

**ANNUAL PROGRESS REPORT FOR 2020
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 2020 return year, completed management actions, and 2021 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 2020, 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	2020 Estimate
ROGUE AGGREGATE POPULATIONS			
Adult Abundance ^a	≥54,400	<u>51,181</u>	30,497
Age Structure ^b	≥10%	<u>5%</u>	0% ⁱ
Run Timing ^c	≥8%	8.6%	2.3%
Run Composition ^d	≤5%	4.5%	4.3%
LOWER ROGUE POPULATION			
Adult Abundance ^e	≥3,500	4,276	1,924
Spawner Composition ^f	≤10%	3%	1%
CHETCO POPULATION			
Adult Abundance ^e	≥3,800	<u>3,585</u>	1,590
Age Structure ^h	≥16%	18%	3.7%
Spawner Composition ^f	≤18%	9%	9%
WINCHUCK POPULATION			
Adult Abundance ^e	≥1,000	<u>829</u>	421
Juvenile Abundance ^g	≥125,000	162,101	97,513
Spawner Composition ^f	≤10%	3%	0%
PISTOL POPULATION			
Adult Abundance ^e	≥1,300	<u>1,018</u>	618
Spawner Composition ^f	≤5%	2%	5%
HUNTER POPULATION			
Adult Abundance ^e	≥560	733	178
Spawner Composition ^f	≤5%	1%	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 A sub sample of adult chinook that are captured at Huntley are analyzed for age and is not intended to indicate there were no age 5+6 chinook that spawned in the river.

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	2020 Estimate
ROGUE AGGREGATE POPULATIONS			
Adult Abundance ^a	<20,400 ⁱ	<u>44,599</u>	30,497
Age Structure ^b	<3%	<u>0%</u> ^k	0% ^k
Run Timing ^c	<5%	9.4%	2.3%
Run Composition ^d	>10%	4.5%	4.3%
LOWER ROGUE POPULATION			
Adult Abundance ^e	<1,500	<u>1,323</u>	1921
Spawner Composition ^f	>15%	1%	1%
CHETCO POPULATION			
Adult Abundance ^e	<1,440 ⁱ	<u>1120</u>	1590
Age Structure ^h	<5%	<u>4%</u>	3.7%
Spawner Composition ^f	>20%	4%	9%
WINCHUCK POPULATION			
Adult Abundance ^e	<300 ⁱ	494	421
Juvenile Abundance ^g	<50,000 ^j	97,513	97,513
Spawner Composition ^f	>15%	0%	0%
PISTOL POPULATION			
Adult Abundance ^e	<540	<u>332</u>	618
Spawner Composition ^f	>10%	2%	5%
HUNTER POPULATION			
Adult Abundance ^e	<300	<u>139</u>	178
Spawner Composition ^f	>10%	0%	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.

k A sub sample of adult chinook that are captured at Huntley are analyzed for age and is not intended to mean there were no age 5+6 chinook that spawned in the river.

The Rogue fall chinook aggregate is in conservation status for age 5 and 6 adult fall chinook. This metric was identified in the conservation plan as the most recent 3-year period and current status is 0% age 5 and 6 adult chinook past Huntley. There are three additional metrics identified in the plan that are used to monitor the status of the Rogue aggregate and they are currently above conservation status.

The metric means that among fall chinook sampled at Huntley Park that had scales removed to determine age, none were age 5 or 6. That does not mean that no age 5 or age 6 fish spawned in the river. Larger fall chinook continue to be observed on ODFW spawning surveys in the Applegate, for instance.

In response, ODFW will increase monitoring for age structure in 2021. Additional action is possible if the populations remain in conservation status for 2022.

- increasing the sampling rate for larger fall chinook captured at Huntley to better understand the older age structure of the fall chinook aggregate.
- collecting scales from all carcasses sampled during lower Rogue surveys and age these fish based off scales instead of lengths.

The escapement estimates for both the Aggregate and Lower Rogue has been increasing since the low in 2018. The 2021 forecast for the Aggregate and Lower Rogue are continuing to show increasing abundance trends which will help rebuild the older age broods.

