The commercial season was scheduled for the earlier of October 31 and/or a quota of 300 Chinook. The commercial fishery was open 14 days. Harvest was 314 Chinook.

Management Strategy 6.4

A release group of smolts was acclimated at Ferry Creek reservoir (Chetco) in October 2018 and subsequently released into the Chetco River at Snug Harbor (action 6.4.3). The purpose of the acclimation project is to determine whether 1) returning adult Chinook acclimated at Ferry Creek contribute to the river fishery at a higher rate than non-acclimated Chinook; 2) acclimated Chinook are recovered from natural spawning areas at a lower rate than non-acclimated Chinook.

A mainstem release group of smolts were released October, 2018 at Social Security (RM 4) on the Chetco River (action 6.4.4).

Management Strategy 6.5

No action.

OTHER

Rogue Spawning Surveys

Spawning ground surveys were conducted in select reaches within the upper Rogue, middle Rogue, Applegate, and Illinois population areas in 2018 (Table 5).

Table 5. Peak adult fall Chinook counts on survey reaches within the Rogue Aggregate population areas.

Survey	Peak Count (Live + Dead)	Date	Survey Length (miles)	Chinook/mile
Bear Creek ¹	12	10/12/2018	1.0	12
NF Little Butte ¹	14	10/4/2018	1.5	9.3
SF Little Butte ¹	5	10/12/2018	1.0	5
Rogue River Float, Middle A	61	11/2/2018	3.25	19
Rogue River Float, Middle B	63	11/7/2018	11.2	5.6
Rogue River Float, RR- PRP	37	11/2/2018	4.25	8.7
Rogue River Float, Hog Cr-Galice	14	11/15/2018	7.5	1.9
Applegate RM 7.4-0	375	11/8/2018	7.4	51
Applegate RM 14.5-7.4	436	11/5/2018	7.1	61
Applegate RM 25.5-14.5	1034	11/1/2018	11.0	94
W Fk Illinois	5	12/11/2018	0.25	20
E Fk Illinois	11	11/13/2018	0.8	14
Sucker Creek ³	1	12/11/2018	0.5	2
Elk Creek ³	0		1.0	0
West Evans, RM 8-9 ⁴	0	11/2/2018	0.9	0
Evans, RM 15.5-16.5 ⁴	0	11/2/2018	1.0	0
Evans, RM 22-22.5 ⁴	0	11/2/2018	0.5	0
West Evans, RM 0.6-1.2 ⁴	0	11/2/2018	0.5	0
West Evans, RM 9-10 ⁴	0	11/2/2018	0.9	0

¹ Upper Rogue Population Area

² Middle Rogue Population Area

³ Illinois Population Area

⁴ Upper Evans Creek and West Evans were surveyed twice during November of 2018. Flows were very low in the fall of 2018 in Evans Creek and no fish were observed during either survey.

Surveys within the Illinois River subbasin were complicated by low water flow throughout the fall of 2018. During December, flows increased significantly and timing surveys when fish were present was difficult. However, ODFW did identify numerous fall Chinook redds on the surveys so more fish were present than are represented in the table above.

ODFW screening and passage personnel constructed a fish ladder on Little Butte Creek just downstream of the forks in the fall of 2018. During construction, a section of the diversion dam

was removed and personnel observed fall Chinook swimming past the dam site. Now that the diversion dam has a functioning fish ladder ODFW believes fall Chinook will be spawning in higher densities in the South and North Fork surveys. Funding from ODFW's Restoration and Enhancement funds was instrumental in completing this project.

Table 3. Summary of progress related to management actions described in the fall Chinook salmon Conservation Plan, as related to the **Rogue Stratum** of the SMU. The “X” symbol means that ODFW completed work on an action that requires annual attention. The “Y” symbol means that ODFW completed the action and that no further work is needed. The “Z” symbol means that ODFW completed work on an allied topic that complemented the action item included in the conservation plan. The “--” symbol means that no ODFW work was completed on the action item during the year.

