WELCOME – THANKS FOR JOINING US!

ZOOM WEBINAR/ CALL LOGISTICS

You can turn your camera on and mute or unmute yourself through the control panel at the bottom of your screen.

We will keep folks muted during the beginning of our program, then will unmute folks when we open it up for questions and feedback. Callers can unmute yourself by pressing *6 on your phone.

We ask that you "raise their hand" to ask a question which you can access through the control panel at the bottom of the screen. You can also raise your hand by hovering over your face or name on the list of participants. Callers can raise their hand by dialing *9.

If you have any technical issues during the call, use the chat button and we will help you through those. ***Please do not use the chat for questions or comments on the presentation, we will take those live.***

Statewide Salmon Forecast Meeting
Feb 26, 2021

Washington Department of FISH and WILDLIFE

Meeting Agenda

Note: WDFW staff will take questions and comments following each presentation. Regional discussion sessions will provide opportunities to ask questions and provide comments as well.

9:00 – 9:30	**Introduction** • Welcome and Introduction • North of Falcon – Setting Salmon Fisheries in 2021 • Mass Marking during Covid	Kyle Adicks Kelly Cunningham
9:30 – 11:00	**Salmon Forecasts 2021** • 2020/21 Environmental Outlook • Puget Sound and Coast Chinook, Coho, Chum, Sockeye, and Pink Stocks • Columbia River Salmon and Steelhead Stocks • PFMC Salmon Technical Team Review	Marisa Litz Chad Herring & Mickey Agha Tim Sippel Wendy Beeghley
11:00 – 12:00	**Director's Office** • Legislative Update • Habitat - Bold Changes are Necessary • Director's Comments • Comments from Co-managers	Tom McBride Jeff Davis Kelly Susewind Lorraine Loomis & Shawn Yanity
12:00 – 3:00	**Regional Discussion Sessions** • Puget Sound Recreational • Ocean & Coastal • Puget Sound Commercial	Mark, Derek, Jake, Kirsten, and Chad Kyle(s), Wendy, James, Jody, and Mike Ron, Kwasi, Dave, and Mickey

Washington Department of FISH and WILDLIFE

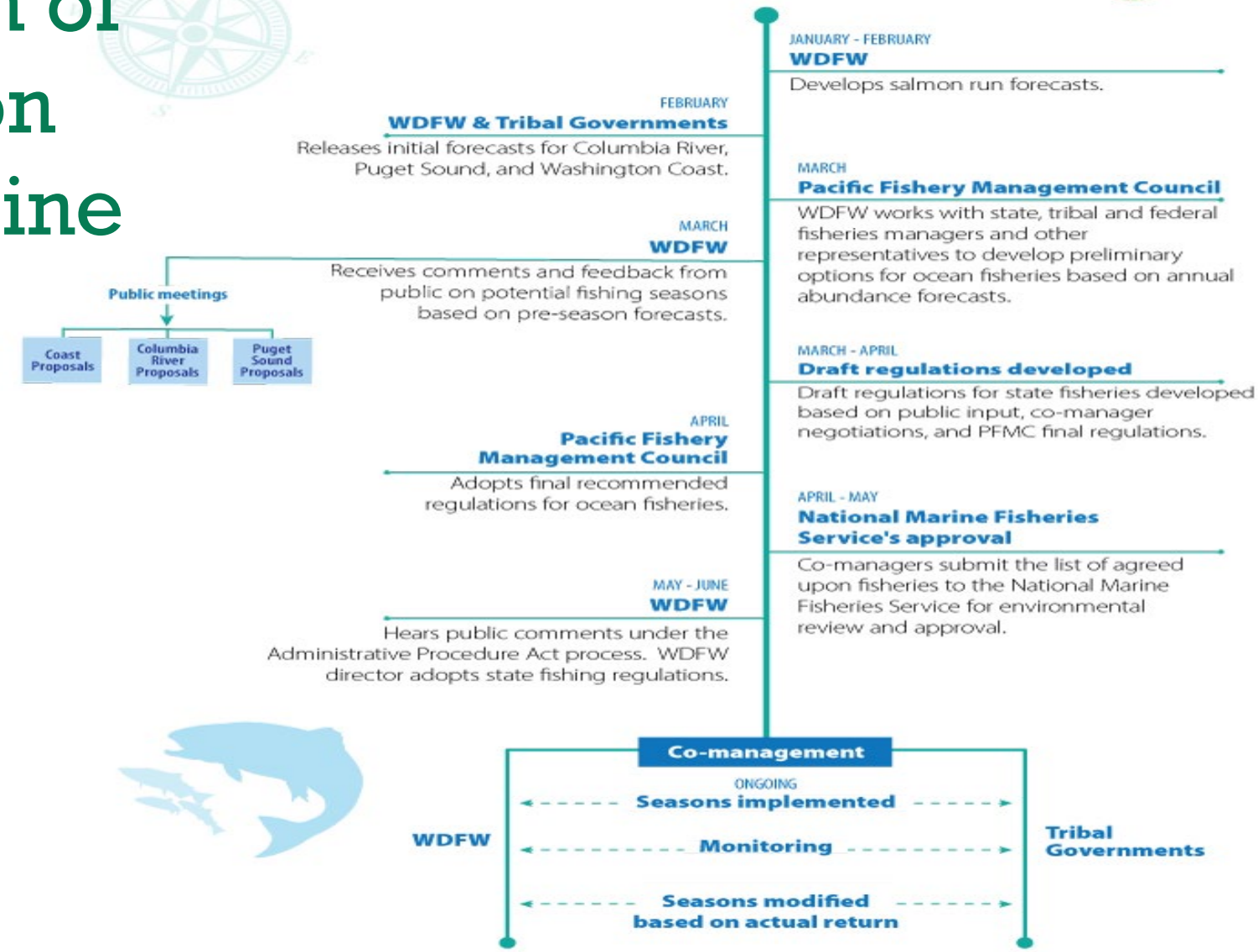
North of Falcon – Setting Salmon Fisheries In 2021

Kyle Adicks

What is North of Falcon?

- North of Falcon is the annual, cooperative process to set salmon seasons in Washington waters.
- The name refers to waters north of Oregon's Cape Falcon, which marks the southern border of Washington's management of salmon stocks.
- One component of a larger salmon season-setting process that also involves the state, tribal governments, federal regulators, other U.S. states, and Canada.

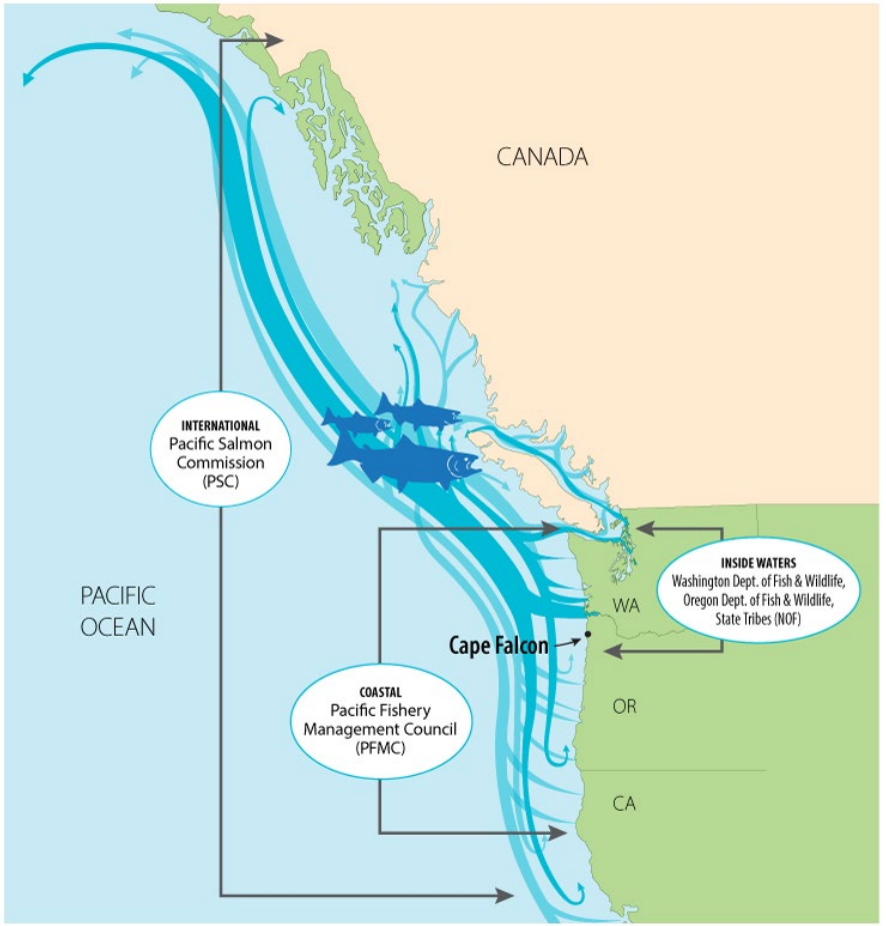
North of Falcon timeline



What guides North of Falcon?

Fishery managers must weigh many factors when developing salmon seasons, including:

- Endangered Species Act (ESA) constraints
- Commission policy
- Pacific Salmon Treaty obligations
- Tribal co-management: Washington's treaty tribes manage their own fisheries, sharing data and splitting harvest with the state
- Extensive monitoring and evaluation of fisheries statewide



2021 NOF Meeting Schedule

All meetings will be held virtually
Meeting links and materials are available on the WDFW webpage
https://wdfw.wa.gov/fishing/management/north-falcon/public-meetings

Date	Purpose
Feb. 25	Willapa Bay – Grays Harbor Forecast meeting
Feb. 26	Statewide Forecast Meeting
Mar. 2-5, 8-11	Pacific Fishery Management Council meeting
Mar. 16	North of Falcon #1
Mar. 17	Willapa Bay Fisheries Discussion
Mar. 17	Columbia River Fisheries Discussion

2021 NOF Meeting Schedule (cont.)

All meetings will be held virtually

Meeting links and materials are available on the WDFW webpage

https://wdfw.wa.gov/fishing/management/north-falcon/public-meetings

Date	Purpose
Mar. 23	Puget Sound Recreational Fisheries Discussion
Mar. 23	Public Hearing on Ocean Salmon Management Options
Mar. 24	Grays Harbor Fisheries Discussion
Mar. 25	Puget Sound Recreational Fisheries Discussion
Mar. 31	North of Falcon #2
Apr. 1	Columbia River and Ocean Fisheries Discussion
Apr. 5	Willapa Bay Fisheries Discussion
Apr. 6	Grays Harbor Fisheries Discussion
Apr. 6-9, 12-15	Final Pacific Fishery Management Council Meeting

Learn more

To get up-to-date information about upcoming meetings, proposed seasons, updated forecasts, and opportunities for public comment, visit:

https://wdfw.wa.gov/nof

Washington Department of FISH and WILDLIFE

Mass Marking during Covid

Kelly Cunningham

Washington Department of FISH and WILDLIFE

2020/2021 Environmental Outlook

Marisa Litz, PhD

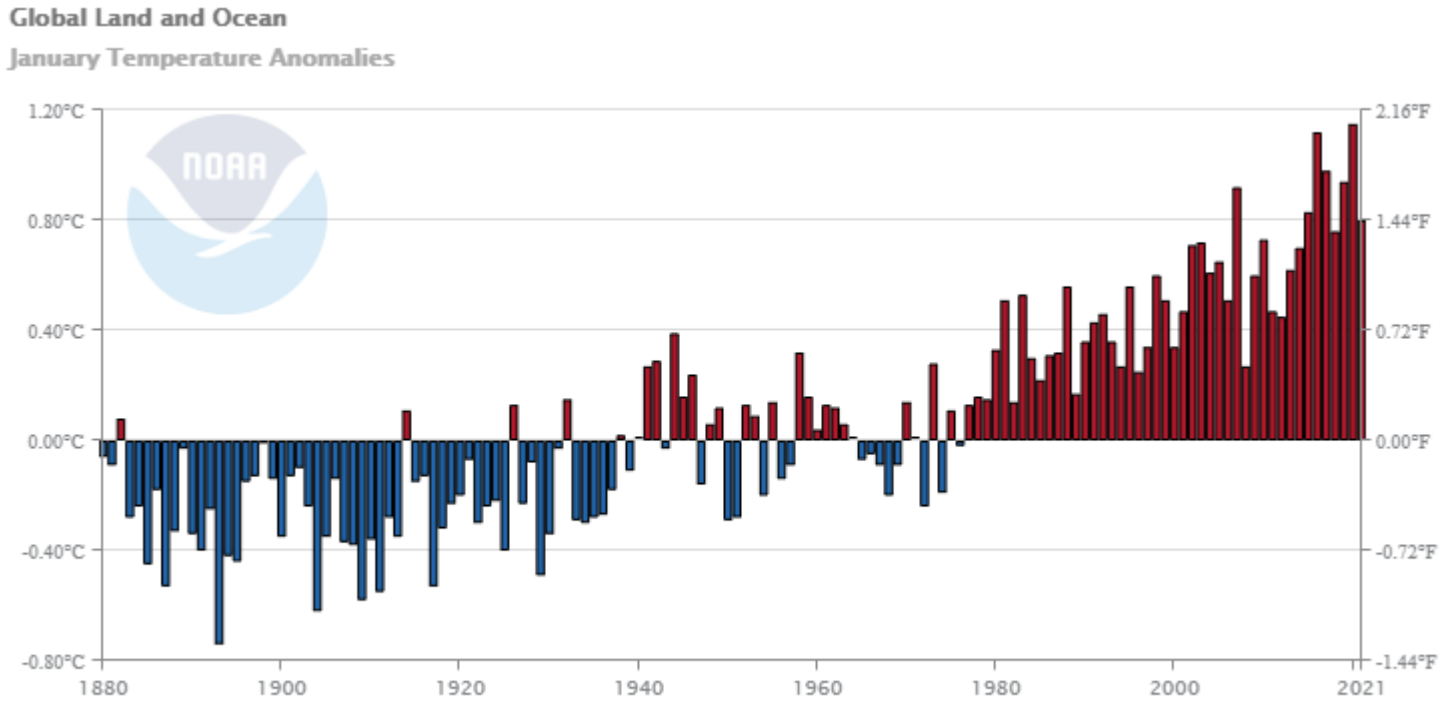
Outline

- Update on physical conditions and outlook for 2021 (“warm blob” & La Niña)
- Unusual biological responses
- NOAA environmental indicators (stoplight chart)

Take-Home Messages

- Climate variability will continue to impact salmon returns across the state of Washington in 2021
- Environmental stressors affect **BOTH** freshwater and marine life history stages of salmon
- Cooler conditions related to La Niña may see a bump in marine survival in 2021 compared to recent years

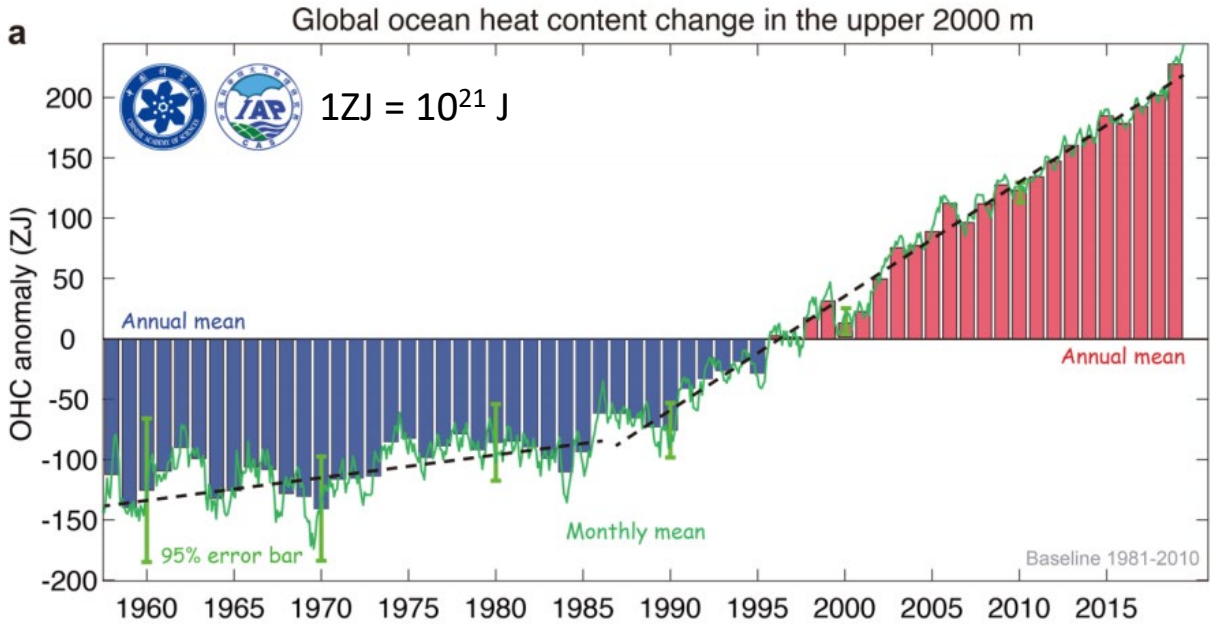
Global land and ocean surface temperatures in January 2021 were the 7th warmest in 142 years

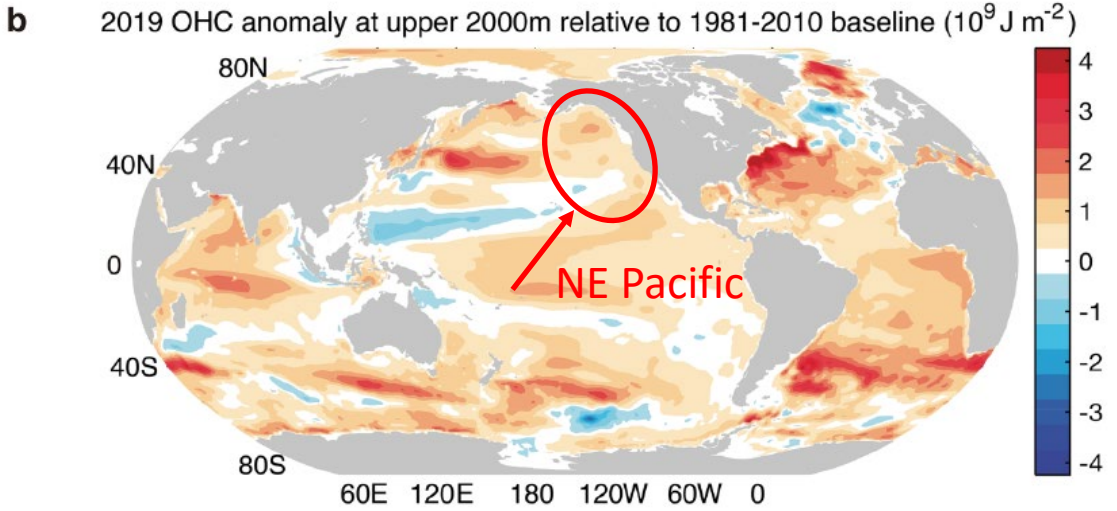


www.ncdc.noaa.gov

The warmest years in the ocean were 2015-2019

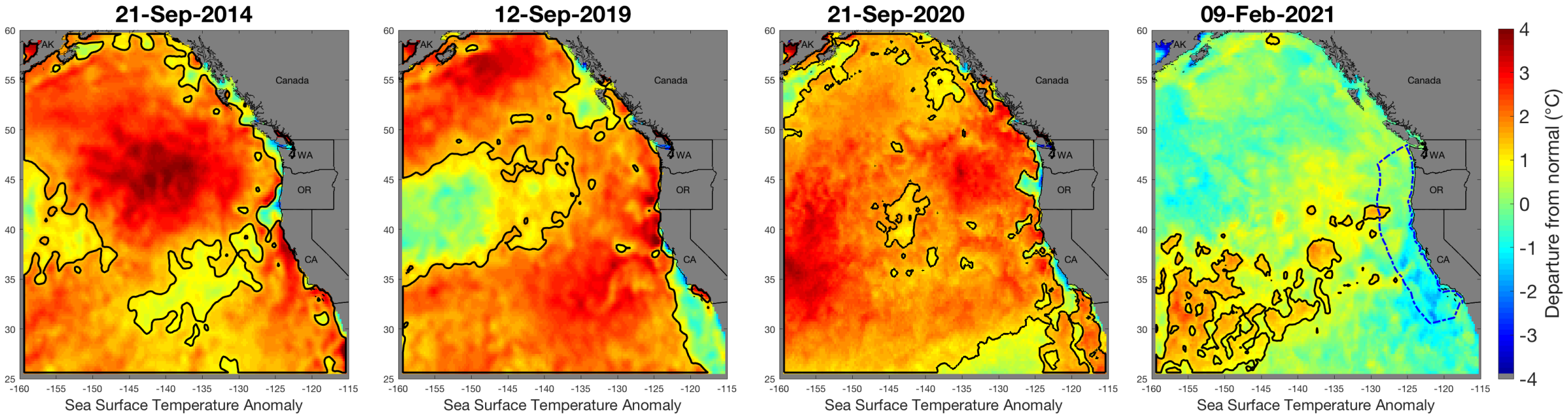
>90% of the excess global heat is stored within the world's oceans





Cheng et al (2020) Adv. Atmos. Sci 37:137-142

The "warm blob" of 2020 had maximum size of 9.1 million km^2 in late September (2nd largest)



Largest event (2014-2016) since 1982

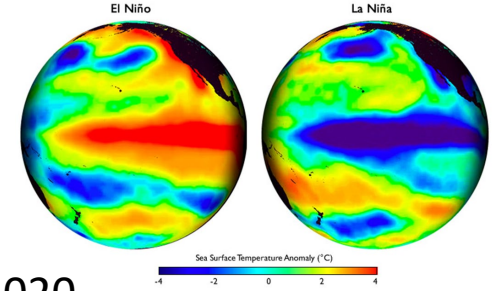
3rd largest event since 1982

2nd largest event since 1982

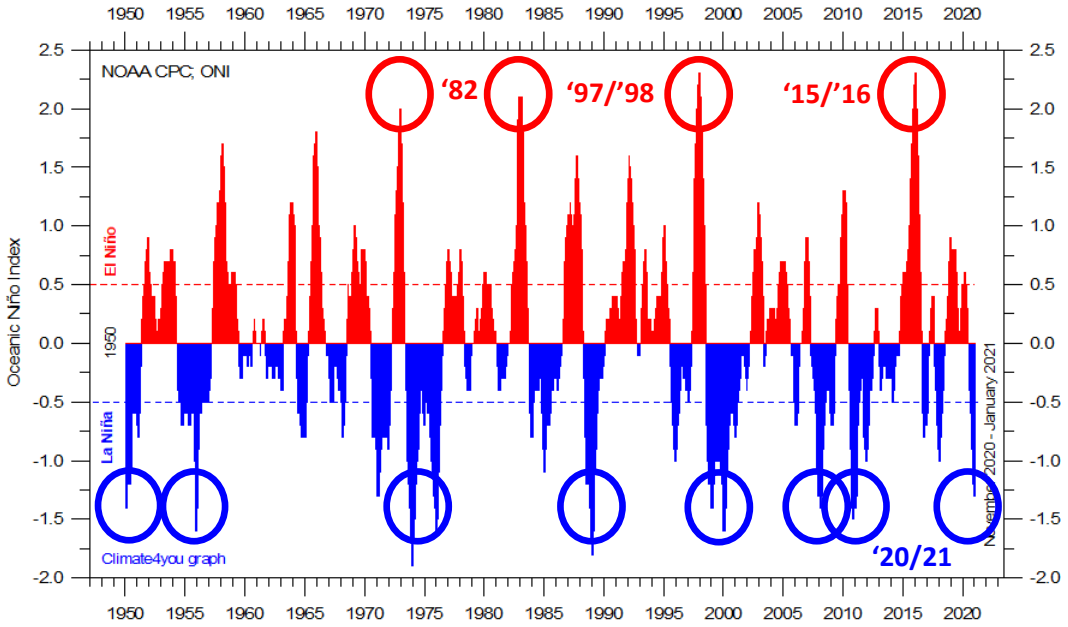
Currently decreasing in size

www.integratedecosystemassessment.noaa.gov/regions/california-current/cc-projects-blobtracker