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 2020 are briefly discussed below. A tabulated progress summary related to management actions described in the conservation plan is included in Tables 3 and 4. In addition, ODFW conducted spawning ground surveys in Upper Rogue, Applegate, and Illinois rivers and are included in Table 5.

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 2020. ODFW participated in the USACE annual winter management coordination meeting.

Applegate River flows were managed to maximize fall Chinook distribution and spawning success in 2020. Fish were observed spawning from the dam downstream to the mouth and no flow or temperature issues were encountered.

Average flow at the USGS Agness gage was 2,068 cfs August 10 – September 10 (action 4.1.7). Flow met ODFW recommendations during the fall Chinook migration. Disease-related mortality of adult fall Chinook in 2020 was estimated at 9%. 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 2020 exceeded this level, averaging 1,657 cfs at Grants Pass July 1 – August 10 (action 4.1.9). The lowest average daily flow during the period was 1,530 cfs on one day.

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 2020 (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 2020 exceeded this level, averaging 1,657 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). This additional storage was is above that is needed to protect adult spring Chinook and adult fall Chinook.

For the second year in a row a pikeminnow fishing contest, focused on the middle Rogue River around Grants Pass, was held in the summer of 2020. The project was much smaller in scope and effort due to the Covid 19 pandemic. One objective is to encourage angling as a source of mortality on non-local pikeminnow in the Rogue River.

Management Strategy 4.4

Zone regulations were employed in 2020 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 2020.

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 2020, 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, 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 2020 (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 not employed in 2020 because fall Chinook escapement was forecasted to not exceed escapement goals related to conservation criteria (action 6.3.1). Hunter Creek and Pistol River were closed. Low flow angling closures were implemented on the Winchuck and Chetco Rivers until November 17. The wild Chinook harvest limit was reduced to 1 a day and 2 for the season in open areas.

The Chetco ocean terminal area recreational and commercial fishery in 2020 was not opened. Based on both the Chetco and Winchuck preseason forecasts falling to below S_{MSY} (action 6.3.5).

Management Strategy 6.4

A release group of smolts was acclimated at Ferry Creek reservoir (Chetco) in October 2020 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 in November, 2020 at Social Security (RM 4) on the Chetco River (action 6.4.4).

Management Strategy 6.5

No action.

Conservation Plan Progress Summary

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		X	X	
4.1.2	X	X	X	X	X	X		X	X	
4.1.3	Y									
4.1.4	X	X	X	X	X	X		X	X	
4.1.5	X	X	X	X	X	X		X	X	
4.1.6	X	X	X	X	X	X		X	X	
4.1.7	X	X	X	X	X	X		X	X	
4.1.8	n/a	n/a	n/a	n/a	n/a	n/a		n/a	n/a	
4.1.9	X	X	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		X	X	
4.1.15	X	n/a	n/a	n/a	n/a	n/a		n/a	n/a	
4.1.16	X	X	X	X	X	X		X	X	
4.1.17	X	X	X	X	X	X		X	X	
MANAGEMENT STRATEGY 4.2										
4.2.1	X	X	X	X	X	X		X	X	
MANAGEMENT STRATEGY 4.3										
4.3.1	--	--	--	--	--	--		--	--	
4.3.2	X	X	X	X	X	X		X	X	
MANAGEMENT STRATEGY 4.4										
4.4.1	X	X	X	X	X	X		X	X	
4.4.2	n/a	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	n/a	
4.4.4	n/a	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	X	
4.5.2	n/a	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	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
6.1.3	--	--	--	--	--	--	--	--	X
6.1.4	--	--	--	--	--	--	--	--	X
6.1.5	--	--	--	--	--	--	--	--	X
6.1.6	--	--	--	--	--	--	--	--	--
6.1.7	--	--	--	--	--	--	--	--	--
6.1.8	X	X	X	X	X	X	X	X	--
6.1.9	--	--	--	--	--	--	--	--	--
6.1.10	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
6.1.17	--	--	--	--	--	--	--	--	--
MANAGEMENT STRATEGY 6.2									
6.2.1	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
6.3.2	n/a	X	n/a	n/a	n/a	n/a	n/a	n/a	X
6.3.3	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	X
6.3.5	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	X
6.3.7	n/a	X	n/a	n/a	n/a	n/a	n/a	n/a	X
6.3.8	--	Y							
MANAGEMENT STRATEGY 6.4									
6.4.1	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	X
6.4.3	X	X	X	X	X	X	X	X	X
6.4.4	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
MANAGEMENT STRATEGY 6.5									
6.5.1	--	--	X	X	X	X	X	X	y

Rogue Spawning Surveys

Spawning ground surveys were conducted in select reaches within the upper Rogue, middle Rogue, Applegate, and Illinois population areas in 2020.