Action Item	Year of completion for action item									
	2013	2014	2015	2016	2017	2018	2019	2020	2021	
MANAGEMENT STRATEGY 4.1										
4.1.1	X	X	X	X	X	X				
4.1.2	X	X	X	X	X	X				
4.1.3	Y									
4.1.4	X	X	X	X	X	X				
4.1.5	X	X	X	X	X	X				
4.1.6	X	X	X	X	X	X				
4.1.7	X	X	X	X	X	X				
4.1.8	n/a	n/a	n/a	n/a	n/a	n/a	n/a			
4.1.9	X	X	X	X	X	X				
4.1.10	--	--	--	--	--	--				
4.1.11	--	--	--	--	--	--				
4.1.12	--	--	--	--	--	--				
4.1.13	--	--	--	--	--	--				
4.1.14	X	X	X	X	X	X				
4.1.15	X	n/a	n/a	n/a	n/a	n/a	n/a			
4.1.16	X	X	X	X	X	X				
4.1.17	X	X	X	X	X	X				
MANAGEMENT STRATEGY 4.2										
4.2.1	X	X	X	X	X	X				
MANAGEMENT STRATEGY 4.3										
4.3.1	--	--	--	--	--	--	--			
4.3.2	X	X	X	X	X	X	X			
MANAGEMENT STRATEGY 4.4										
4.4.1	X	X	X	X	X	X	X			
4.4.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a			
4.4.3	n/a	n/a	n/a	n/a	n/a	n/a	n/a			
4.4.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a			
MANAGEMENT STRATEGY 4.5										
4.5.1	X	X	X	X	X	X	X			
4.5.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a			
4.5.3	Y									
4.5.4	X	X	X	X	X	X	X			

Table 4. Summary of progress related to management actions described in the fall Chinook salmon Conservation Plan, as related to the **Coastal Stratum** of the SMU. The “X” symbol means that ODFW completed work on an action that requires annual attention. The “Y” symbol means that ODFW completed the action and that no further work is needed. The “Z” symbol means that ODFW completed work on an allied topic that complemented the action item included in the conservation plan. The “--” symbol means that no ODFW work was completed on the action item during the year.

Action Item	Year of completion for action item									
	2013	2014	2015	2016	2017	2018	2019	2020	2021	
MANAGEMENT STRATEGY 6.1										
6.1.1	--	--	--	--	--	--	--	--	--	--
6.1.2	X	X	X	X	X	X	X	X	X	X
6.1.3	--	--	--	--	--	--	--	--	--	--
6.1.4	--	--	--	--	--	--	--	--	--	--
6.1.5	--	--	--	--	--	--	--	--	--	--
6.1.6	--	--	--	--	--	--	--	--	--	--
6.1.7	--	--	--	--	--	--	--	--	--	--
6.1.8	X	X	X	X	X	X	X	X	X	X
6.1.9	--	--	--	--	--	--	--	--	--	--
6.1.10	X	X	X	X	X	X	X	X	X	X
6.1.11	--	--	--	--	--	--	--	--	--	--
6.1.12	--	--	--	--	--	--	--	--	--	--
6.1.13	--	--	--	--	--	--	--	--	--	--
6.1.14	--	--	--	--	--	--	--	--	--	--
6.1.15	--	--	--	--	--	--	--	--	--	--
6.1.16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
6.1.17	--	--	--	--	--	--	--	--	--	--
MANAGEMENT STRATEGY 6.2										
6.2.1	X	X	X	X	X	X	X	X	X	X
MANAGEMENT STRATEGY 6.3										
6.3.1	X	X	X	X	X	X	X	X	X	X
6.3.2	n/a	X	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
6.3.3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
6.3.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
6.3.5	X	X	X	X	X	X	X	X	X	X
6.3.6	n/a	X	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
6.3.7	n/a	X	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
6.3.8	--	Y								
MANAGEMENT STRATEGY 6.4										
6.4.1	X	X	X	X	X	X	X	X	X	X
6.4.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
6.4.3	X	X	X	X	X	X	X	X	X	X
6.4.4	X	X	X	X	X	X	X	X	X	X
6.4.5	Y									
6.4.6	X	X	X	X	X	X	X	X	X	X
MANAGEMENT STRATEGY 6.5										
6.5.1	--	--	X	X	X	X	X	X	X	X