The cool phase of El Niño = La Niña

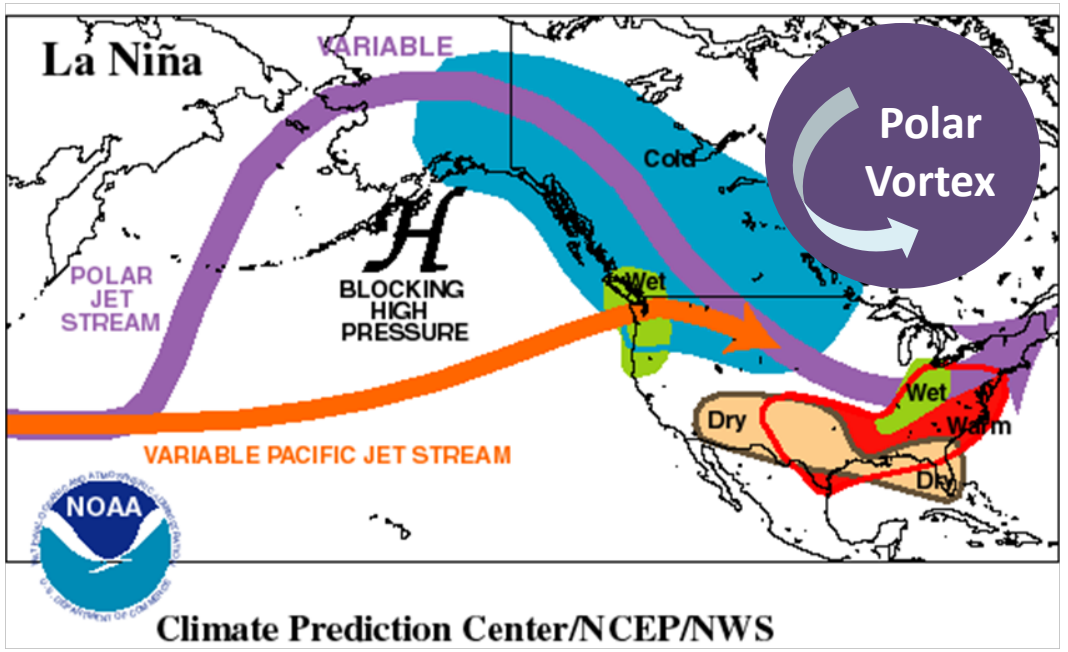


El Niño > 0.5°C SST 3-month anomaly



La Niña < -0.5°C SST 3-month anomaly

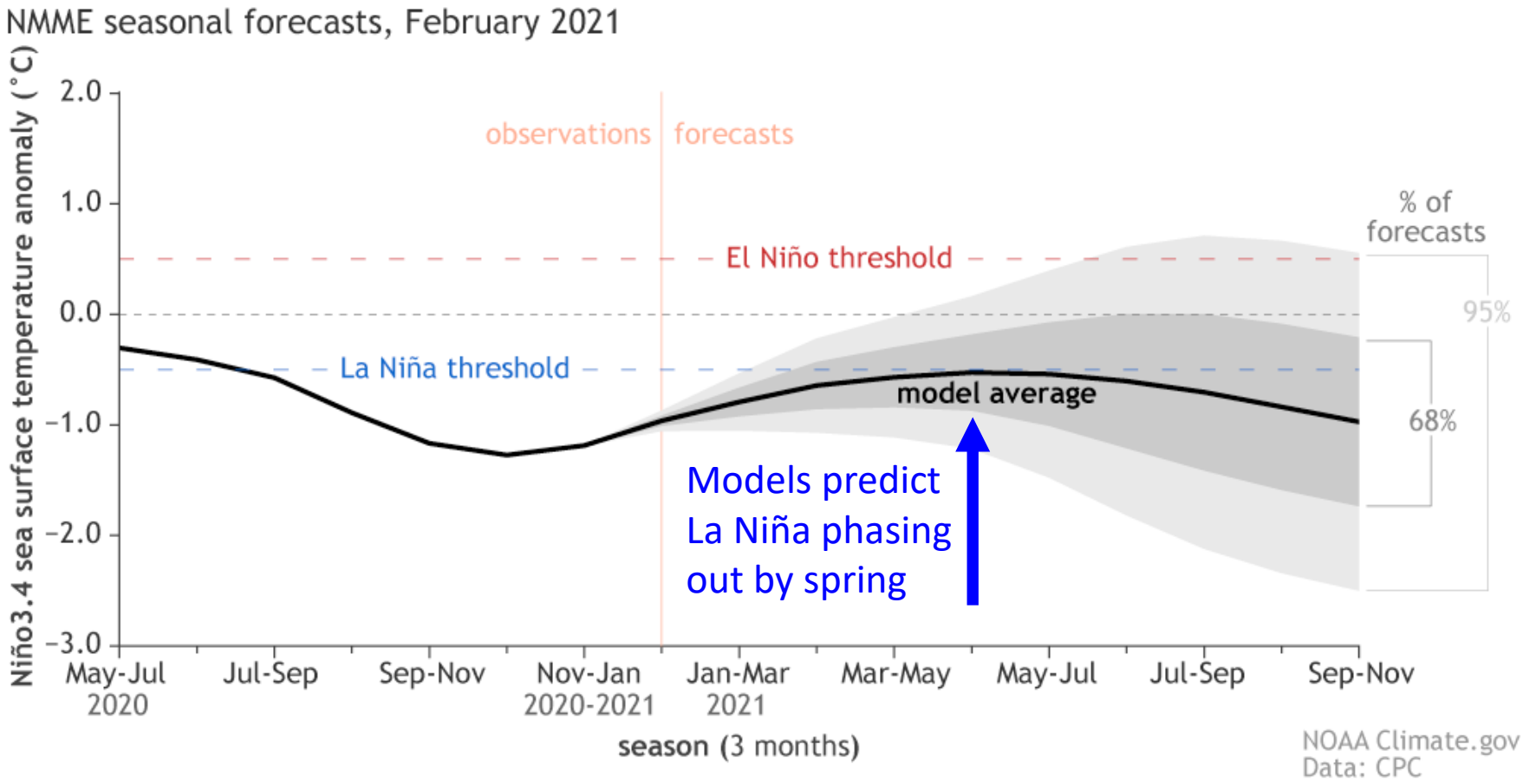
La Niña conditions since August 2020



El Niño / La Niña impact global weather patterns

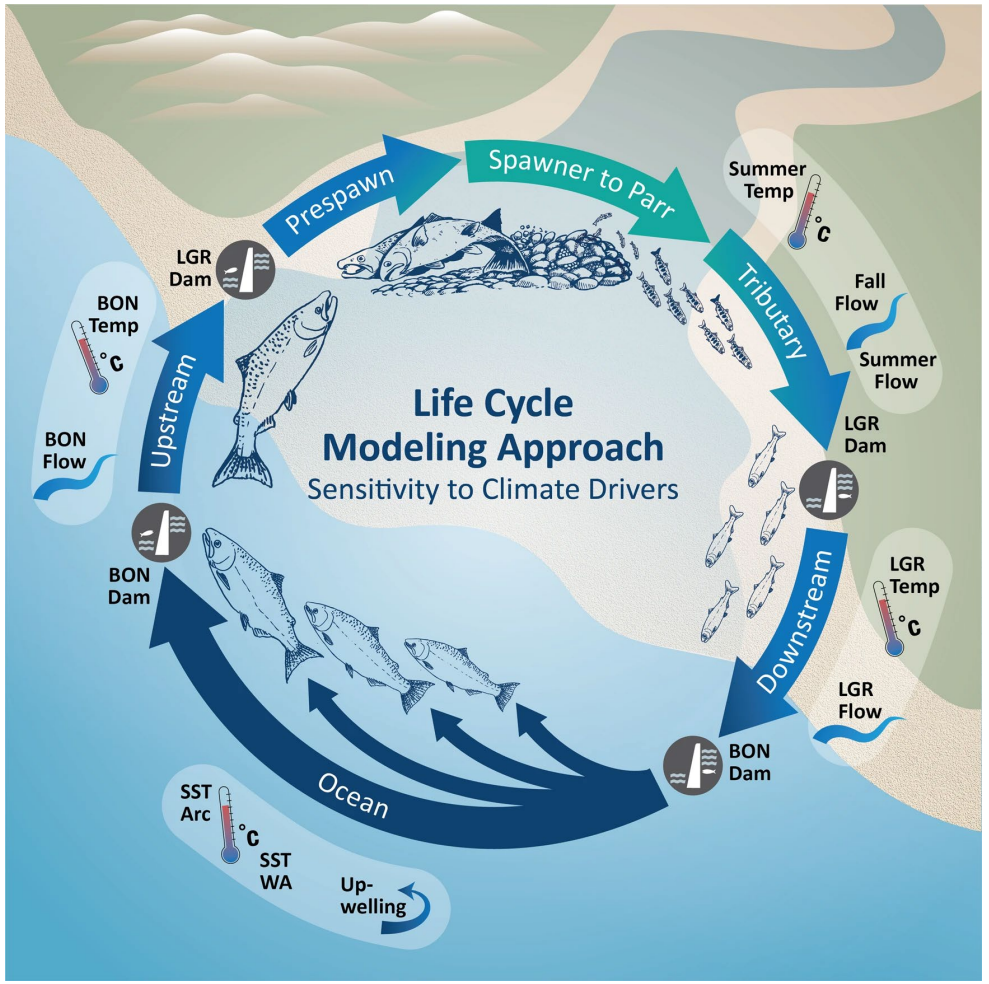
www.climate.gov/enso

There is a 60% chance of La Niña phasing out by spring 2021 (April-June)



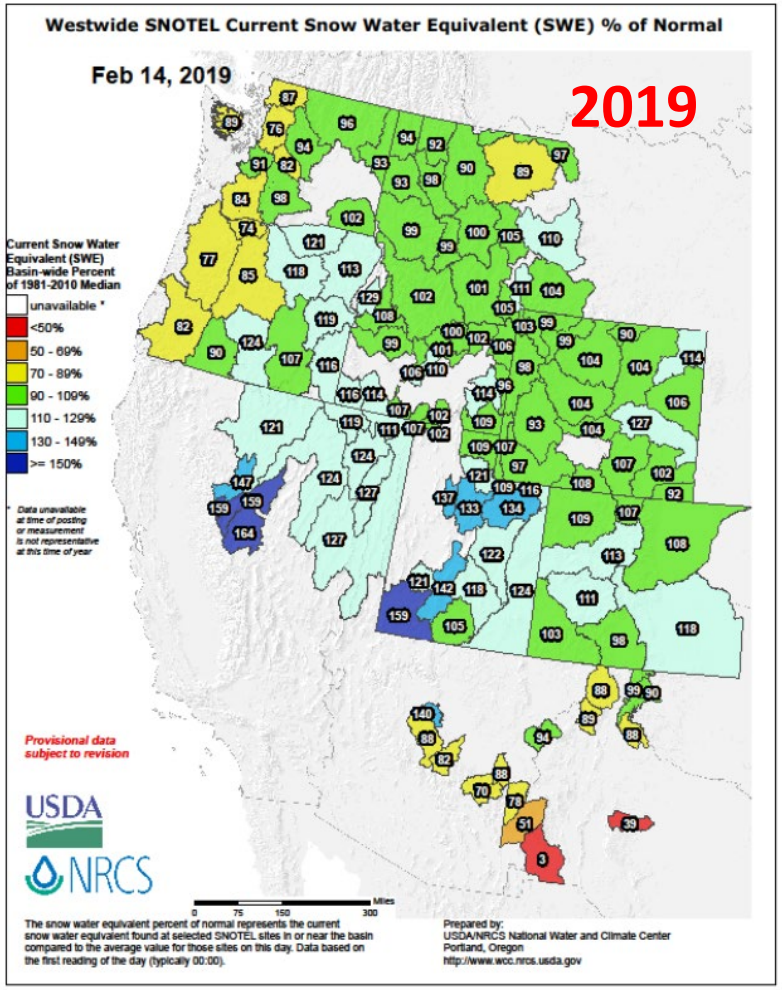
www.climate.gov/enso

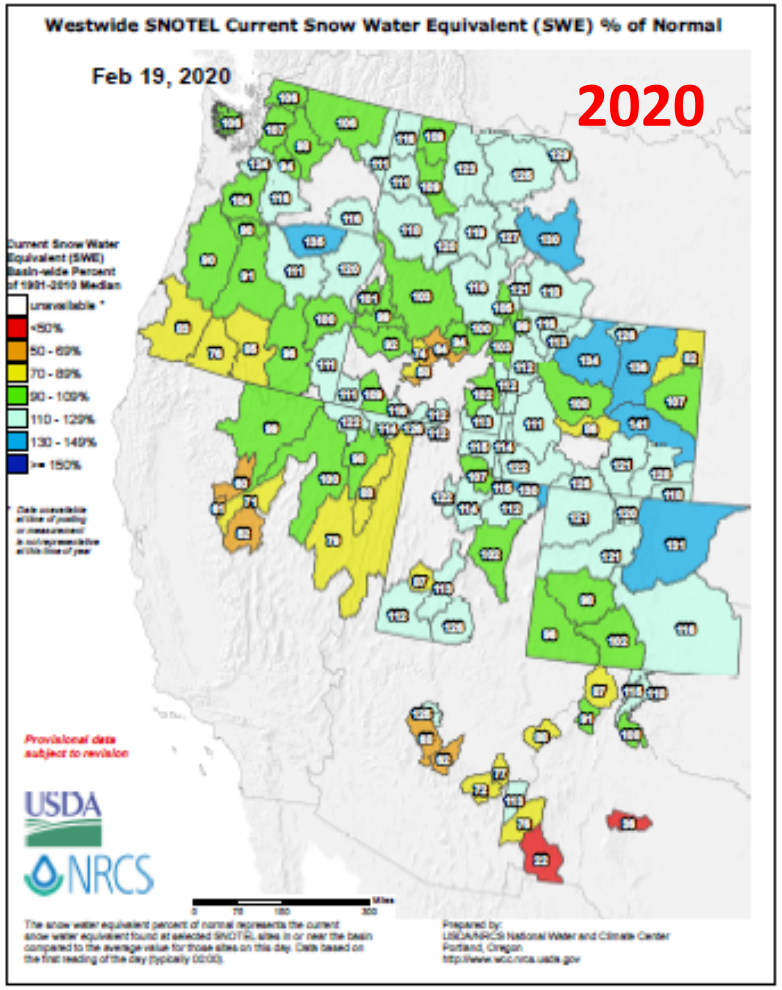
Warming impacts salmon at all life history stages, but especially in the ocean

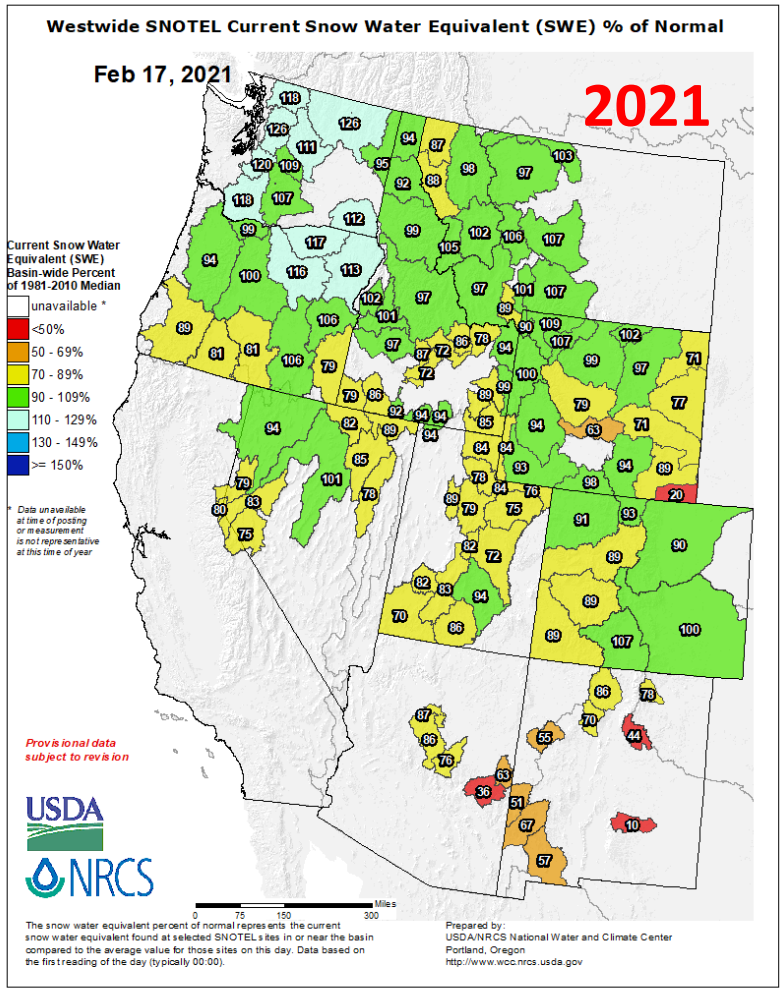


Crozier et al. 2021

Current snowpack is 95-150% of normal in WA



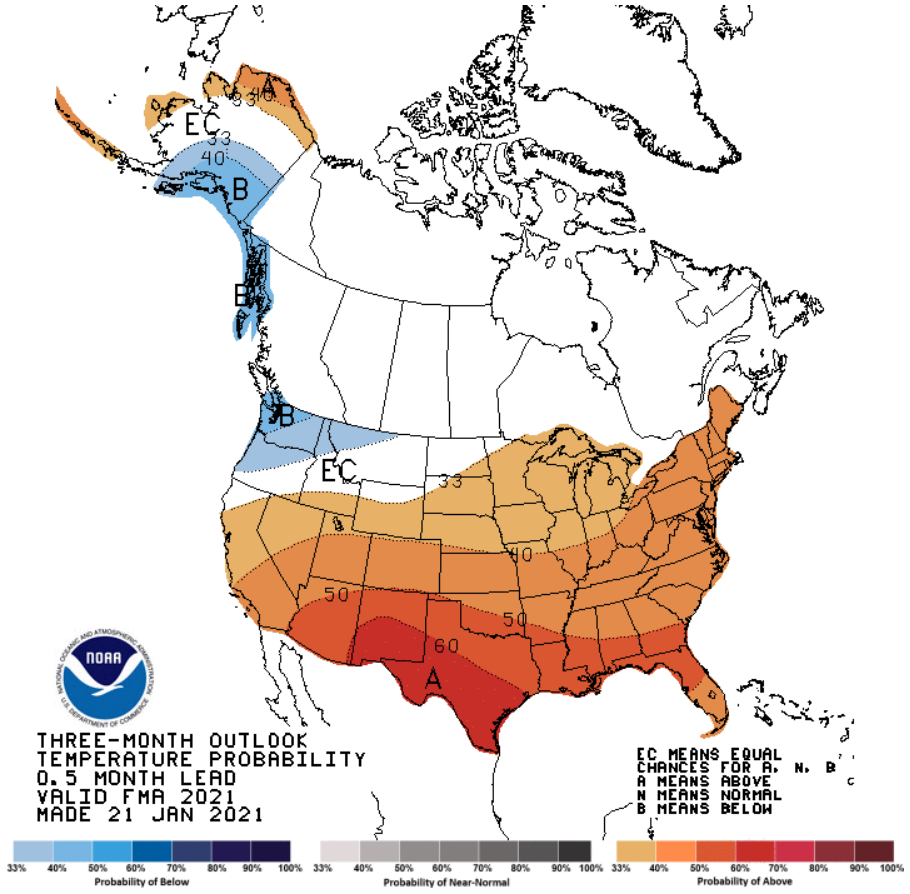




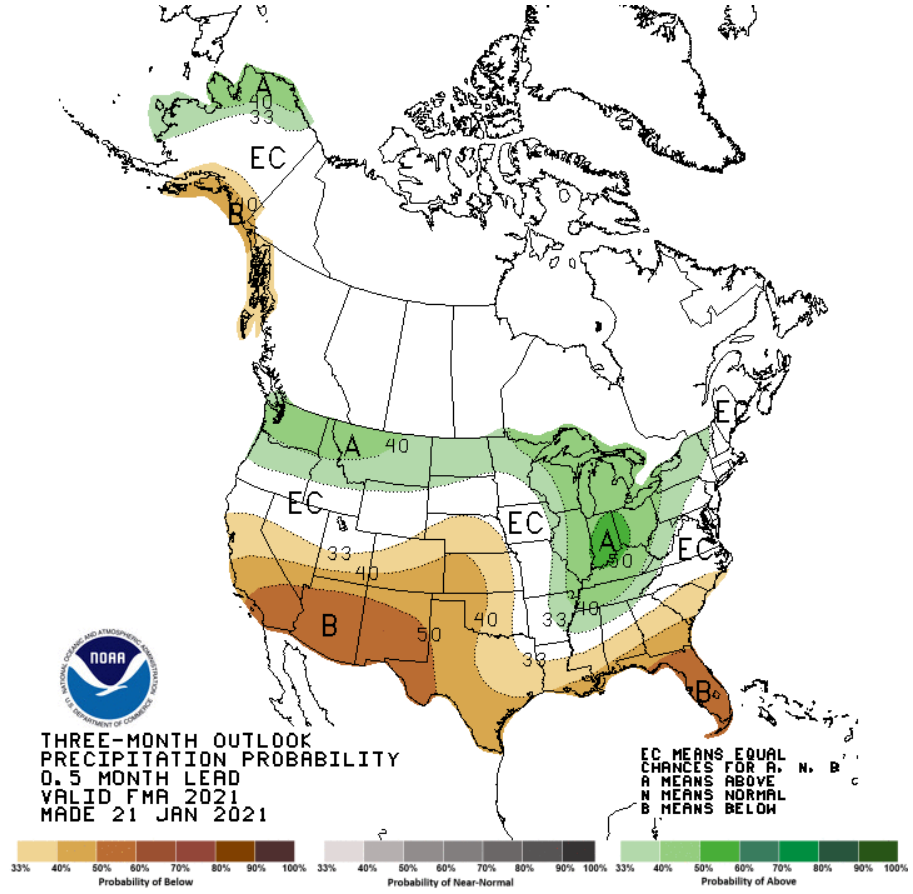
www.wcc.nrcs.usda.gov/gis/snow.html

Outlook over next 3 months (Feb-Apr)