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	22	10/23/2020	0.8	28
Bear Creek ¹	10	10/23/2020	0.5	20
NF Little Butte ¹	N/A	N/A	1.5	N/A
SF Little Butte ¹	N/A	N/A	1.0	N/A
Rogue River Float, Middle A	22	10/22/2020	3.25	7
Rogue River Float, Middle B	34	11/5/2020	11.2	3
Rogue River Float, RR- PRP	8	10/22/2020	4.25	1
Rogue River Float, PRP- BP	30	10/22/2020	5.0	6
Applegate RM 7.4-0	329	11/4/2020	7.4	44
Applegate RM 14.5-7.4	233	10/29/2020	7.1	31
Applegate RM 25.5-14.5	617	11/3/2020	11.0	56
W Fk Illinois	6	11/16/2020	0.25	24
E Fk Illinois	23	11/16/2020	0.8	29
Sucker Creek ³	0	NO SURVEY	0.5	0
Elk Creek ³	3	11/16/2020	1.0	3
West Evans, RM 8-9	0	11/18/2020	0.9	0
Evans, RM 15.5-16.5	0	11/18/2020	1.0	0
Evans, RM 22-22.5	0	11/18/2020	0.5	0
West Evans, RM 0.6-1.2	0	11/18/2020	0.5	0
West Evans, RM 9-10	0	11/18/2020	0.9	0

¹ Upper Rogue Population Area. NF and SF Little Butte data not available.

² Middle Rogue Population Area

³ Illinois Population Area

*Mainstem Rogue River fall Chinook spawning occurred earlier than in a typical year. Consequently, ODFW surveys found many more redds than spawning fish in 2020.

*Surveys within the Illinois River sub-basin were complicated by low water flow throughout the fall of 2020.

*ODFW surveyed the Illinois during the first rain event of 2020 when the river was rising but was not able to return for follow up surveys. Survey data reported in 2020 should be considered a minimum count of fall Chinook for the Illinois sub-basin.

*Fall chinook spawning in Bear Creek was confirmed to at least river mile 21 in 2020, just downstream from Ashland. Since 2011 fall chinook have spawned in or near Ashland every year despite drought conditions that have been prevalent in this time period. Fall chinook spawned extensively within the footprint of the Almeda fire that took place just weeks before. No excessive sedimentation happened over the winter that would have harmed the developing embryos, due in part to post-fire best management practices that were enacted as well as the lack of large storms over winter.

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 ocean 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 2021 and conservation status for age structure (Table 2), additional constraints appear warranted for some of the freshwater recreational fisheries (Table 6).

Table 6. Forecasted 2021 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 status
Rogue Aggregate	20,400 ^a	58,701	44,599 ^a
Lower Rogue	1,500 ^c	3,706	1,323 ^c
Chetco	1,440 ^b	4,374	1,120 ^b
Winchuck	300 ^b	1,025	494 ^b
Pistol	540 ^c	1,164	332 ^c
Hunter	300 ^c	382	139 ^c

^aCriterion covers 2019 and 2020 passage at Huntley Park instead of spawning escapement.

^bCovers 2019 and 2020 (estimated spawners).

^cCovers 2018, 2019 and 2020 (estimated 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 2019 and 2020 was below Smsy. The pre-season forecast for spawner numbers in 2021 does not provide an opportunity to harvest NP CHF based on the 3 year average (Table 7).

Table 7. Forecasted 2021 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 2021 forecast and estimated spawner numbers in 2019 and 2020.

Population	S _{msy}	Forecasted number of spawners	Difference
Chetco	2,740	2,279 ^a	-461
Winchuck	560	590 ^a	30

^aCovers 2019 and 2020 (estimated spawners) and 2021 (forecasted spawners).