PRE-SEASON FORECASTS

ODFW fishery managers will utilize pre-season forecasts to determine if (1) NP CHF populations might reach conservation criteria and (2) to determine the number of NP CHF that can be harvested in the late-season terminal fishery that operates off the mouths of the Chetco and Winchuck rivers. The efficacy of any annual forecast will, by default, be questionable because of substantial uncertainty in (1) the stock size estimates before the onset of any fishing in spring, (2) the forecasted harvest rates of CHF in the ocean fisheries that operate in federally managed waters, and (3) the forecasted harvest rates in the recreational freshwater fisheries. However, management criteria for each population are based on spawner escapements over multiple (2 or 3) years, which helps buffer the uncertainty associated with the pre-season forecasts.

Preseason Forecasts in Relation to Conservation Criteria

Harvest opportunities in the recreational freshwater fisheries will be constrained to some degree if the pre-season forecasts indicate that NP CHF populations will drop into conservation status. As described in the conservation plan, this situation can be expected in 6-23% of the years, depending on the population in question. Based on the pre-season forecasts for 2019, additional constraints appear warranted for some of the freshwater recreational fisheries (Table 6).

Table 6. Forecasted 2019 spawning escapement of age 3-6 NP CHF in relation to conservation status criteria that cover multiple years.

Population(s)	Conservation criterion	Forecasted number of spawners	Conservation shortfall
Rogue Aggregate	20,400 ^{ab}	63,688 ^{ab}	0
Lower Rogue	1,500 ^c	2,736 ^b	0
Chetco	1,440 ^b	1,088 ^b	352
Winchuck	300 ^b	866 ^b	0
Pistol	540 ^c	337 ^c	203
Hunter	300 ^c	134 ^c	166

^a Criterion covers passage at Huntley Park instead of spawning escapement.

^b Covers 2018 (estimated spawners) and 2019 (forecasted spawners).

^c Covers 2017 and 2018 (estimated spawners) and 2019 (forecasted spawners).

Preseason Forecasts in Relation to Management of the Chetco Terminal Fishery

The conservation plan outlines that harvest opportunities in the late-season, near-shore, Chetco terminal fishery will be based on the number of estimated spawners needed for maximum sustained yield (Smsy) in population areas proximal to the Chetco River (Action 6.3.5 in Management Strategy 6.3 for the Coastal Stratum). ODFW completed an assessment of the efficacy of pre-season forecasting needs associated with this fishery and because the Smsy estimates pertain to *average* conditions, ODFW concluded that harvest opportunities in the Chetco terminal fishery should be based on a three year arithmetic mean. ODFW also concluded that management of the Chetco terminal fishery should only be based on the Chetco and Winchuck populations, because the other populations in the SMU contribute to the fishery at very low rates; as described in the conservation plan.

Harvest opportunities in the late-season, near-shore Chetco terminal fishery will be constrained to some degree if the pre-season forecasts indicate that NP CHF populations will drop below individual Smsy needs estimated for the Chetco and Winchuck populations of NP CHF. ODFW estimates that this situation can be expected in 40% of the years. Estimated spawner numbers in 2017 was above Smsy but below in 2018 . The pre-season forecast for spawner numbers in 2019 does not provide an opportunity to harvest NP CHF based on the 3 year average (Table 7), a conservative harvest guideline is warranted for the 2019 terminal fishery.

Table 7. Forecasted 2019 spawning escapement of age 3-6 NP CHF in relation to Smsy estimates for the Chetco and Winchuck populations. For each population, the forecasted number of spawners includes the 2019 forecast and estimated spawner numbers in 2017 and 2018.

Population	S _{msy}	Forecasted number of spawners	Difference
Chetco	2,740	1,651 ^a	-1089
Winchuck	560	876 ^a	316

^aCovers 2017 and 2018 (estimated spawners) and 2019 (forecasted spawners).