Temperature: 30-50% chance temperatures will be ***cooler*** than average



Precipitation: 30-50% chance precipitation will be ***above*** average

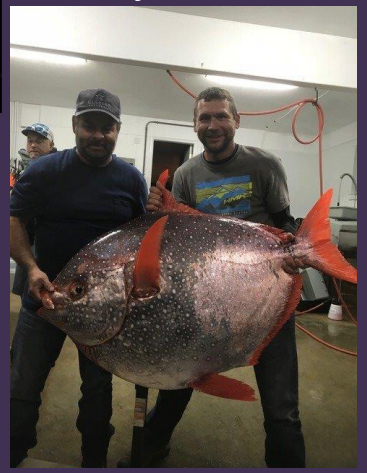


www.cpc.ncep.noaa.gov/products/forecasts

Biological responses to the warm ocean

2018

Lots of juvenile crab



Record breaking opah caught off WA

Mourning Orca mother carries dead calf for a record 17 days

2019

More tropical fish caught off WA: bluefin tuna and mahi mahi

Finescale triggerfish washes up on Long Beach, WA

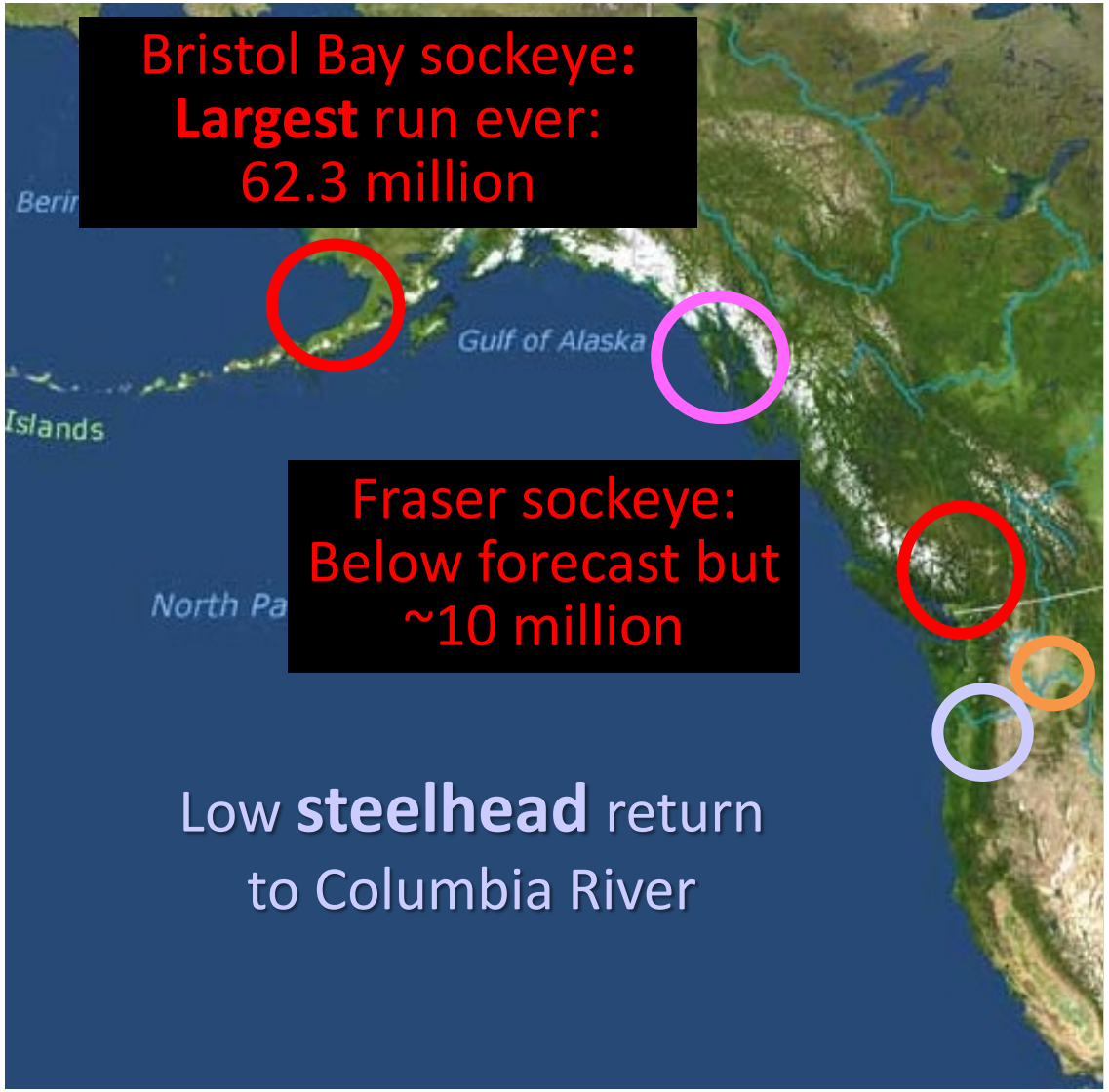
2020

Herring and squid in Puget Sound

HABs/domoic acid since October

More tropical fish in the PNW: barracuda and yellowtail

Unusual salmon observations in 2018

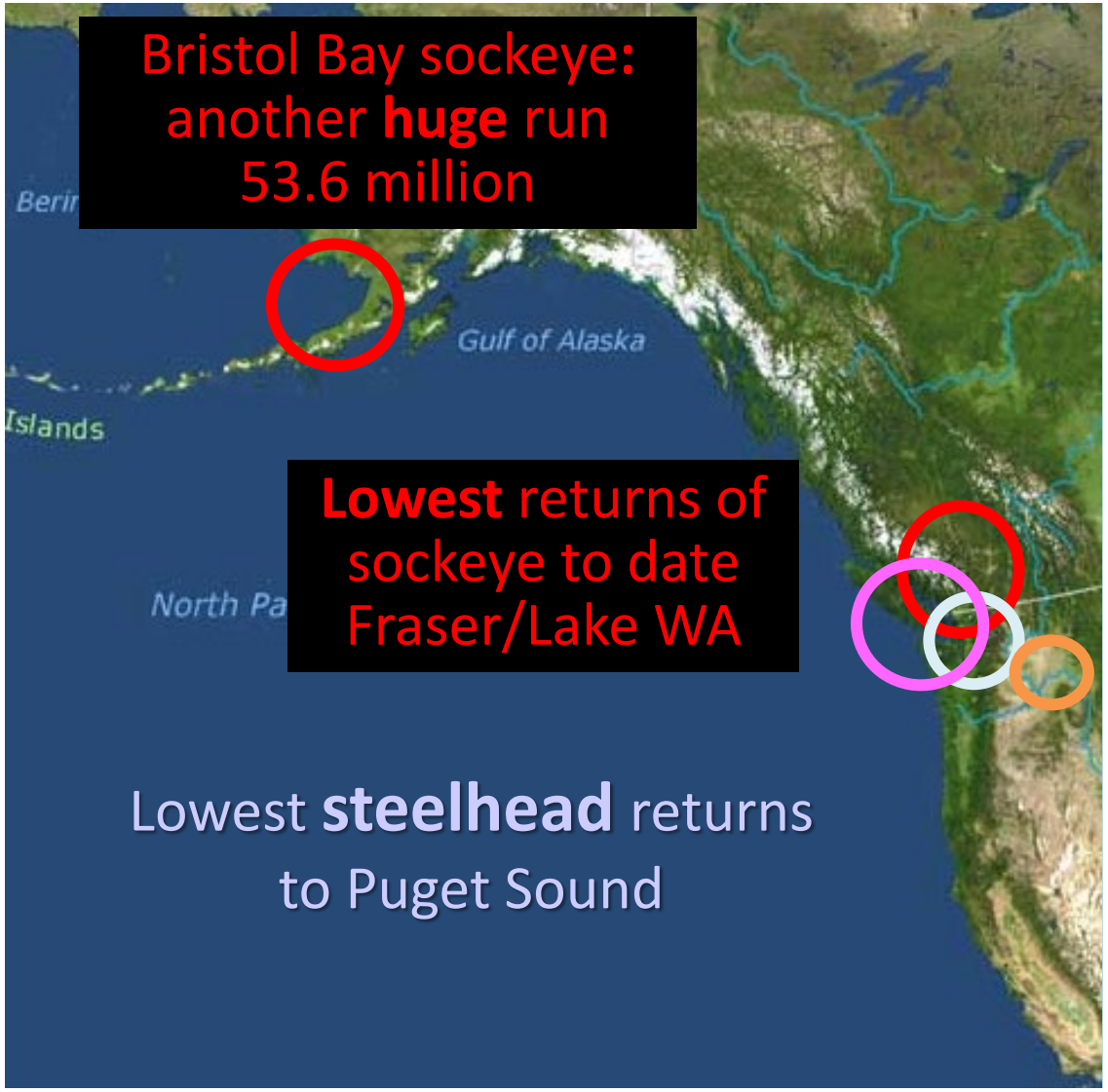


Poor sockeye, pink, and coho run in SE Alaska

High (6 million) **shad** returns to Columbia River

Fishery closures for **Coho** in OR and CA

Unusual salmon observations in 2019

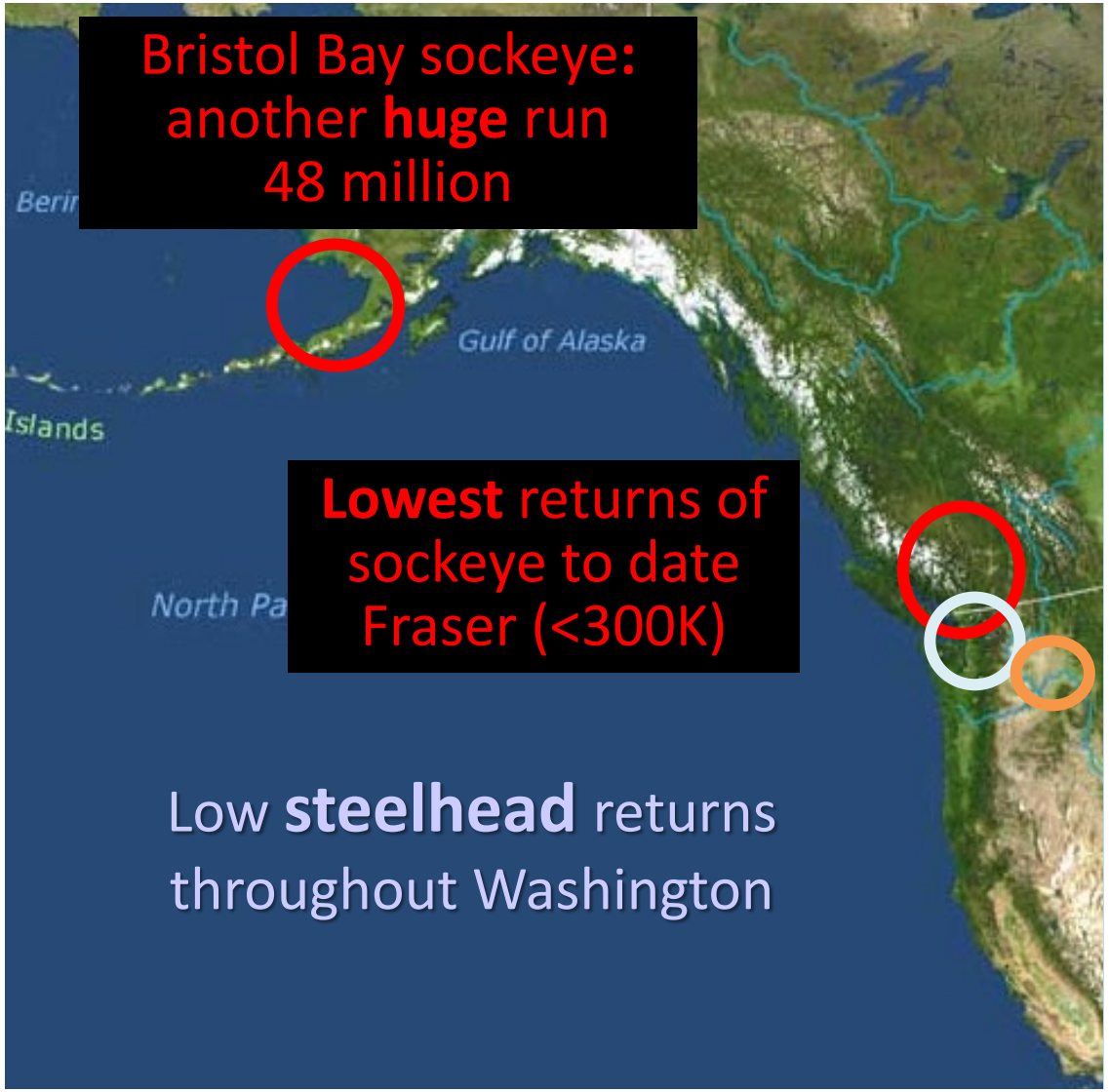


Poor pink and **chum returns** to PS and Fraser

Highest ever **shad** returns to Bonneville (7.5 million)

Coho came in below forecast in OR/WA

Unusual salmon observations in 2020



Poor **chum** returns to Puget Sound and Fraser

Another year of high (5.8 million) **shad** returns to Columbia River

Highest **coho** jack returns to CR since 1980

Salmon Indicators: Bad -> Fair -> Good

Basin-scale physical indices

Regional physical indices

Regional biological indices

	Year																						
Ecosystem Indicators	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*
PDO (Sum Dec-March)	20	6	3	14	7	22	13	18	15	10	5	1	17	4	2	8	11	23	21	19	12	16	9
PDO (Sum May-Sept)	11	4	6	5	12	18	17	19	13	15	2	10	7	3	1	8	21	23	22	16	14	20	9
ONI (Average Jan-June)	22	1	1	7	14	16	15	18	8	12	3	11	19	4	6	8	10	20	23	13	5	21	17
SST NDBC buoys (°C; May-Sept)	18	6	8	4	5	12	23	13	2	15	1	11	3	7	9	17	21	20	19	14	16	22	10
Upper 20 m T (°C; Nov-Mar)	22	12	9	11	7	16	17	14	13	6	1	10	19	5	4	8	3	23	21	20	15	18	2
Upper 20 m T (°C; May-Sept)	15	10	12	4	1	3	23	19	8	9	2	5	16	7	6	17	21	18	13	11	14	22	20
Deep temperature (°C; May-Sept)	22	6	8	4	1	10	12	16	11	5	2	7	14	9	3	15	21	20	13	18	19	17	23
Deep salinity (May-Sept)	22	3	11	4	5	18	19	12	7	1	2	16	20	14	15	13	23	17	9	8	6	10	21
Copepod richness anom. (no. species; May-Sept)	21	2	1	8	7	16	15	20	17	11	9	10	19	4	6	3	12	22	23	18	14	13	5
N. copepod biomass anom. (mg C m^{-3}; May-Sept)	21	16	12	13	5	18	15	22	17	14	8	11	10	2	4	6	7	19	23	20	9	3	1
S. copepod biomass anom. (mg C m^{-3}; May-Sept)	23	2	5	4	3	15	17	22	14	11	1	7	18	10	8	6	12	20	21	19	13	16	9
Biological transition (day of year)	20	11	10	4	9	16	15	21	14	5	1	2	18	6	12	7	7	22	22	19	17	13	3
Nearshore Ichthyoplankton Log(mg C 1,000 m^{-3}; Jan-Mar)	18	3	12	6	1	22	23	16	9	18	3	14	2	8	5	11	20	15	16	13	10	21	7
Nearshore & offshore Ichthyoplankton community index (PCO axis 1 scores; Jan-Mar)	11	6	5	8	10	13	17	21	1	14	3	12	15	4	2	7	9	19	22	23	18	20	16
Chinook salmon juvenile catches (no. km^{-1}; June)	20	4	5	17	8	12	18	21	13	11	1	6	7	16	2	3	10	14	19	22	15	9	NA
Coho salmon juvenile catches (no. km^{-1}; June)	20	8	14	6	7	3	17	21	18	4	5	10	11	16	19	1	13	9	15	22	2	12	NA
Mean of ranks	19.1	6.3	7.6	7.4	6.4	14.4	17.3	18.3	11.3	10.1	3.1	8.9	13.4	7.4	6.5	8.6	13.8	19.0	18.9	17.2	12.4	15.8	10.9
Rank of the mean rank	23	2	7	5	3	16	19	20	12	10	1	9	14	5	4	8	15	22	21	18	13	17	11

Physical indicators (PDO, El Niño, SST, Salinity) trended poorly in 2020

Biological indicators (zooplankton, ichthyoplankton) trended well in 2020

2020 = Ranked 11th out of 23 years

www.nwfsc.noaa.gov

Questions

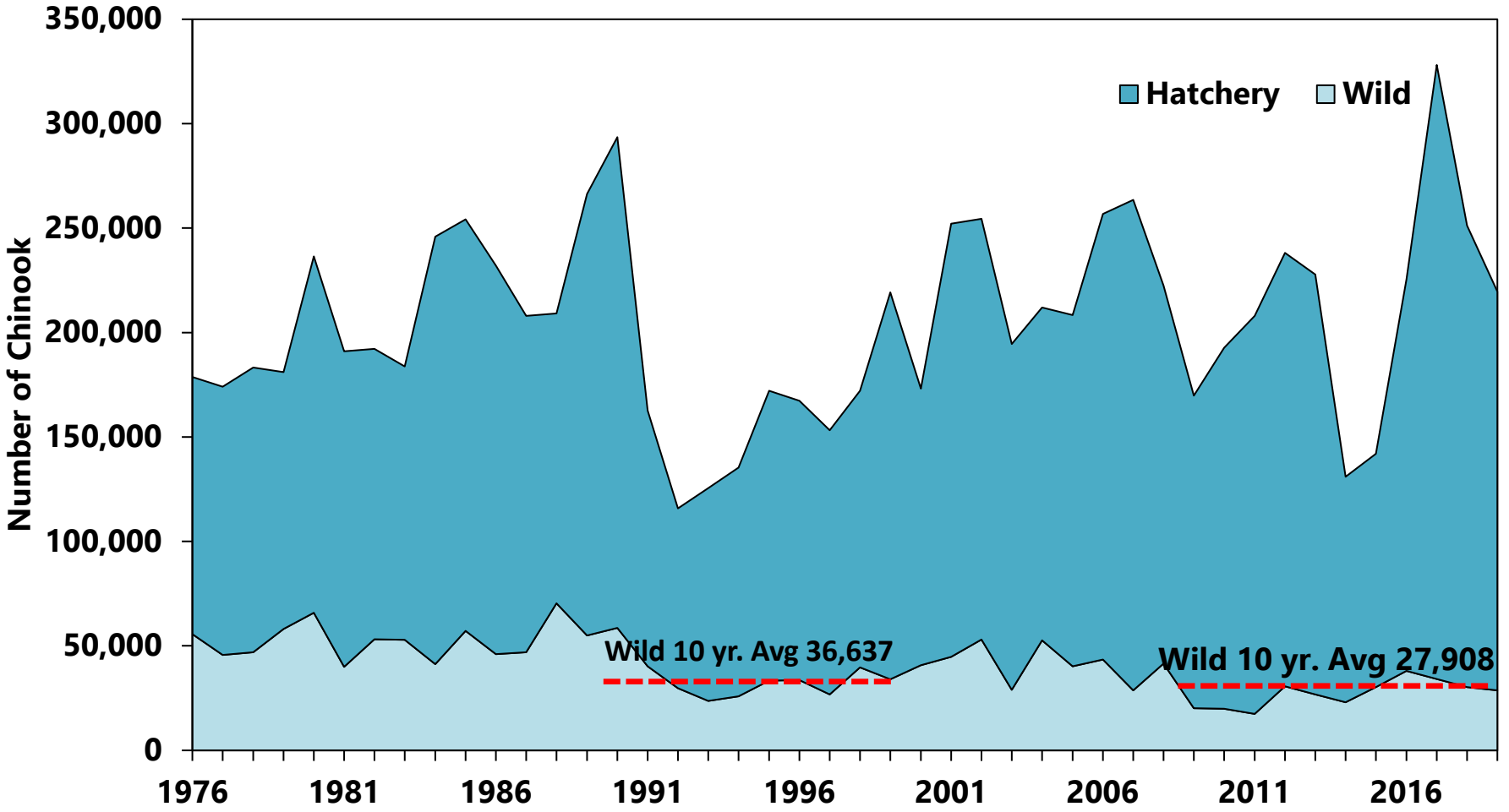
Washington Department of FISH and WILDLIFE

WA Coast and Puget Sound 2020 Returns and 2021 Forecasts

Chad Herring and Mickey Agha, PhD

Chinook Salmon

Chinook Historical Runsize – Puget Sound



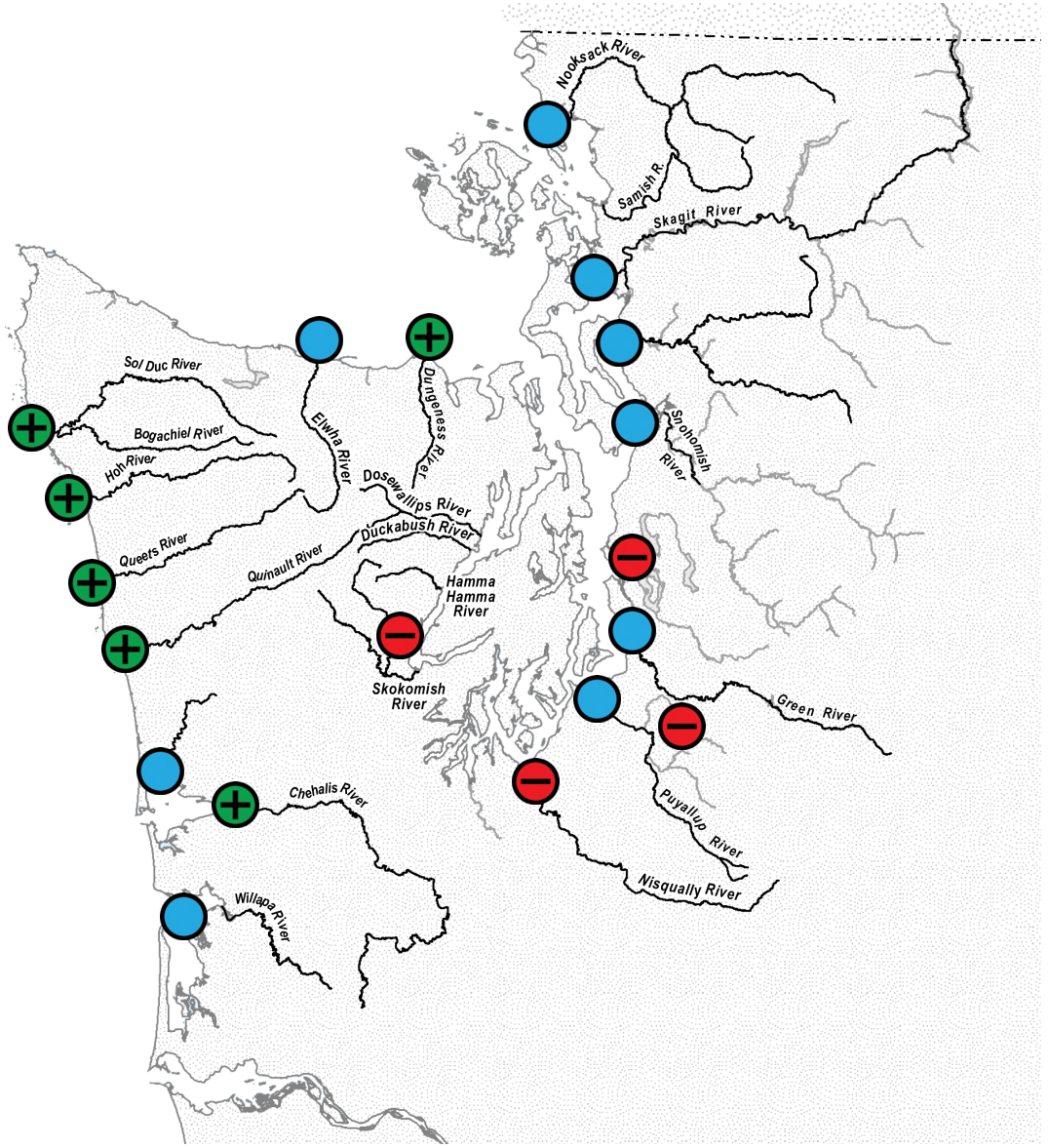
Wild Chinook ⬇~24% since 10yr avg. prior to listing under ESA in 1999

2020 Wild Fall Chinook Returns

- All returns are preliminary
- Returns range from **Poor** to **Neutral** in Puget Sound
- Returns range from **Good** to **Neutral** on the Coast

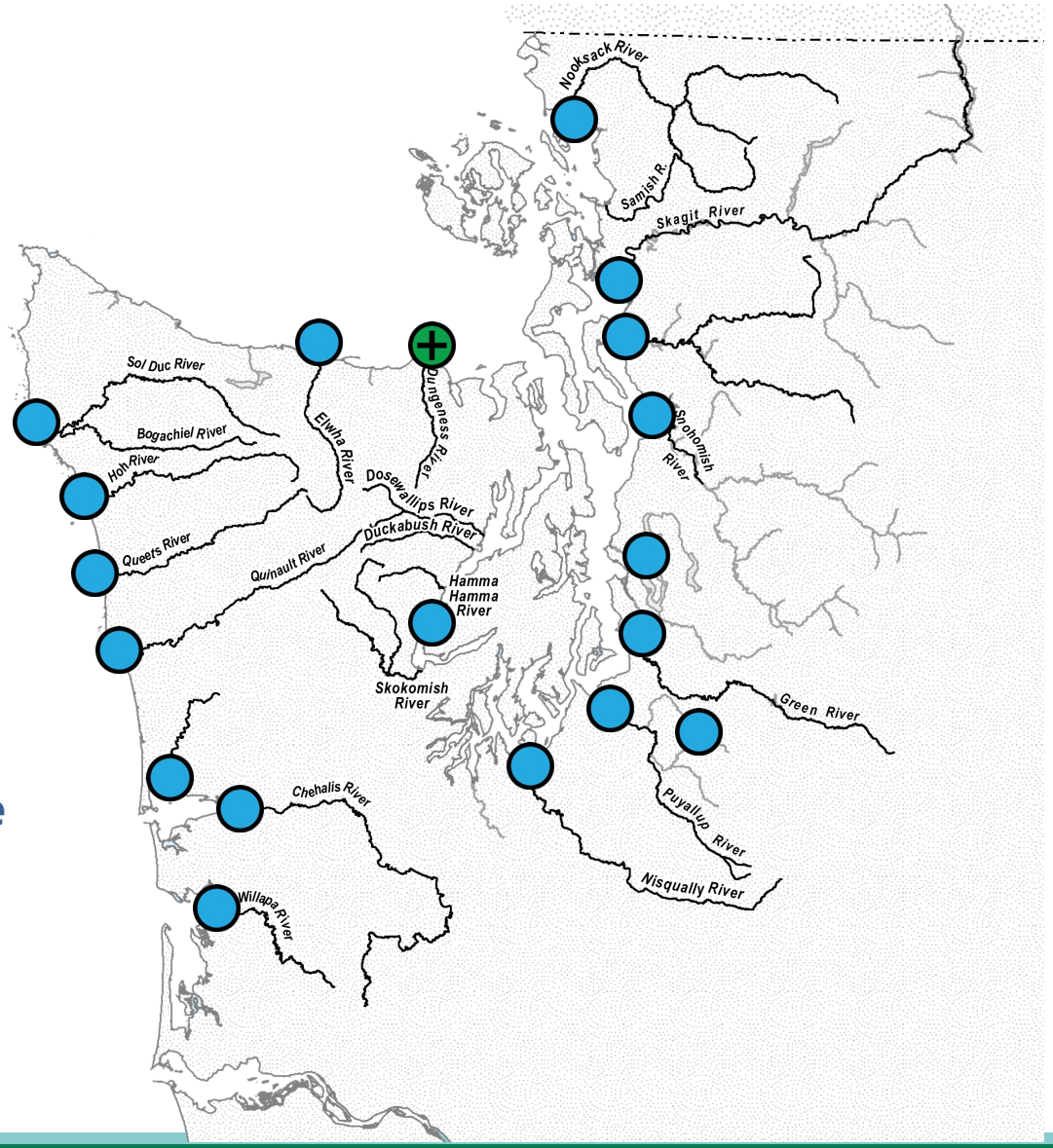
Relative to Recent 10yr Avg. Runsize

- ⊕ Good > 125%
- ● Neutral 75-125%
- ⊖ Poor < 75%



2021 Wild Fall Chinook Forecasts

- Forecasts **Neutral** for Puget Sound and Coast
- Puget Sound forecasts ⬇ **20%**
- Coast forecasts ⬆ **9%**

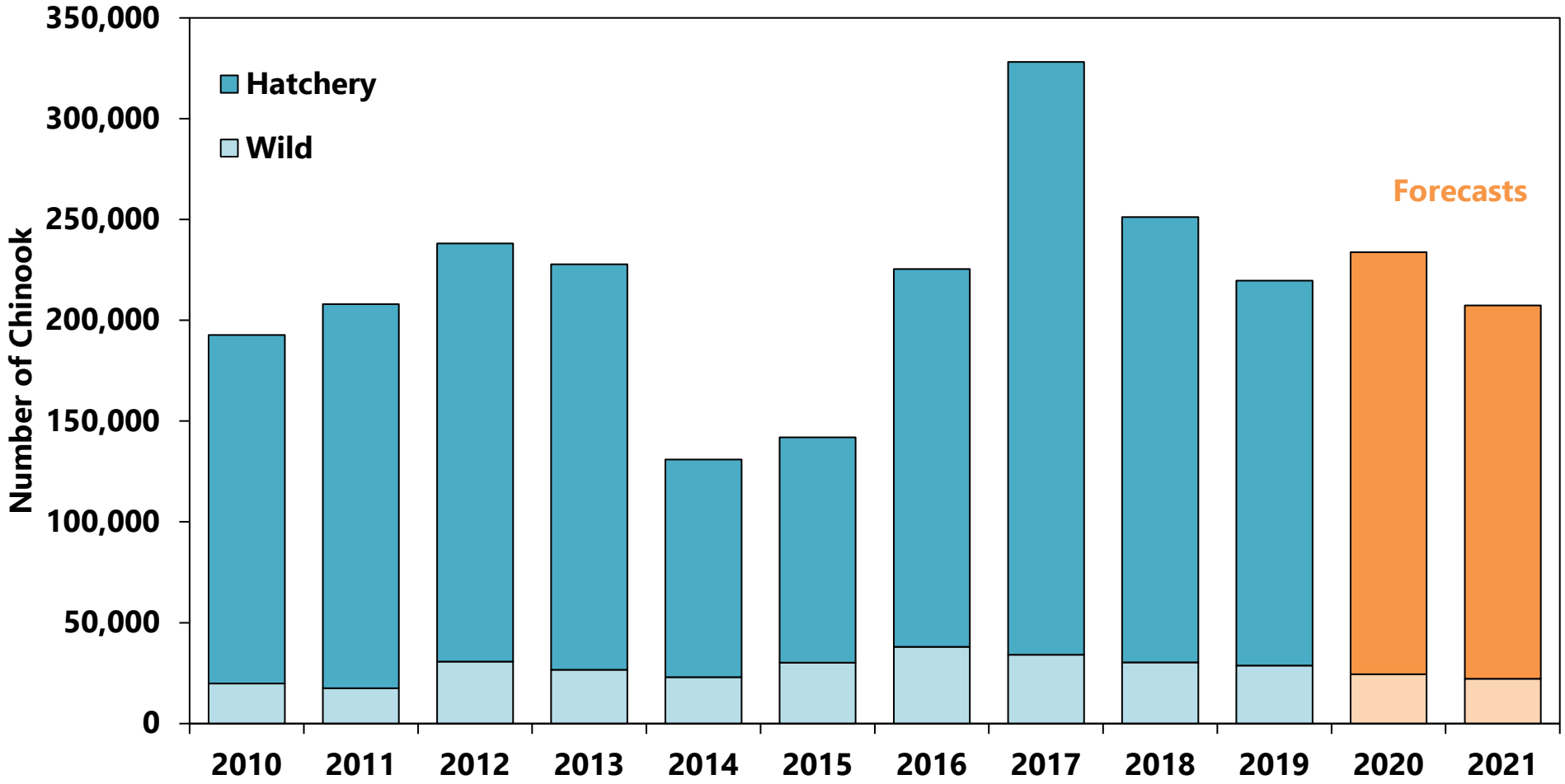


Relative to Recent 10yr Avg. Runsize

- ⊕ Good > 125%
- Neutral 75-125%
- ⊖ Poor < 75%

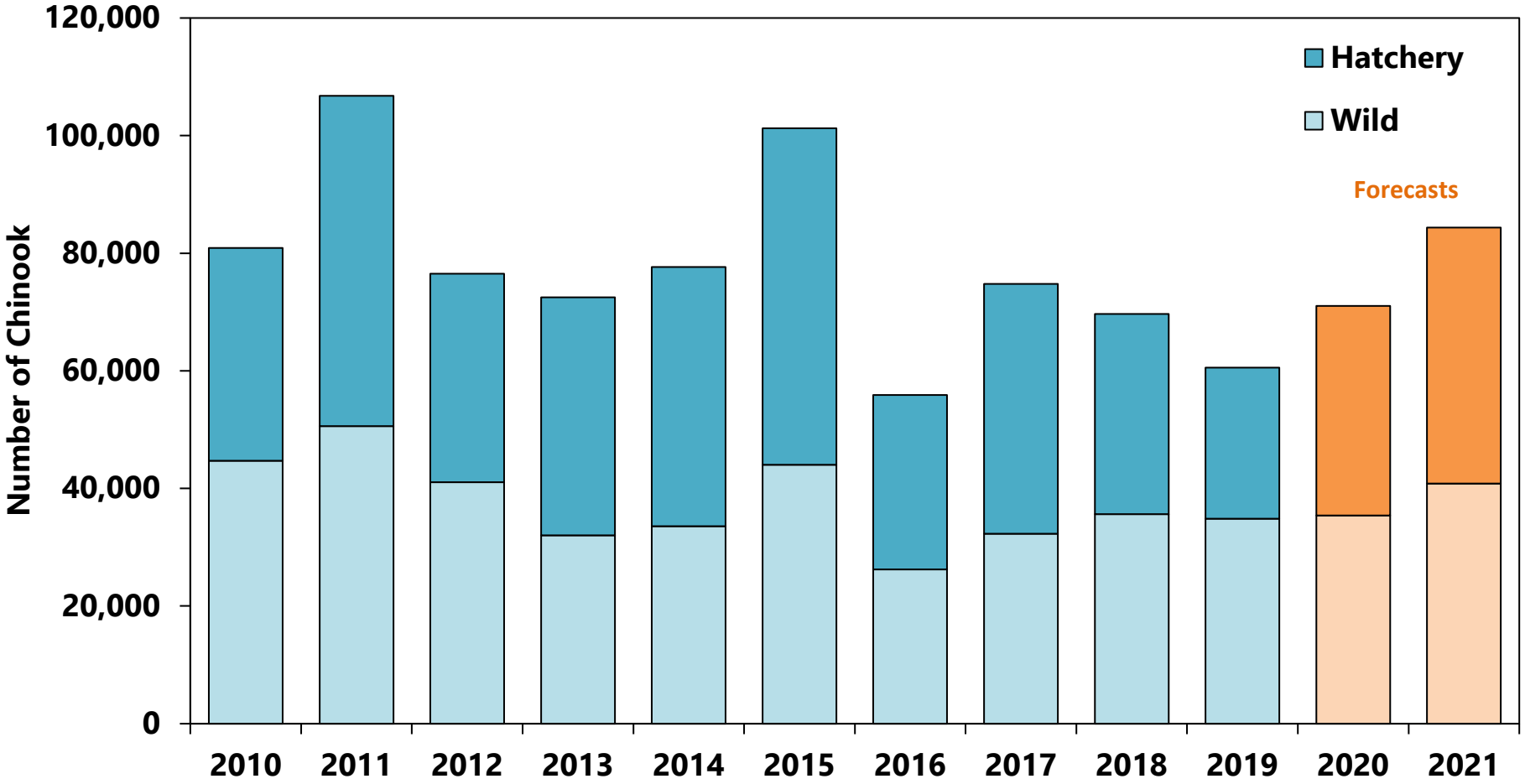
Puget Sound Chinook Forecasts

Puget Sound hatchery Chinook forecast ⬇ **2%** from recent 10-year avg
(⬇ **11%** from 2019 forecast)



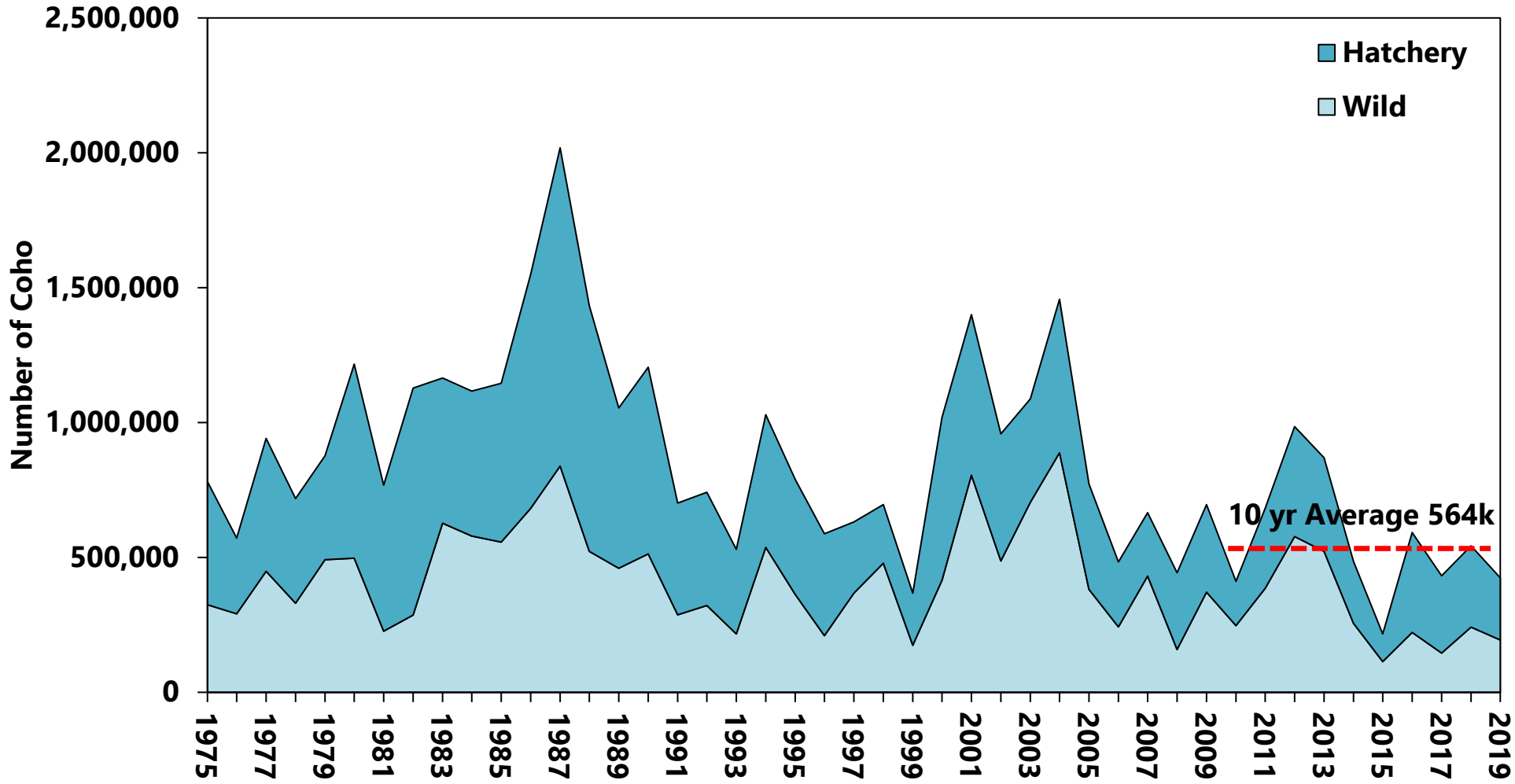
Coastal Chinook Forecasts

Coastal Hatchery Chinook forecast ⬆ **8%** from recent 10-year avg.
(⬆ **22%** from 2019 Forecast)



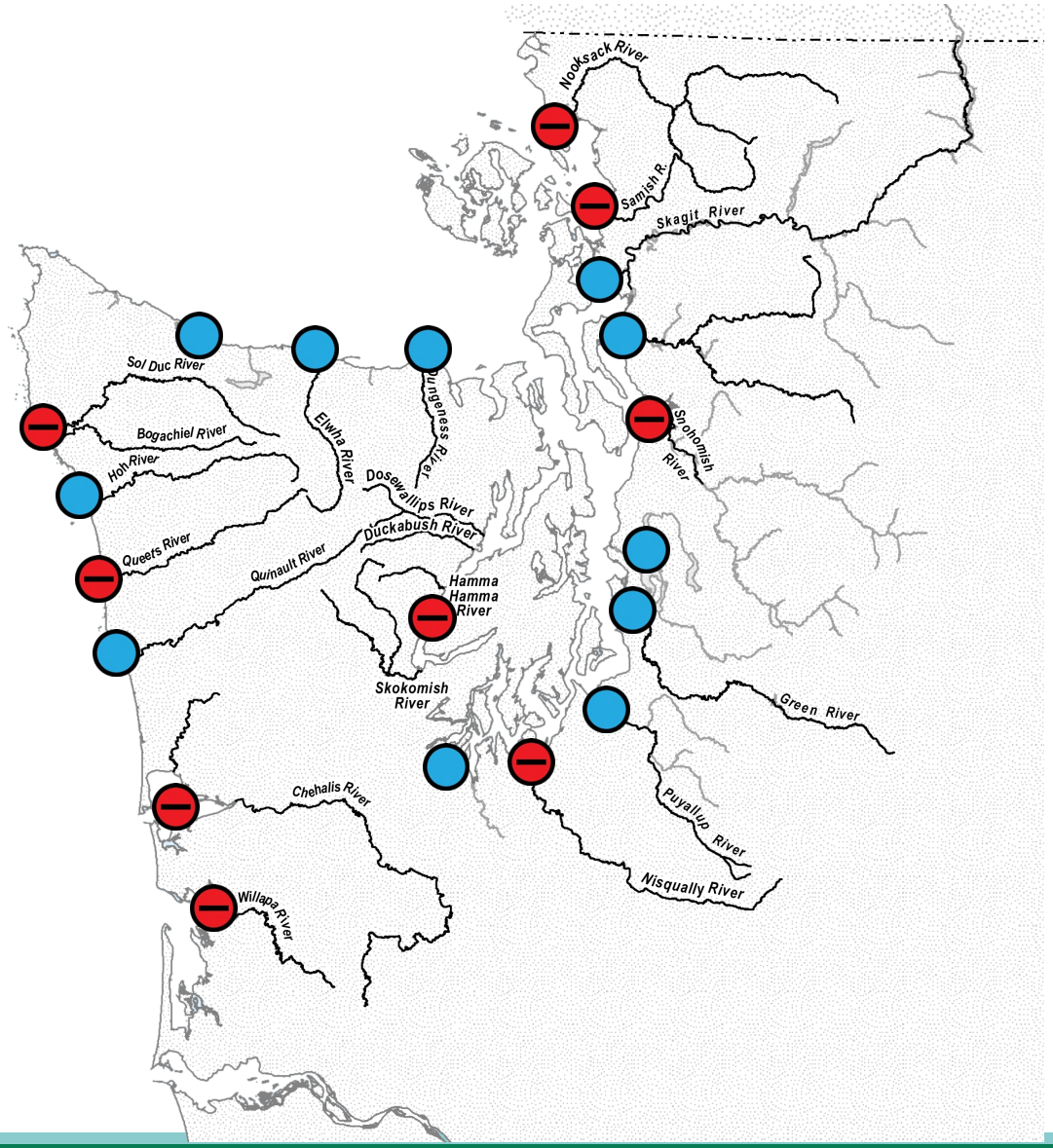
Coho

Coho Historical Runsize – Puget Sound



2020 Wild Coho Returns

- All returns are preliminary
- Returns ranged from **Poor** to **Neutral** for Puget Sound and Coast



Relative to Recent 10yr Avg. Runsize

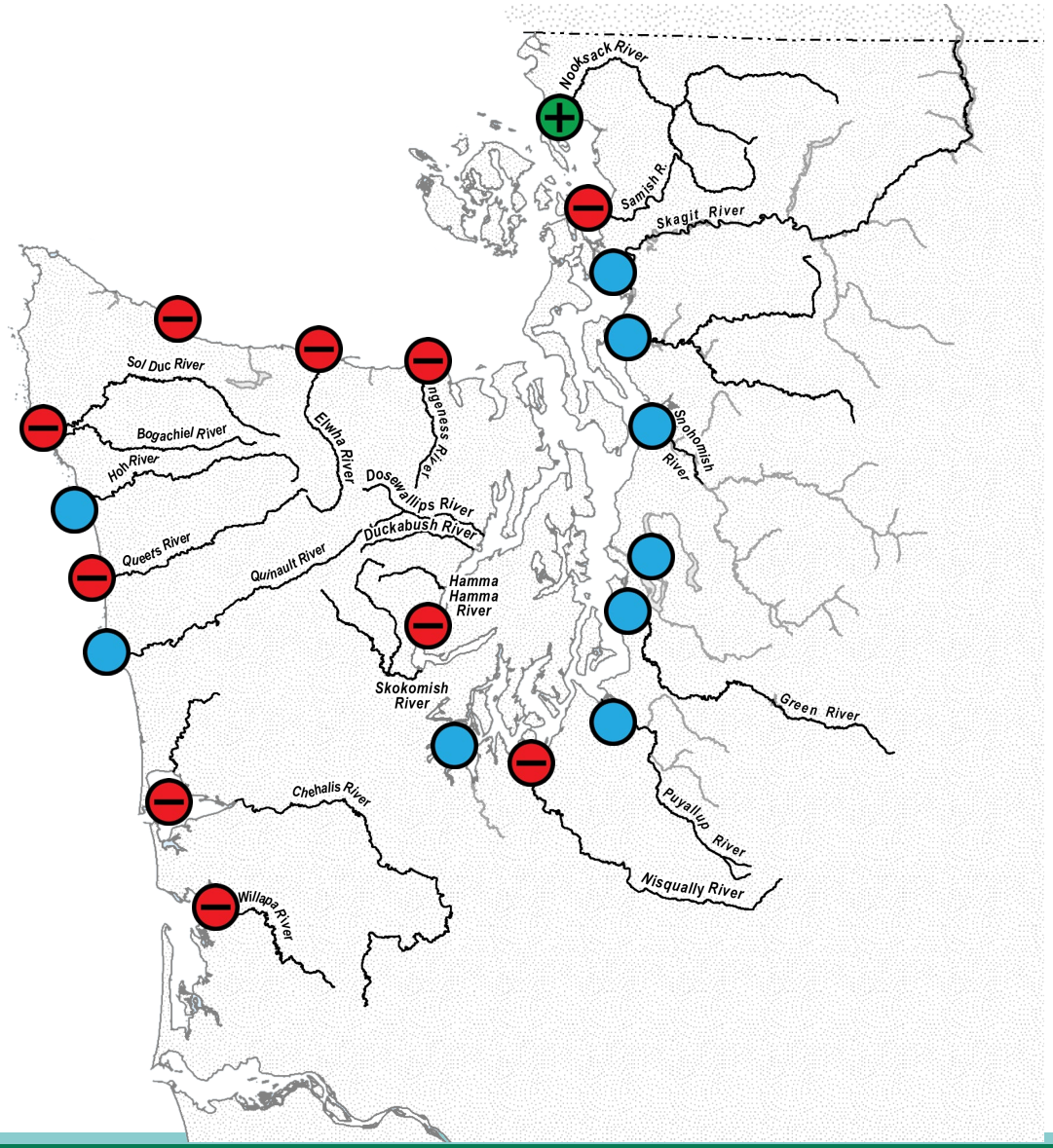
- Good > 125%
- Neutral 75-125%
- Poor < 75%

2021 Wild Coho Forecasts

- Forecasts range from **Poor** to **Neutral** across Puget Sound; ⬇ **15%**
- Forecasts range from **Poor** to **Neutral** on coast; ⬇ **43%**

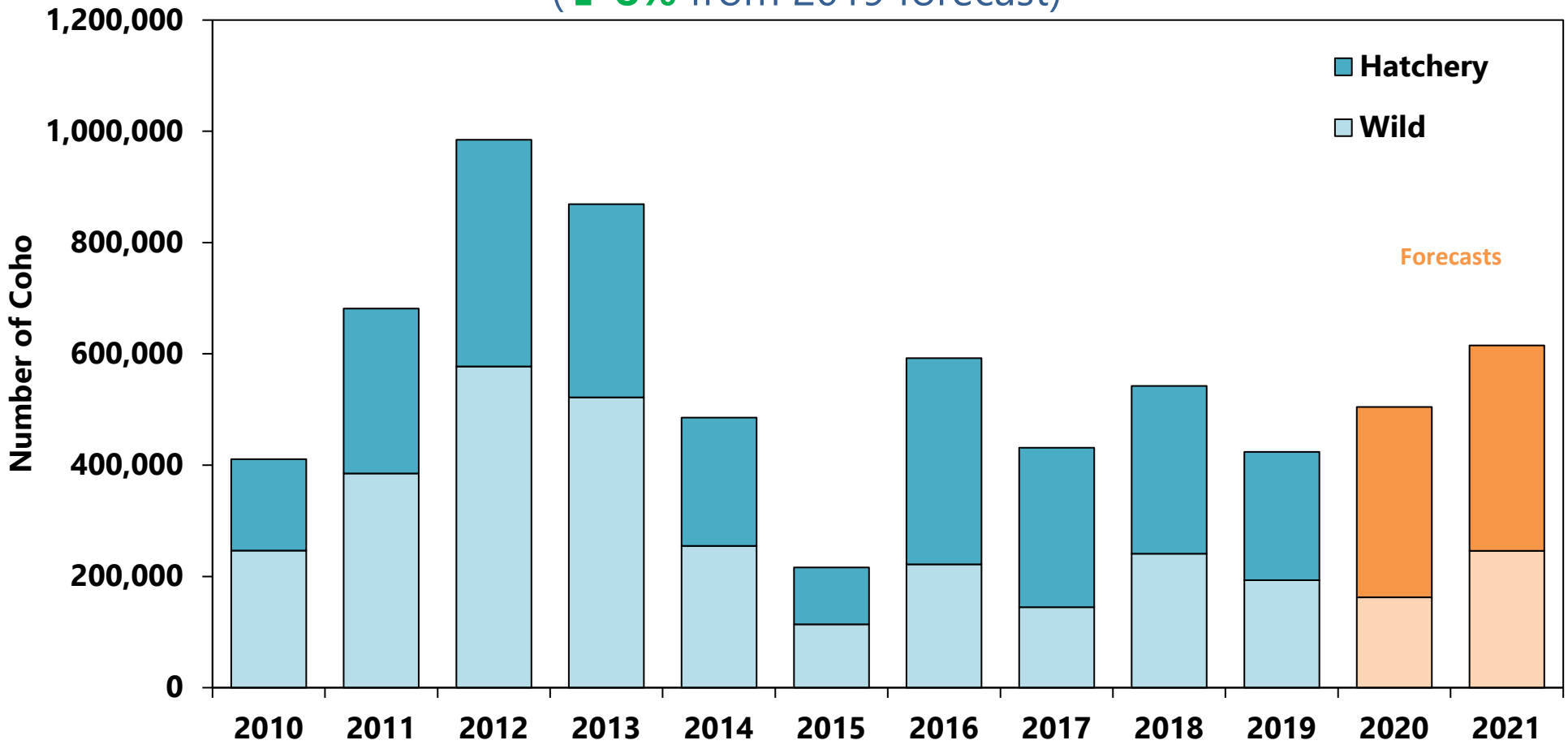
Relative to Recent 10yr Avg. Runsize

- Good > 125%
- Neutral 75-125%
- Poor < 75%



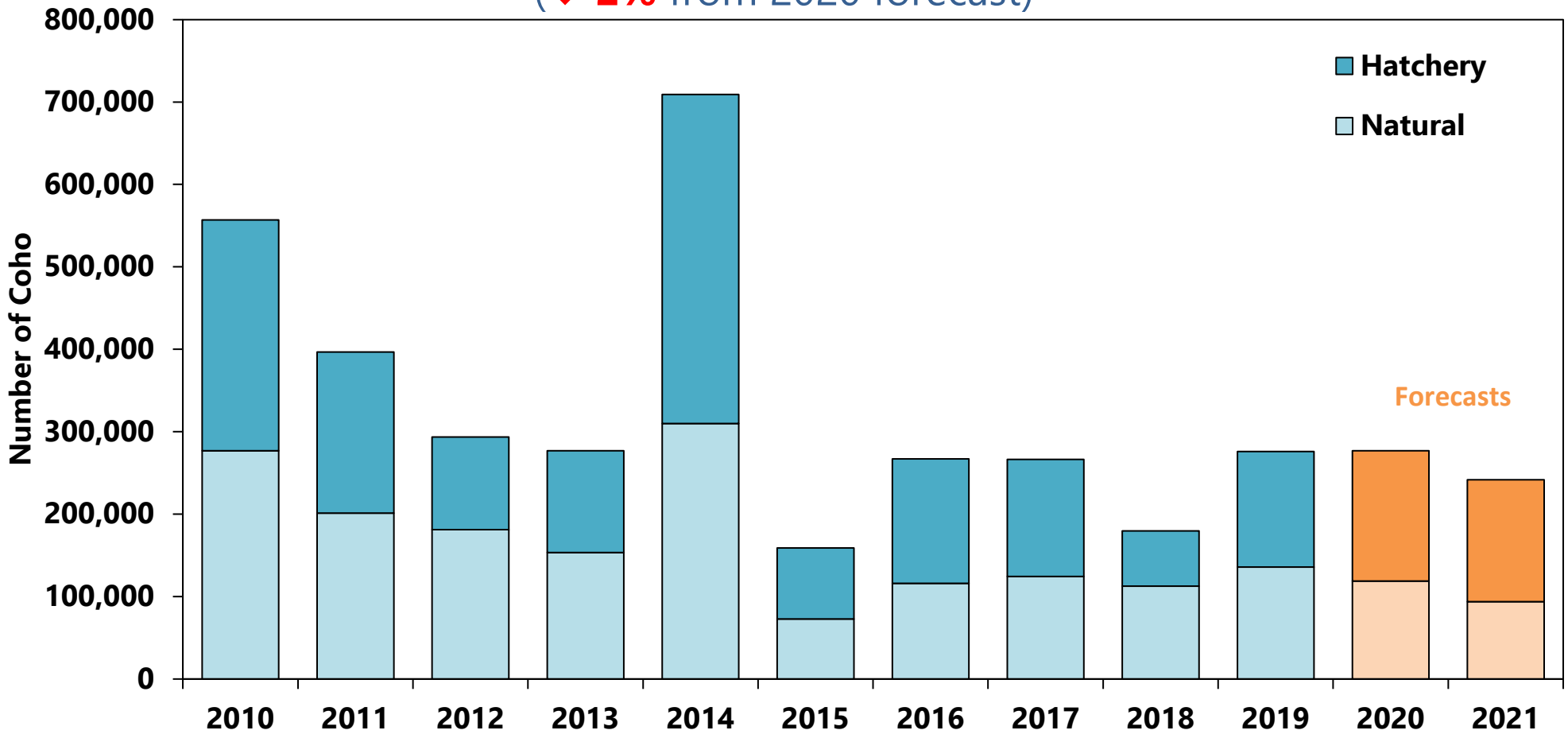
Puget Sound Coho Forecasts

Puget Sound Hatchery Coho forecast ⬆ **35%** from recent 10-year avg.
(⬆ **8%** from 2019 forecast)



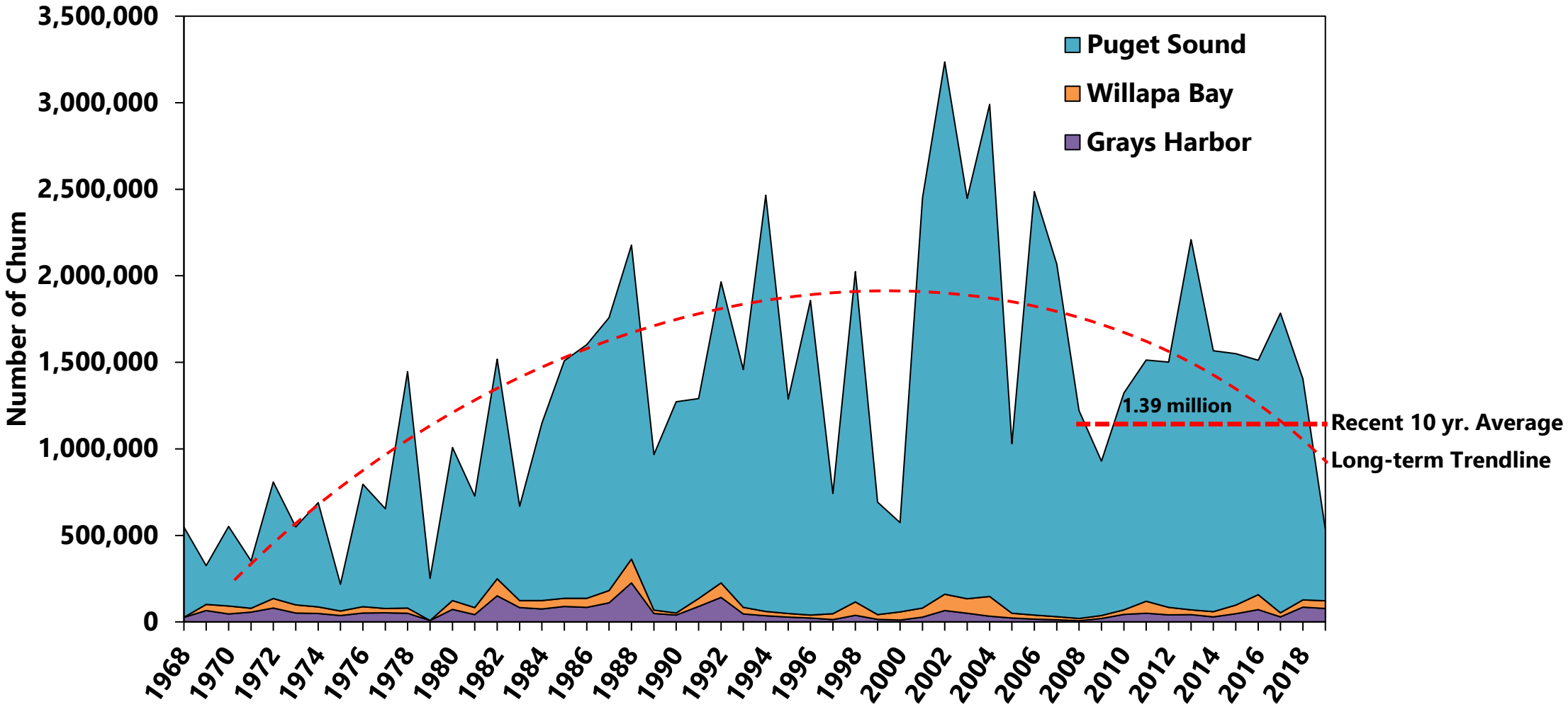
Coastal Coho Forecasts

Coastal Hatchery Coho forecast ⬇ **10%** from recent 10-year avg.
(⬇ **2%** from 2020 forecast)



Chum

Chum Historical Run Size

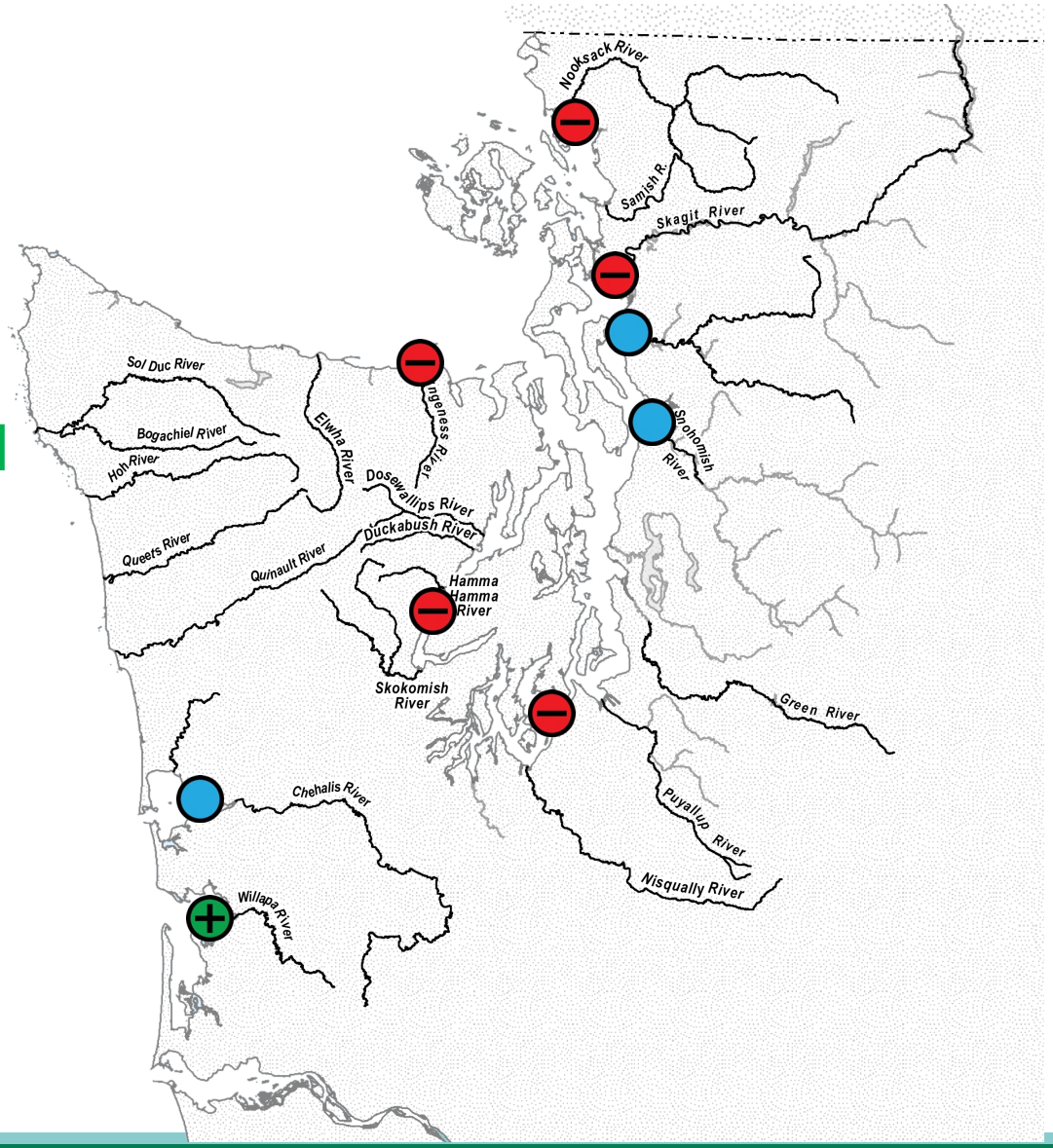


2020 Fall Chum Returns

- Returns were **Neutral** to **Poor** for Puget Sound
- Returns were **Neutral** to **Good** along the coast
- HC and SS are relative to in-season updated run sizes, not escapement

Relative to Recent 10yr Avg. Escapement

- ⊕ Good > 125%
- ● Neutral 75-125%
- ⊖ Poor < 75%

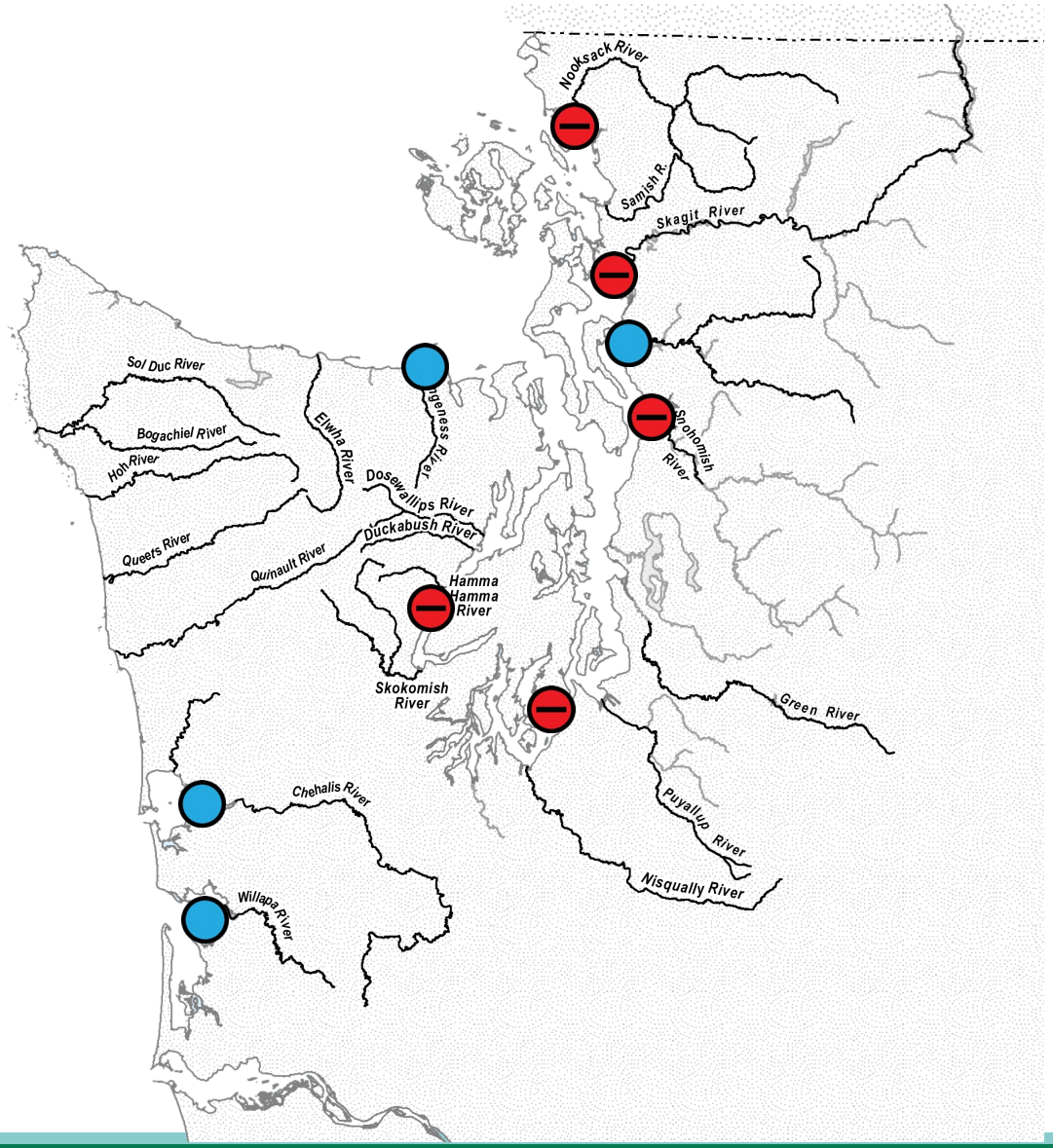


2021 Fall Chum Forecast

- Forecasts range from **Neutral** to **Poor**
- Hood Canal - 273k
- Central/S. Sound – 198k
- Willapa – 39k
- Grays H – 42k

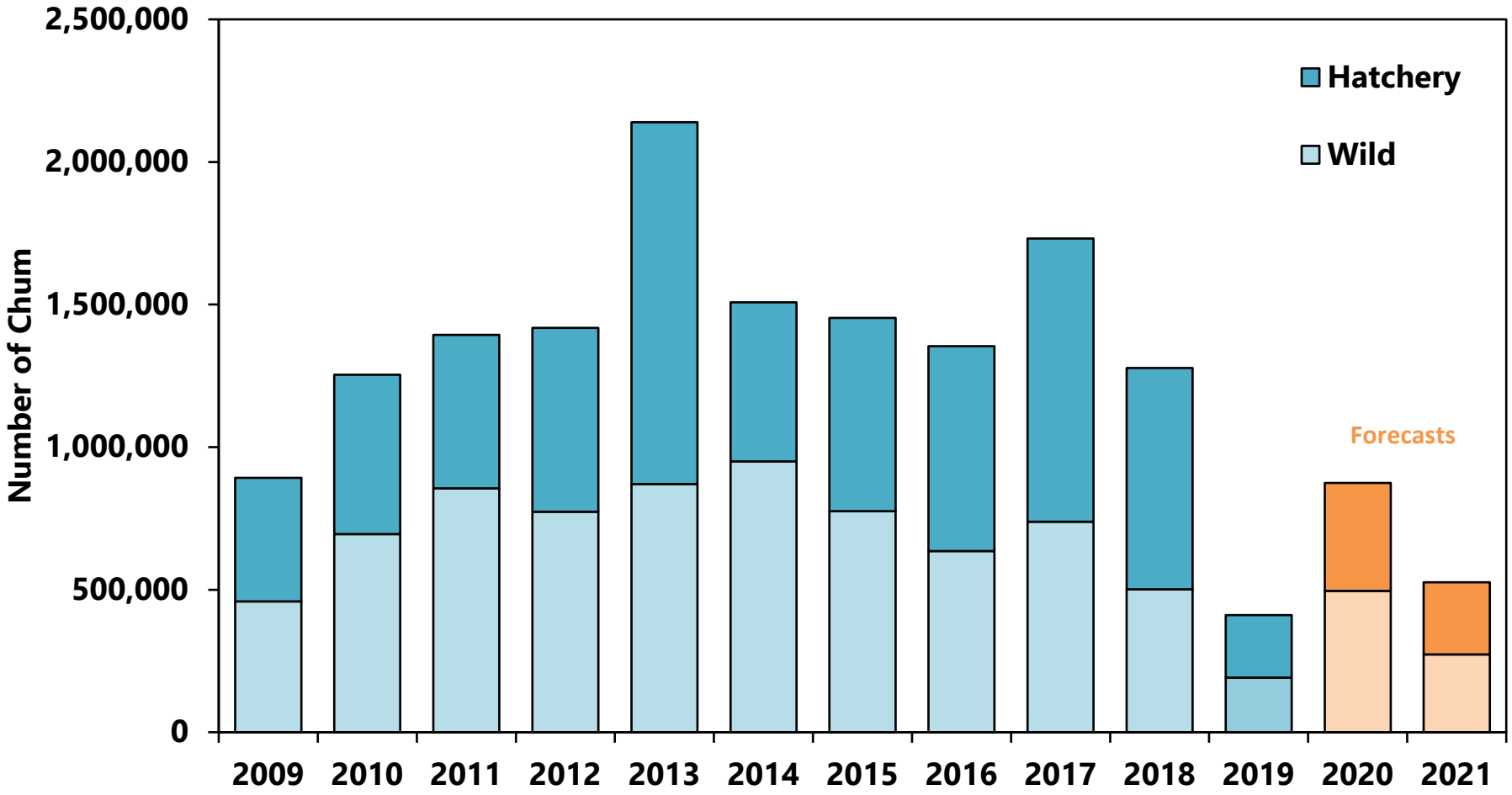
Relative to Recent 10yr Avg. Run size

- Good > 125%
- Neutral 75-125%
- Poor < 75%



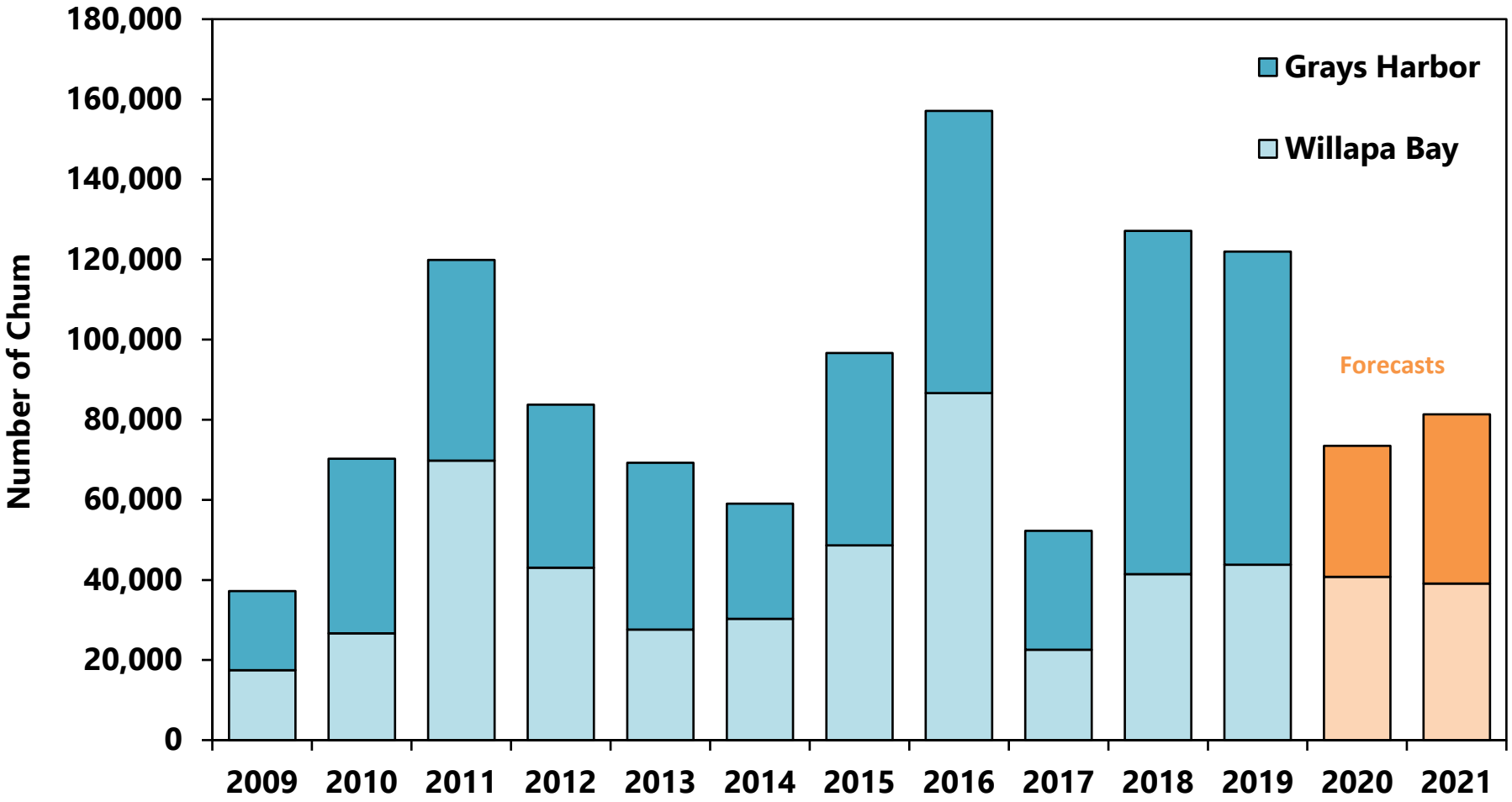
Puget Sound Chum Forecasts

Hatchery ⬇ **64%** and Wild ⬇ **61%** over recent 10-year avg.



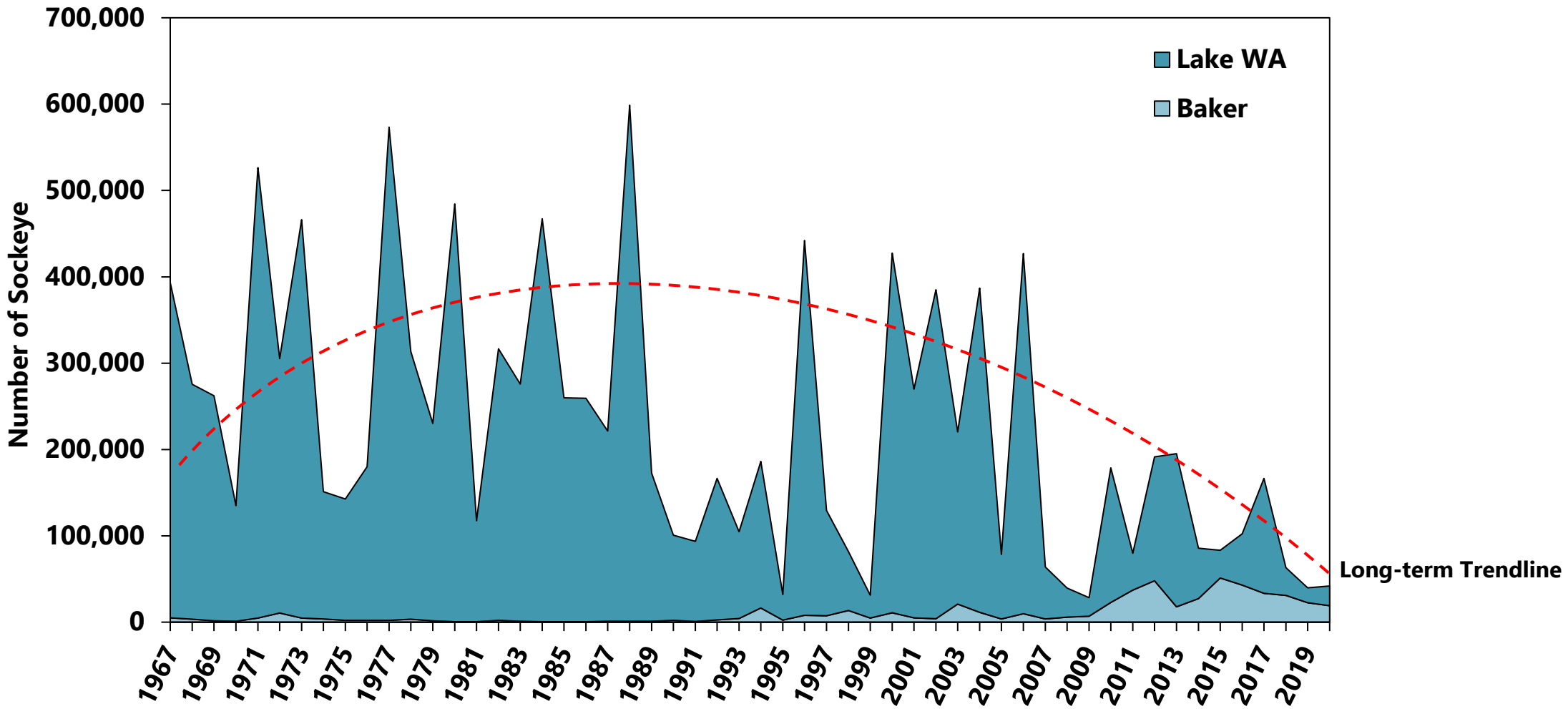
Coastal Chum Forecasts

Willapa Bay ⬇ **11%** and Grays Harbor ⬇ **18%** over recent 10-year avg.



Sockeye

Puget Sound Sockeye Run Size

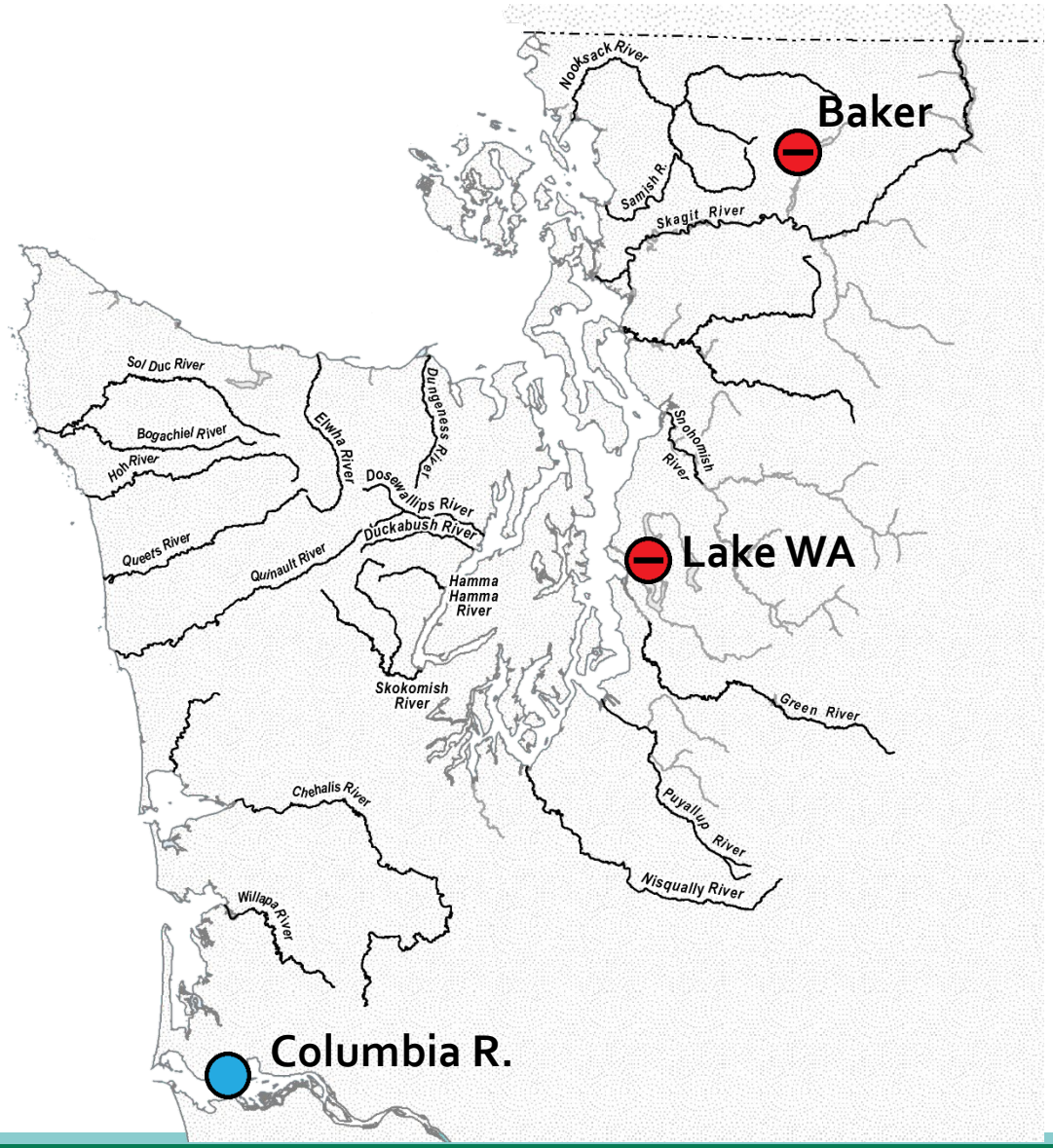


2020 Sockeye Returns

- Returns were **Poor** in Puget Sound despite coming back above forecast and Columbia River returns were **Neutral**

Relative to Recent 10yr Avg. Return

- Good > 125%
- Neutral 75-125%
- Poor < 75%

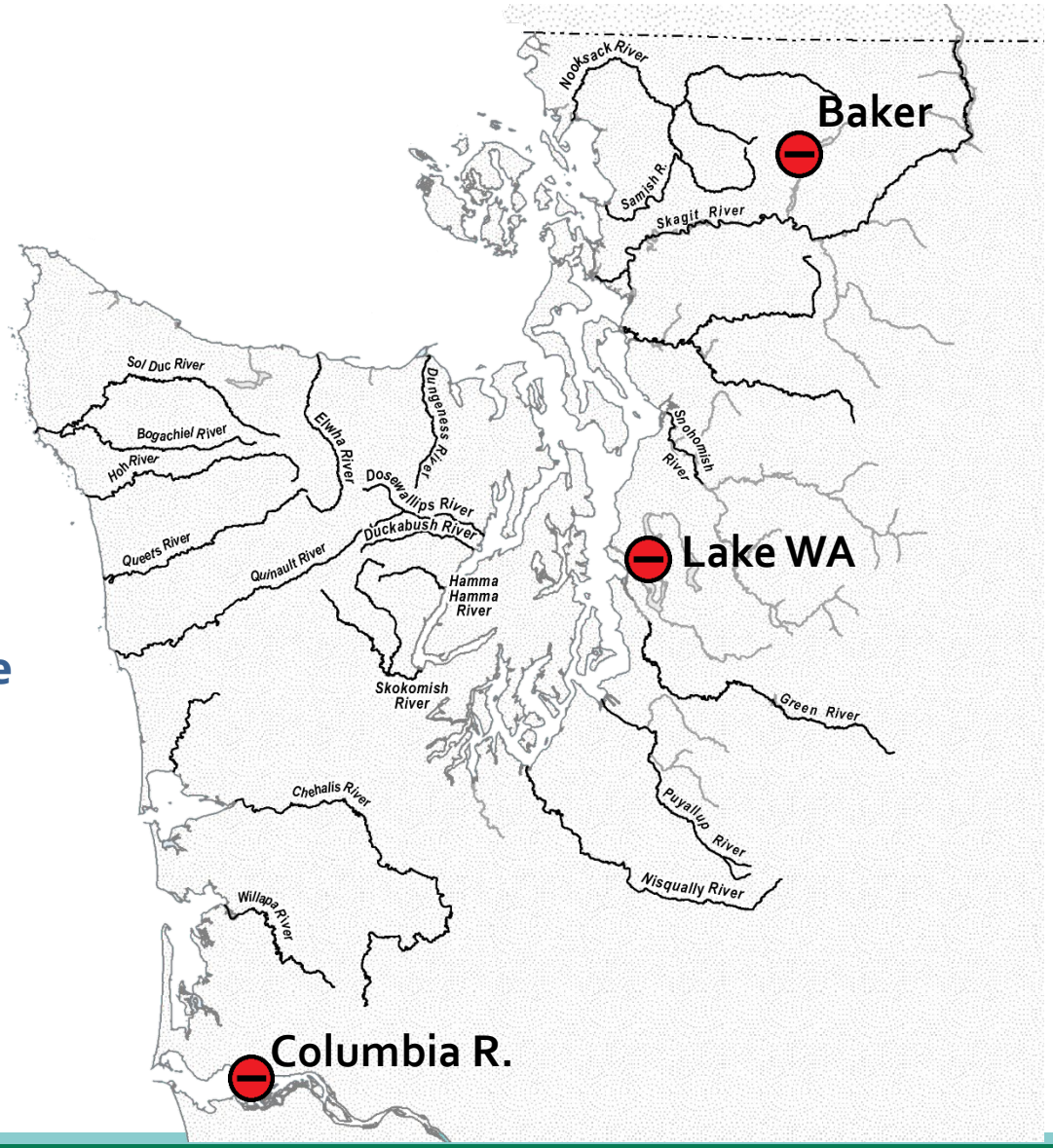


2021 Sockeye Forecast

- Baker Lake – 12,253K=k
- Lake WA – 24,807k
- Columbia River – 154,900k

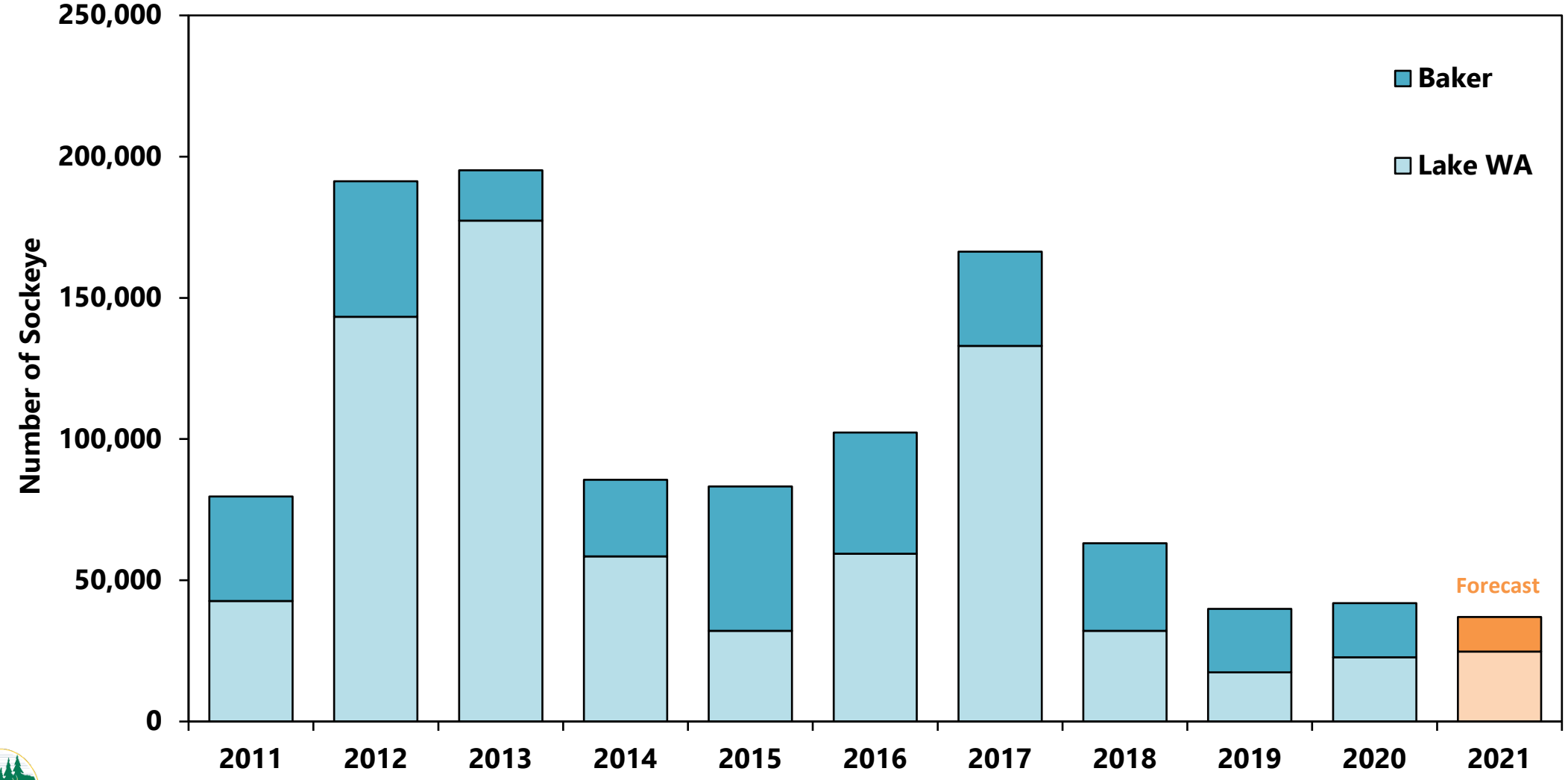
Relative to Recent 10yr Avg. Run size

- Good > 125%
- Neutral 75-125%
- Poor < 75%



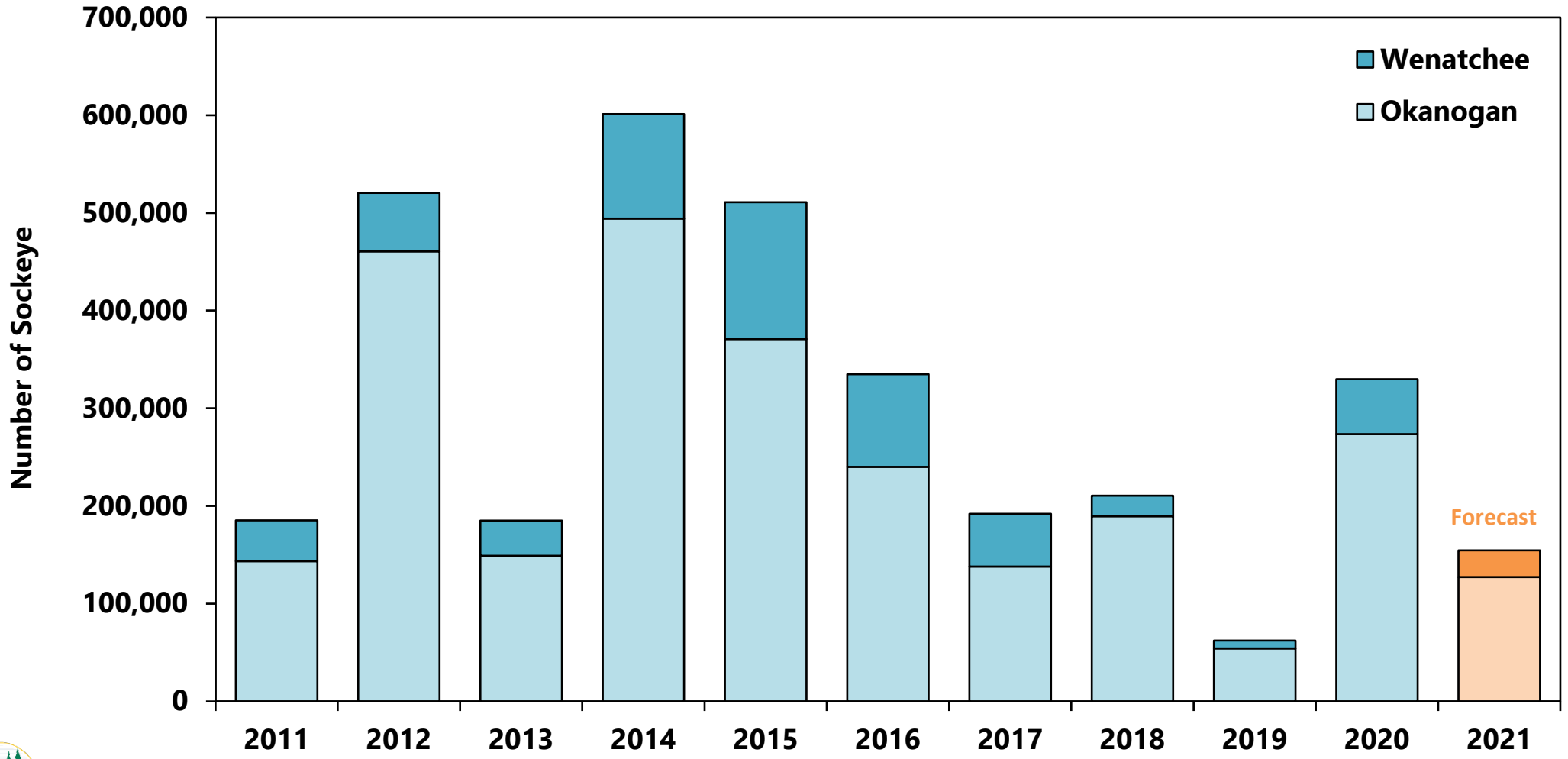
Puget Sound Sockeye Forecasts

Lake WA ⬇ **68%** and Baker ⬇ **6%** over recent 10-year avg.



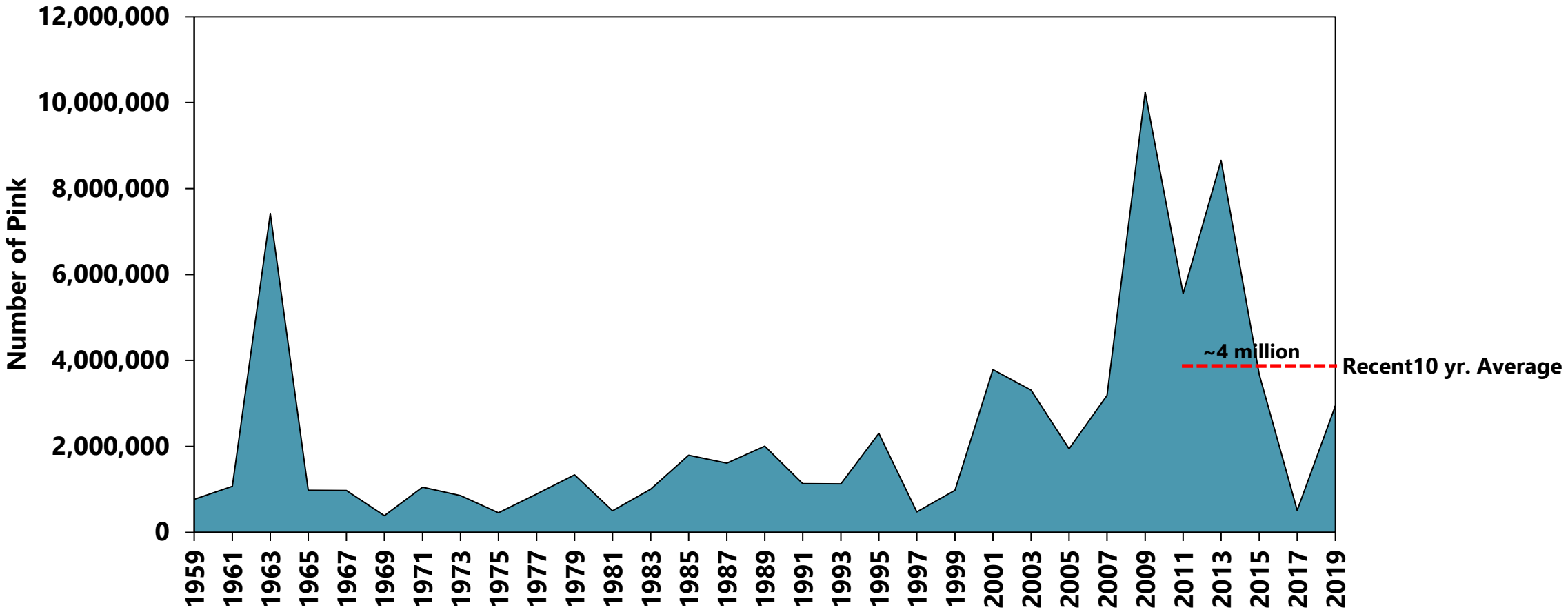
Columbia Sockeye Forecasts

Lake Wenatchee ⬇ **57%** and Okanogan ⬇ **50%** over recent 10-year avg.



Pink

Pink Historical Run Size

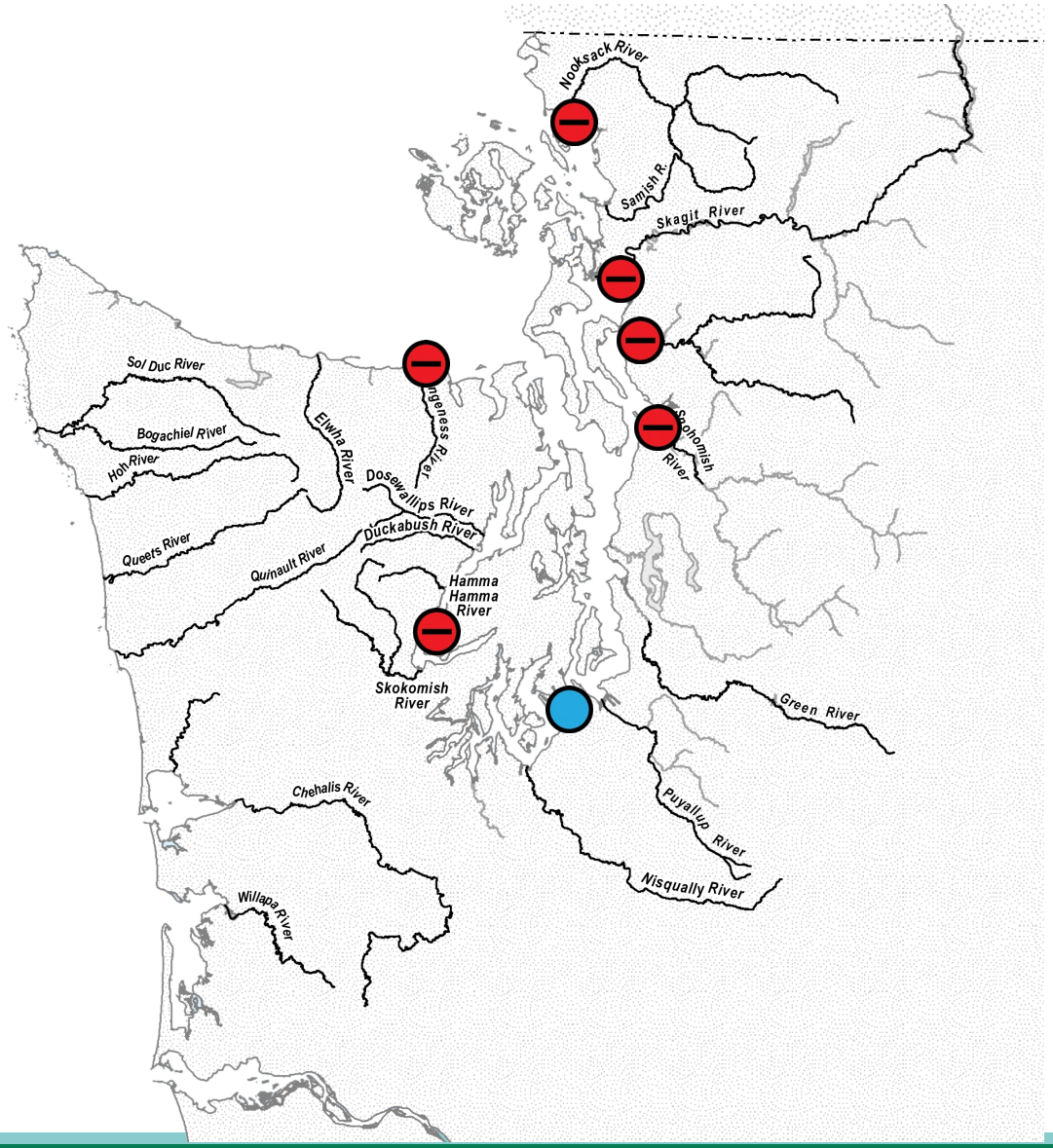


2019 Pink Returns

- Returns were **Poor** to **Neutral** across Puget Sound
- SPS rebounded from 2017
- Poor fry production from 2017 brood year

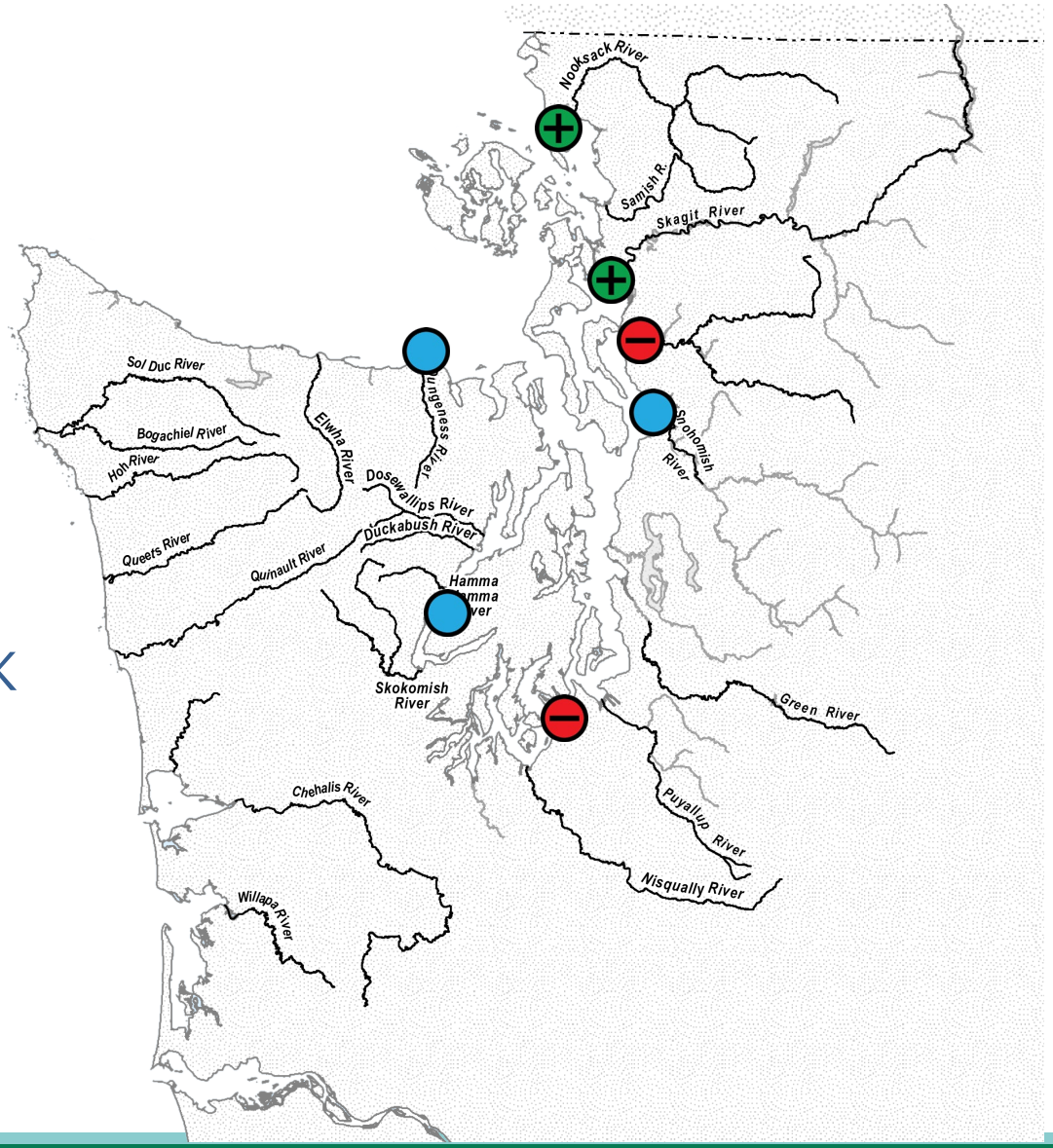
Relative to Recent 10yr Avg. Run size

- Good > 125%
- Neutral 75-125%
- Poor < 75%



2021 Pink Forecasts

- Forecasts range from **Poor** to **Good**
- PS Total – 2.925M
- North Puget Sound ~ 1.77M
- Central/South Puget Sound ~ 941K
- Hood Canal ~ 174K

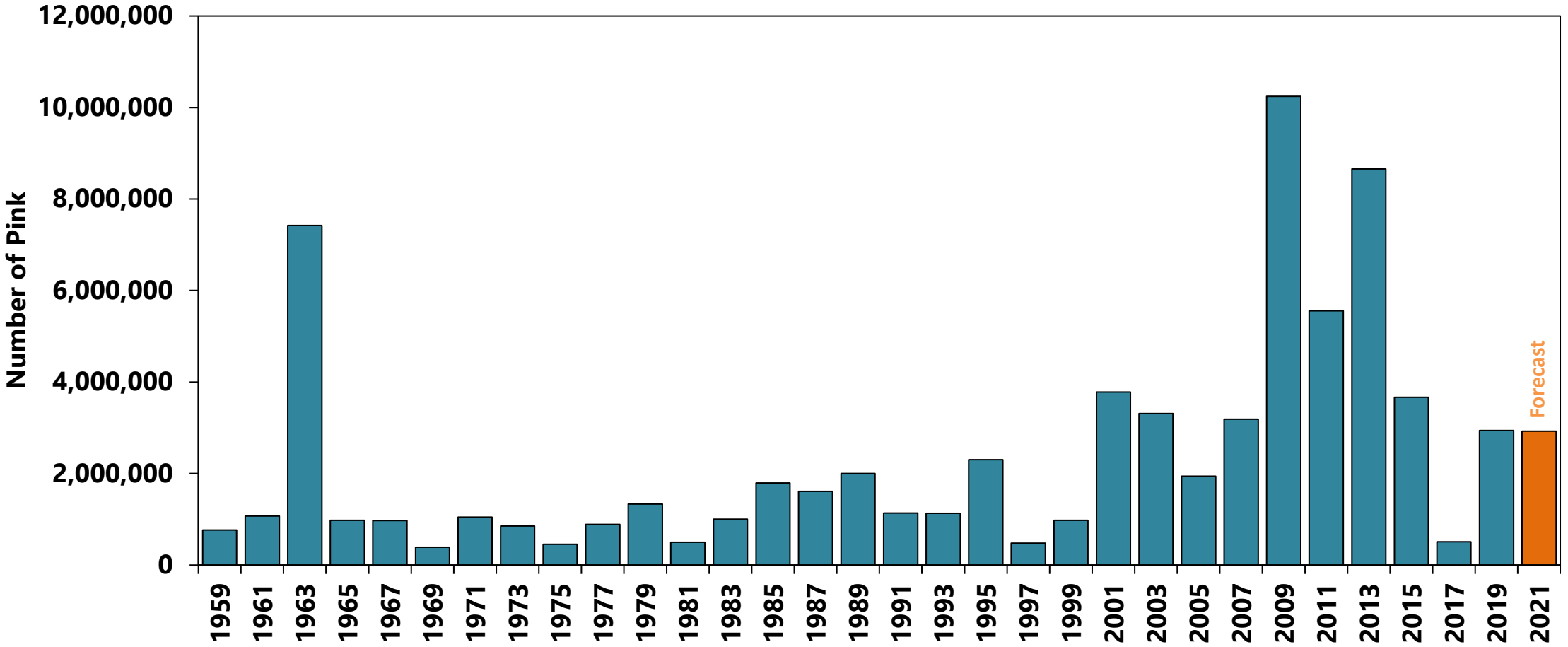


Relative to Recent 10yr Avg. Run size

- Good > 125%
- Neutral 75-125%
- Poor < 75%

2021 Pink Forecasts

Puget Sound Pink forecast ⬇ **31%** from recent 10-year avg.



Questions

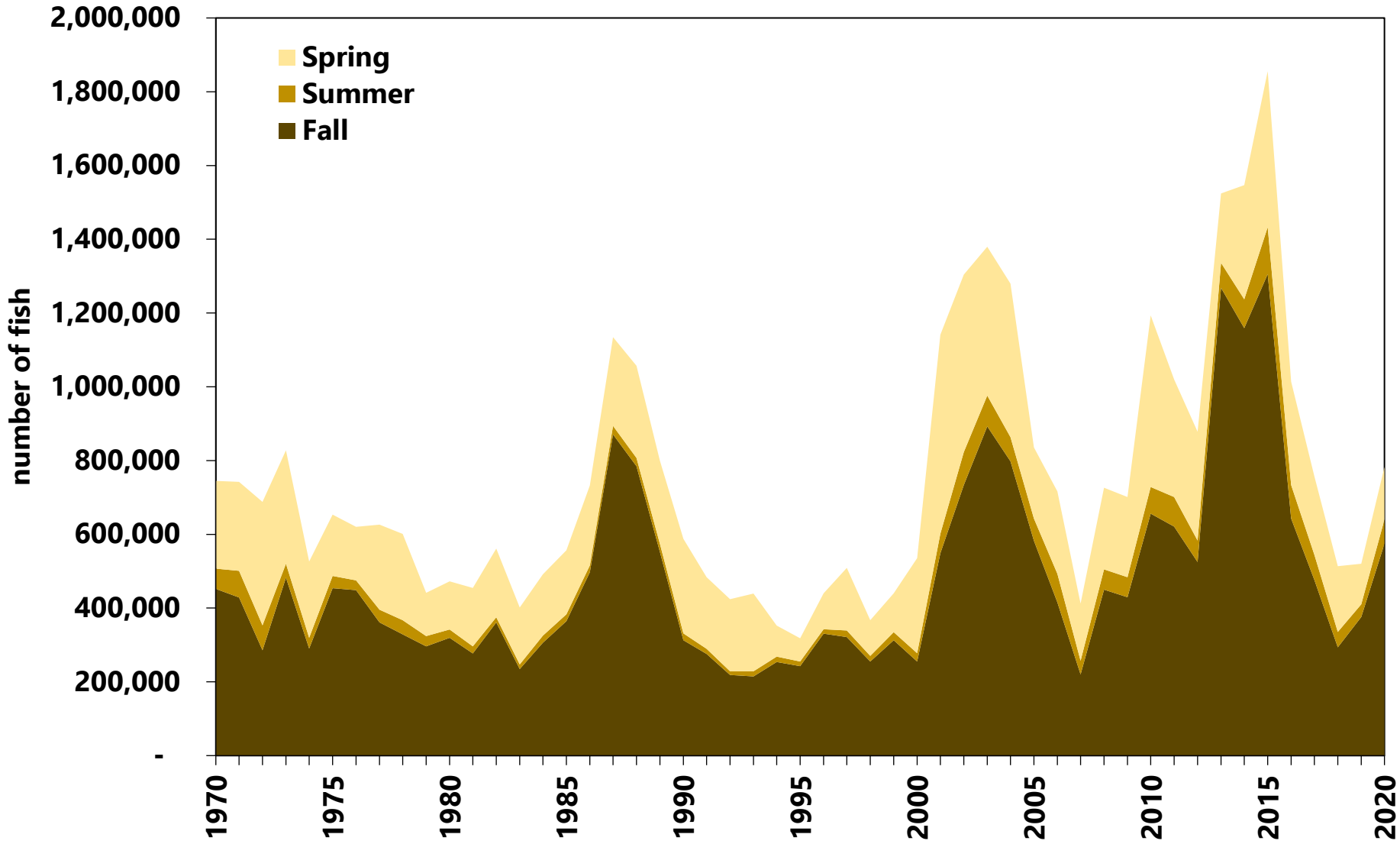
Washington Department of FISH and WILDLIFE

WA Columbia River Chinook and Coho 2020 Returns and 2021 Forecasts

Tim Sippel, PhD

Chinook Salmon

Columbia River Chinook Historical Run Size

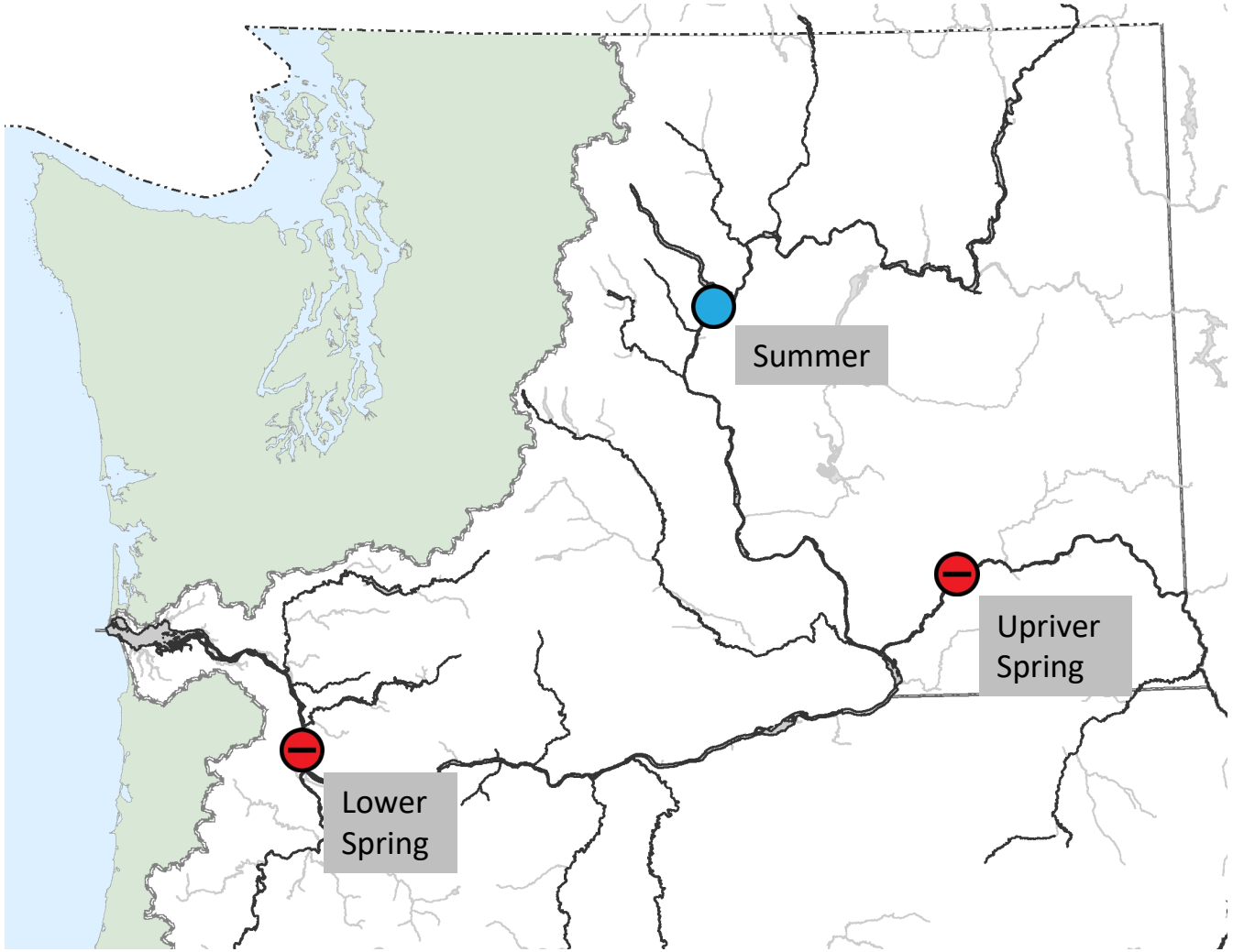


2020 Spring/Summer Chinook Returns

Relative to Recent 10yr Avg. Run Size

- Good > 125%
- Neutral 75-125%
- Poor < 75%

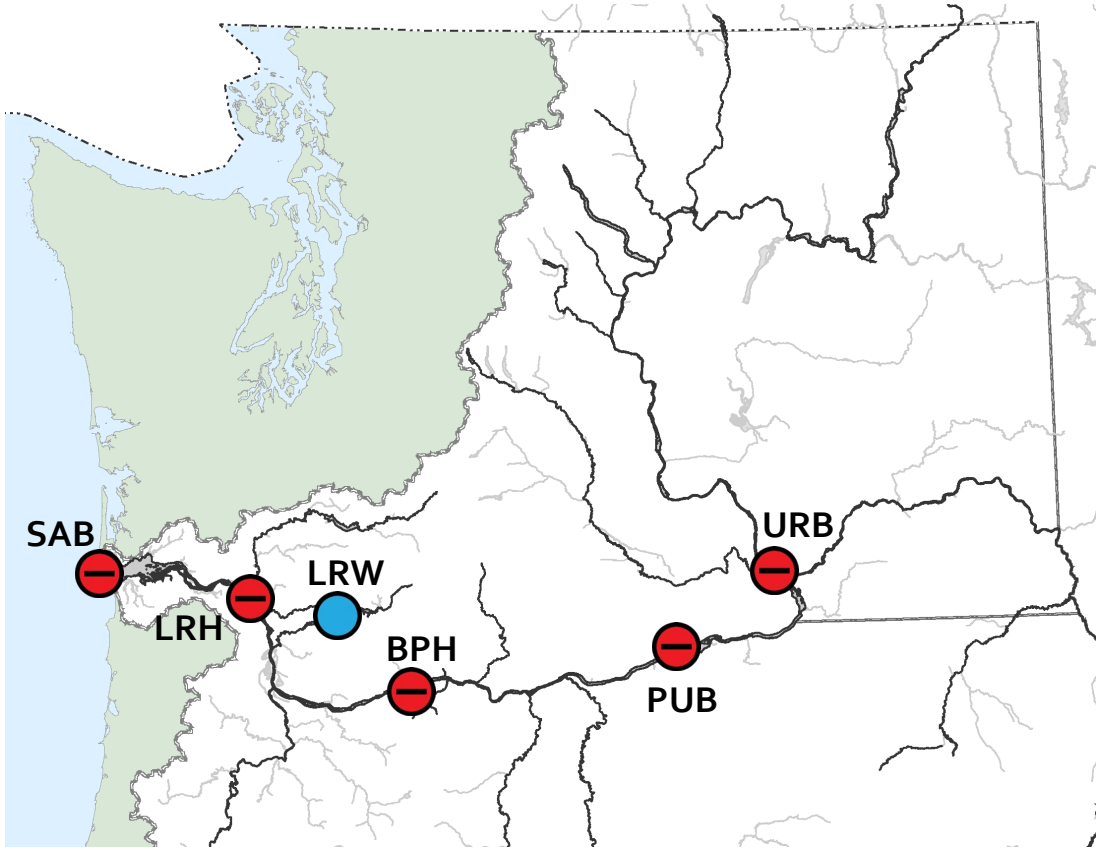
- Lower Spring – 61,200 (69%)
- Upriver Spring – 81,300 (43%)
- Summer – 65,500 (91%)



2020 Fall Chinook Returns

Returns

- SAB (Select Area Bright) – 0.9k (8%)
- LRH (Lower River Hatchery) – 49k (54%)
- LRW (Lower River Wild) – 17k (105%)
- BPH (Bonneville Pool Hatchery) – 29k (36%)
- PUB (Pool Upriver Bright) – 58k (68%)
- URB (Upriver Bright) – 212k (50%)

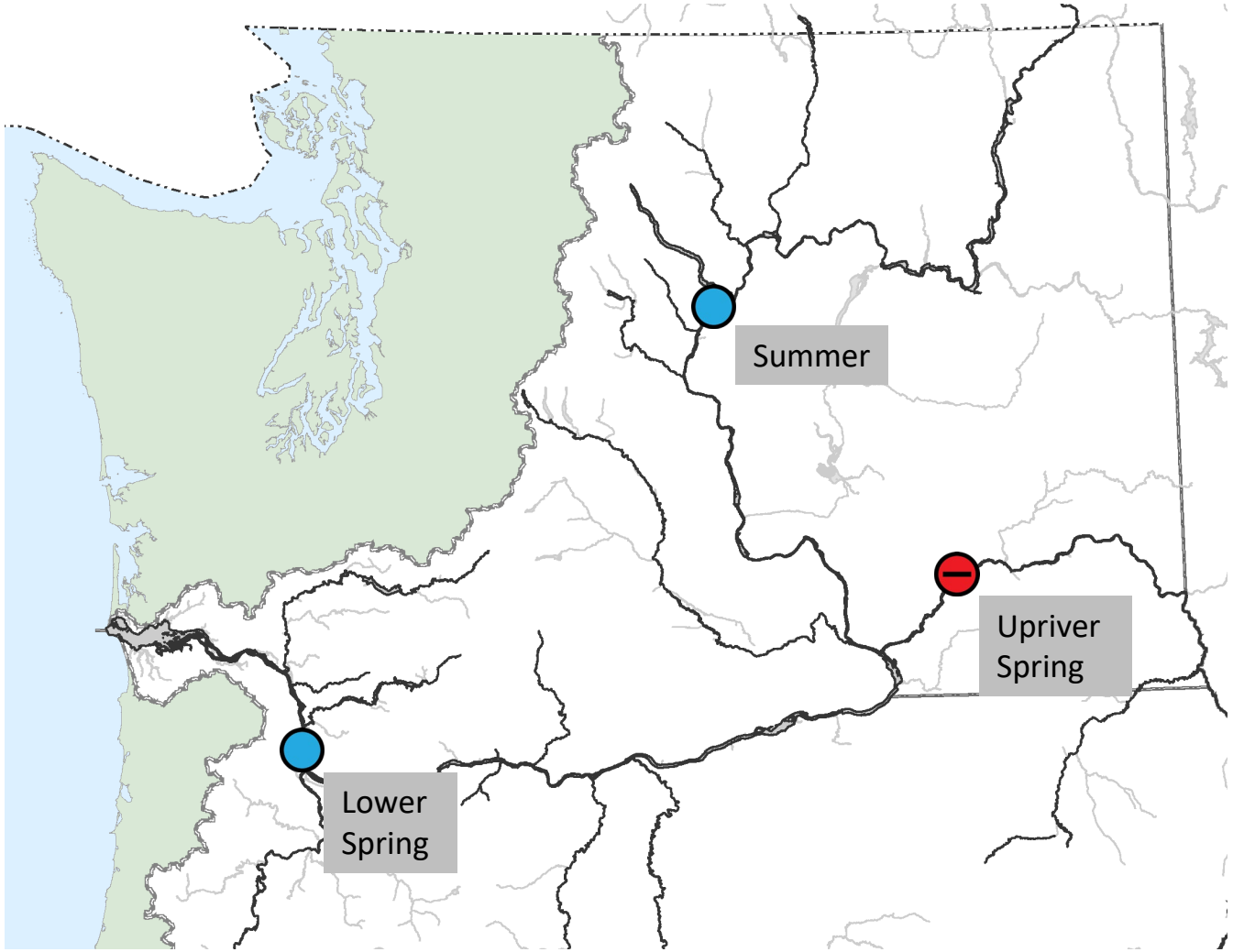


Relative to Recent 10yr Avg. Escapement

- Good > 125%
- Neutral 75-125%
- Poor < 75%

2021 Spring/Summer Chinook Forecasts

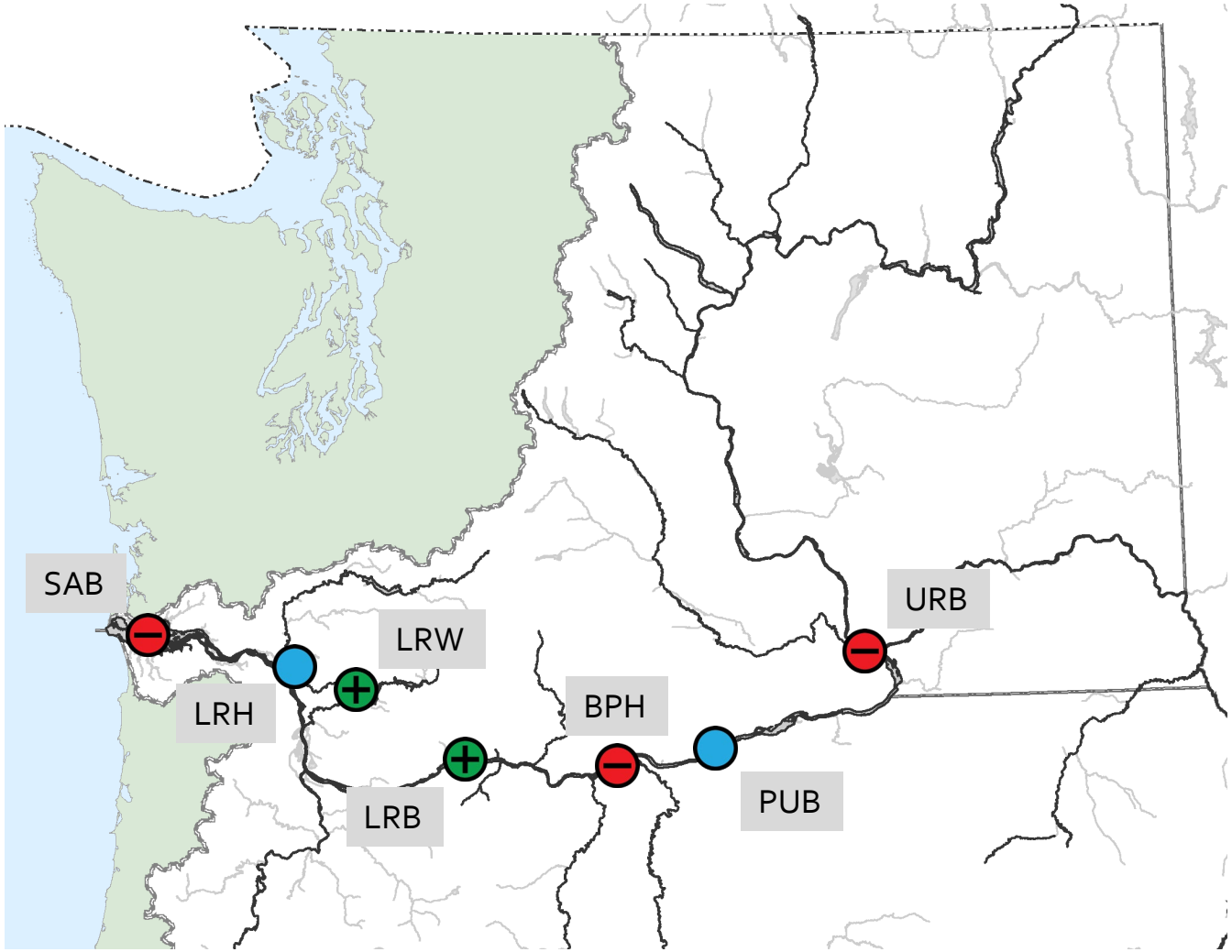
- Lower Spring – 68,000 (84%)
- Upriver Spring – 75,200 (46%)
- Summer – 77,600 (109%)



2020 Fall Chinook Returns

- SAB (Select Area Bright) – 400 (4%)
- LRH (Lower River Hatchery) – 77,900 (88%)
- LRW (Lower River Wild) – 35,400 (211%)
- LRB (Lower River Bright) – 7,100 (155%)
- BPH (Bonneville Pool Hatchery) – 52,700 (67%)
- PUB (Pool Upriver Bright) – 101,900 (116%)
- URB (Upriver Bright) – 299,300 (70%)

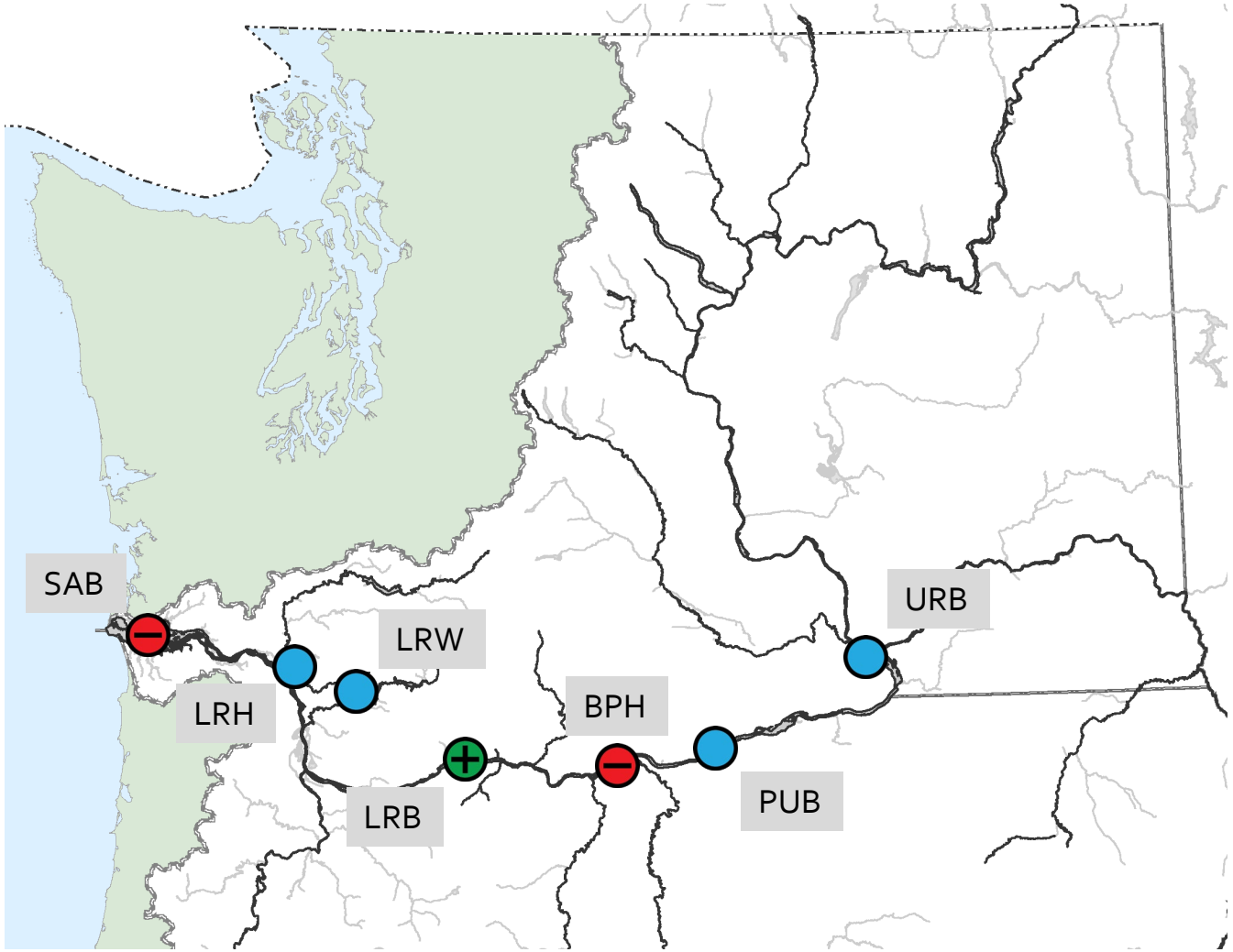
Total Fall – 574,700 (78%)



2021 Fall Chinook Forecasts

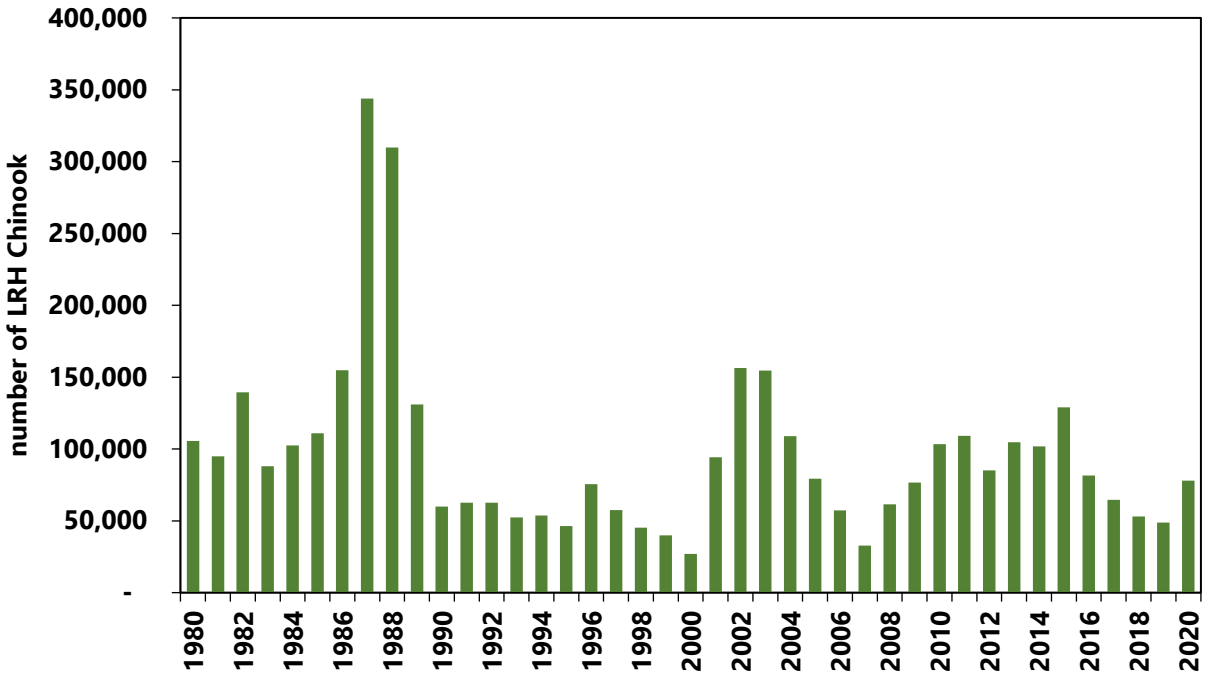
- SAB (Select Area Bright) – 500 (5%)
- LRH (Lower River Hatchery) – 73,100 (85%)
- LRW (Lower River Wild) – 20,000 (104%)
- LRB (Lower River Bright) – 8,800 (167%)
- BPH (Bonneville Pool Hatchery) – 46,800 (66%)
- PUB (Pool Upriver Bright) – 77,400 (83%)
- URB (Upriver Bright) – 354,200 (83%)

Total Fall – 581,000 (80%)



Lower Columbia River Tule Exploitation Rate (ER) Matrix

LRH Run Size	LCR Tule ER
<30,000	30%
30,000 – 40,000	35%
40,000 – 85,000	**38%**
>85,000	41%

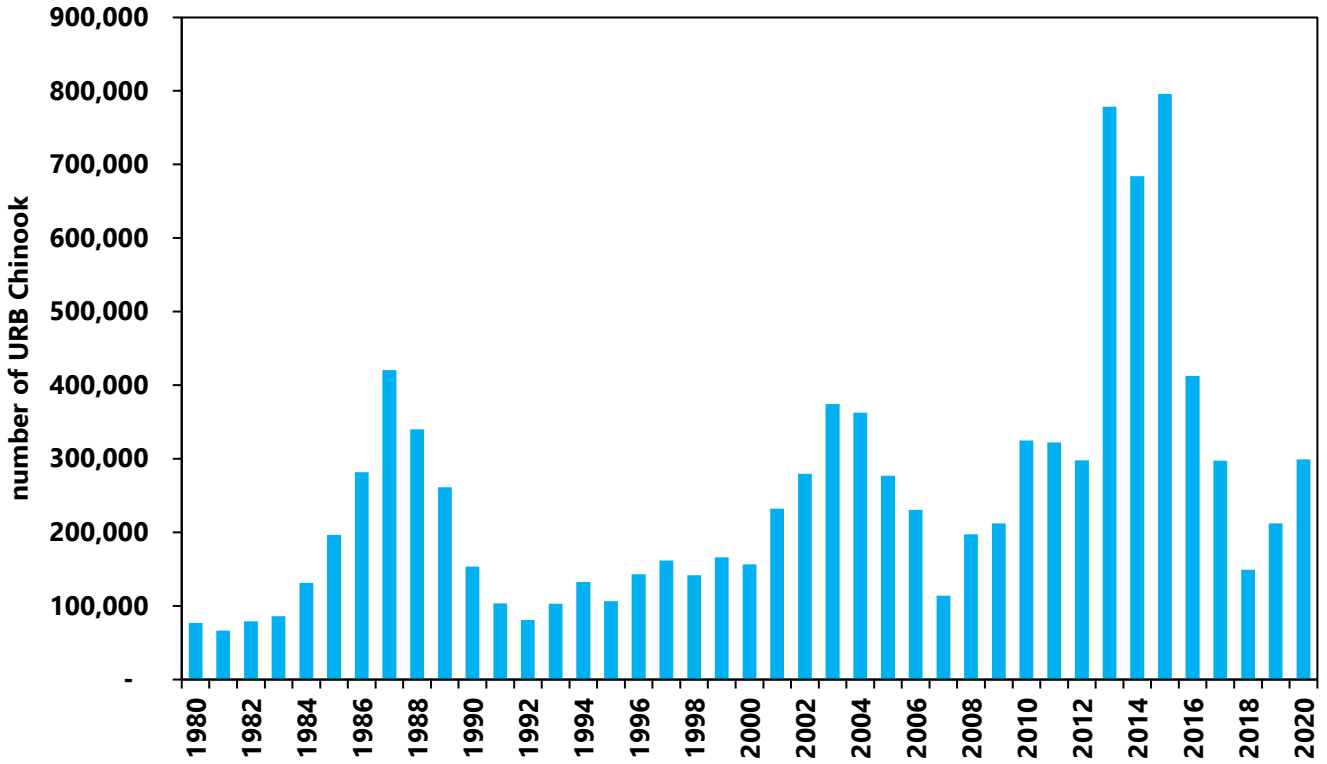


- LRH managed to not exceed a 38% ER for ocean and in-river fisheries combined.

URB Harvest Rate Schedule

URB Run Size	NT Harvest Rate
<60,000	1.5%
60,000-119,999	4%
120,000-200,000	8.25%
>200,000	**15%**

Snake River Wild Run Size*	NT Harvest Rate
<1,000	1.5%
1,000-1,999	4%
2,000-4,999	8.25%
5,000-5,999	8.25%
6,000-7,999	11%
8,000+	15%

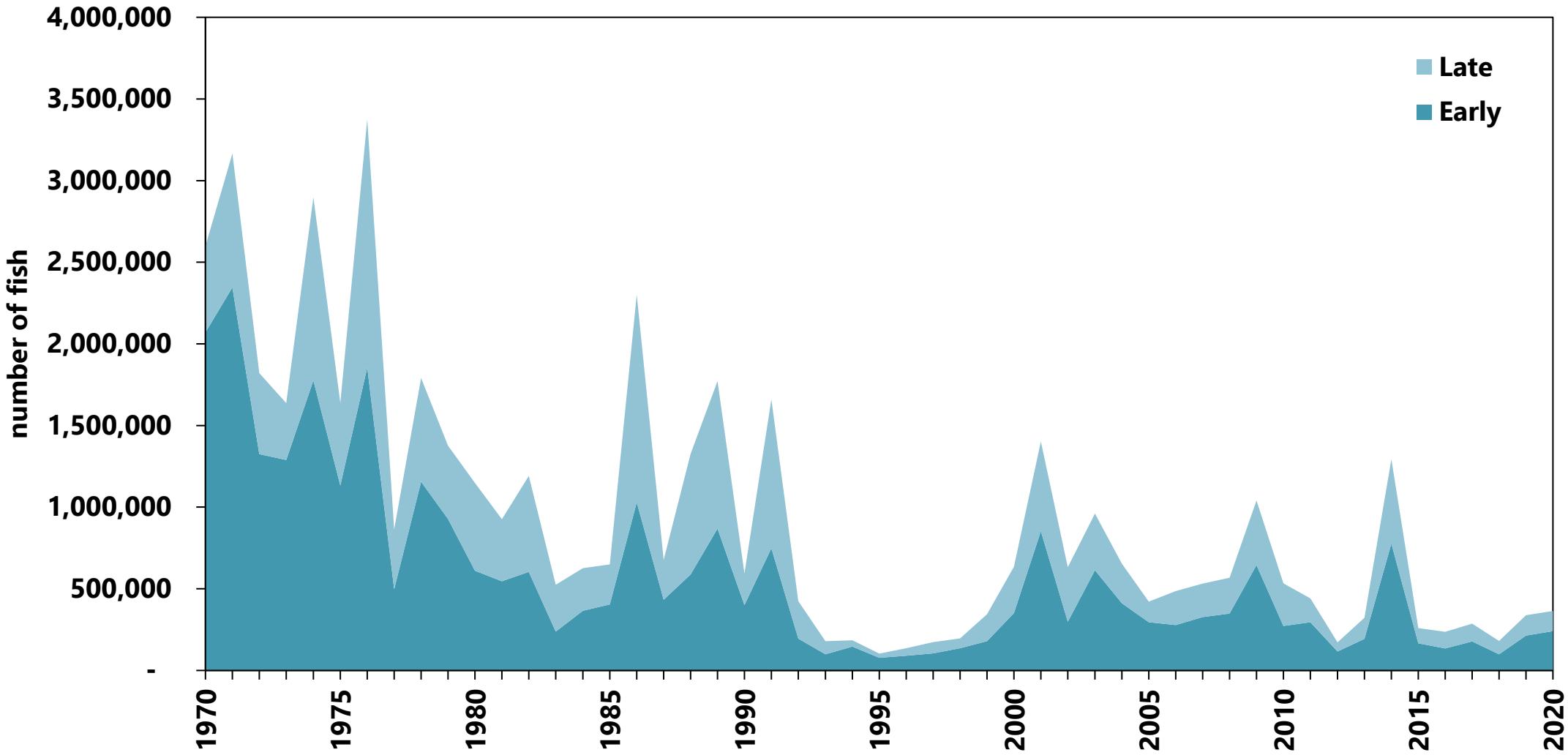


**Snake River Wild forecast is expected to be complete by mid-March.*

- The most constraining of the URB and Snake River Wild run sizes determine the in-river non-treaty harvest rate within the US vs OR 2018-27 Management Agreement.

Coho

Columbia River Coho Ocean Abundance



2020 Coho Returns (ocean abundance*)

- Early – 240,700 (99%)
- Late – 122,900 (76%)

**Pre-ocean and in-river fisheries estimate*

2021 Coho Forecasts (ocean abundance*)

- Early – 1,014,000 (421%)
- Late – 576,000 (389%)

**Pre-ocean and in-river fisheries estimate*

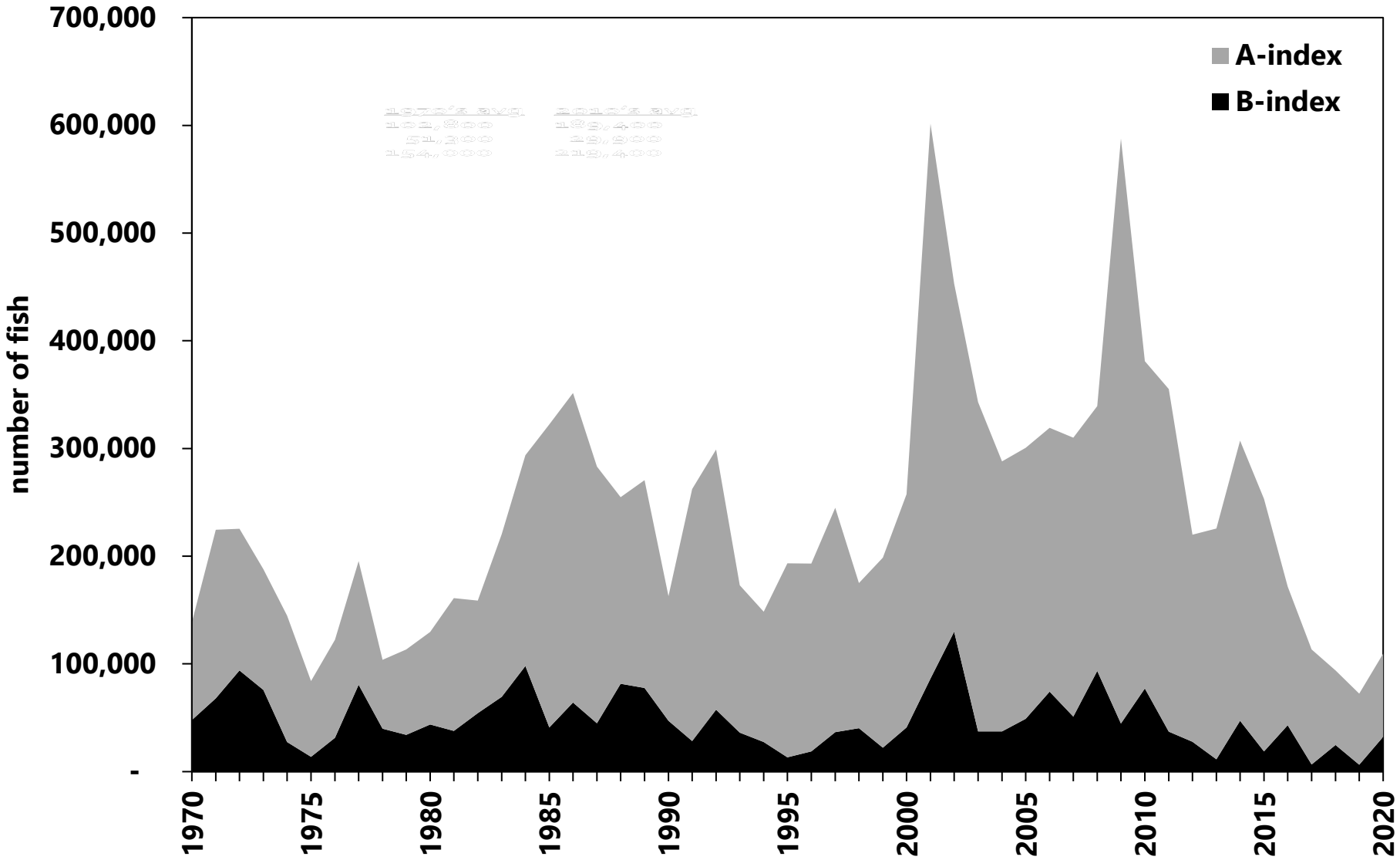
Lower Columbia Natural Coho Exploitation Rate (ER) Matrix

Marine Survival Index		ER
Very Low	≤ 0.06%	10%
Low	≤ 0.08%	15%
Medium	≤ 0.17%	18%
High	≤ 0.40%	23%
Very High	**> 0.40%**	**30%**

- Marine survival index is 0.45% (very high)
- Exploitation rate for 2021 is 30%

Steelhead

Upriver Summer Steelhead



2020 Steelhead Returns

Preliminary*

- A-index – 77,000 (41%)
- B-index – 32,000 (108%)

**Final 2020 returns and 2021 forecasts are not complete yet but are expected to be available by mid-March.*

Questions

Washington Department of FISH and WILDLIFE

Pacific Fishery Management Council Salmon Technical Team Review

Wendy Beeghley

PFMC Pre-I Table I-1

TABLE I-1. Preseason adult Chinook salmon stock forecasts in thousands of fish. (Page 1 of 3)

Production Source and Stock or Stock Group	2016	2017	2018	2019	2020	2021
Sacramento River						
Fall (Sacramento Index)	299.6	230.7	229.4	379.6	473.2	**271.0**
Winter (age-3 absent fishing)	--	--	1.6	1.9	3.1	**9.1**
Klamath River (Ocean Abundance)						
Fall	142.2	54.2	359.2	274.2	186.6	**181.5**
Oregon Coast						
North and South/Local Migrating	--	--	--	--	--	**--**
Columbia River (Ocean Escapement)						
Cowlitz Spring	25.1	17.1	5.2	1.3	1.4	**1.8**
Kalama Spring	4.9	3.1	1.5	1.4	1.0	**2.2**
Lewis Spring	1.0	0.7	3.7	1.5	1.4	**2.4**
Willamette Spring	68.7	38.1	53.8	40.2	40.8	**50.1**
Sandy Spring	NA	3.6	5.3	5.5	5.2	**5.3**
Upriver Spring [a/]	188.8	160.4	166.7	99.3	81.7	**75.2**
Upriver Summer [b/]	93.3	63.1	67.3	35.9	38.3	**77.6**
LRW Fall	22.2	12.5	7.6	13.7	19.7	**20.0**
LRH Fall	133.7	92.4	62.4	54.5	51.0	**73.1**
SCH Fall	89.6	158.4	50.1	46.0	46.2	**46.8**
MCB Fall	101.0	45.6	36.4	56.7	71.8	**77.4**
URB Fall	589.0	260.0	200.1	158.4	233.4	**354.2**

PFMC Pre-I Table I-1 Cont.

TABLE I-1. Preseason adult Chinook salmon stock forecasts in thousands of fish. (Page 2 of 3)

Production Source and Stock or Stock Group		2016	2017	2018	2019	2020	2021
Washington Coast							
Willapa Bay Fall	Natural	3.3	4.2	3.8	4.3	2.9	**3.9**
	Hatchery	36.2	34.3	40.3	23.6	28.3	**30.5**
Grays Harbor Fall	Natural	--	--	16.4	18.0	15.0	**15.5**
	Hatchery	--	--	4.8	7.7	6.9	**7.6**
Quinault Spring/Summer	Natural	NA	NA	NA	NA	NA	**NA**
	Hatchery	--	--	4.8	NA	NA	**NA**
Quinault Fall	Natural	5.5	5.9	5.2	5.3	4.2	**6.0**
	Hatchery	5.3	4.4	3.1	2.7	4.5	**4.9**
Queets Spring/Sum	Natural	0.5	0.5	0.5	0.6	0.6	**0.6**
Queets Fall	Natural	4.9	3.7	3.3	3.4	4.1	**4.3**
	Hatchery	1.7	0.9	0.6	0.8	0.7	**0.6**
Hoh Spring/Summer	Natural	0.9	1.0	1.1	1.0	0.8	**1.0**
Hoh Fall	Natural	1.8	2.7	2.6	2.5	2.6	**2.6**
Quillayute Spring	Hatchery	1.8	2.2	2.1	2.1	2.4	**2.6**
Quillayute Sum/Fall	Natural	7.5	7.6	8.0	7.9	9.8	**9.6**
Hoko[c/]	Natural	2.9	1.5	1.5	2.8	2.6	**1.3**

PFMC Pre-I Table I-1 Cont.

TABLE I-1. Preseason adult Chinook salmon stock forecasts in thousands of fish. (Page 3 of 3)

Production Source and Stock or Stock Group		2016	2017	2018	2019	2020	2021
Puget Sound summer/fall[d/]							
Nooksack/Samish	Hatchery	27.9	21.2	24.6	21.3	18.2	**NA**
East Sound Bay	Hatchery	0.7	0.8	0.7	0.3	0.3	**NA**
Skagit	Natural	15.1	15.8	13.3	13.6	12.9	**10.5**
	Hatchery	0.4	0.4	0.3	0.3	0.5	**0.5**
Stillaguamish[e/]	Natural	0.5	1.5	1.6	0.9	0.9	**0.9**
Snohomish[e/]	Natural	3.3	3.4	3.5	3.2	3.0	**2.9**
	Hatchery	5.0	4.8	6.5	7.0	6.8	**6.1**
Tulalip[e/]	Hatchery	1.4	5.3	7.5	12.5	6.0	**5.8**
South Puget Sound	Natural	4.5	4.7	4.8	8.4	5.8	**7.0**
	Hatchery	43.1	80.4	123.6	99.9	100.7	**78.8**
Hood Canal	Natural	2.3	2.5	3.9	1.2	4.6	**5.7**
	Hatchery	42.7	48.3	57.6	66.0	67.6	**64.1**
Strait of Juan de Fuca (including Dungeness spring run	Natural	3.7	3.1	6.0	8.3	5.0	**5.5**

PFMC Pre-I Table I-2

TABLE I-2. Preseason ocean abundance adult coho salmon stock forecasts in thousands of fish. (Page 1 of 2)

Production Source and Stock or Stock Group		2016	2017	2018	2019	2020	2021
OPI Area Total Abundance (California, Oregon Coasts, and Columbia River)		549.2	496.2	349.0	1,009.6	268.7	**1,732.9**
OPI Public	Hatchery	396.5	394.3	294.1	933.5	185.7	**1,607.9**
Columbia River Early		153.7	231.7	164.7	545.0	130.7	**1,014.0**
Columbia River Late		226.9	154.6	121.5	360.6	50.3	**576.0**
Coastal N. of Cape Blanco		5.5	3.5	3.3	12.0	2.4	**6.4**
Coastal S. of Cape Blanco		10.4	4.5	4.6	15.9	2.3	**11.5**
Lower Columbia River	Natural	40.0	30.1	21.9	36.9	24.8	**39.2**
Oregon Coast (OCN)	Natural	152.7	101.9	54.9	76.1	83.0	**125.0**
Washington Coast							
Willapa	Natural	39.5	36.7	20.6	63.4	17.9	**19.0**
	Hatchery	28.1	55.0	44.5	94.0	51.8	**61.6**
Grays Harbor	Natural	35.7	50.0	42.4	71.5	50.0	**44.8**
	Hatchery	22.9	36.4	51.4	64.3	42.3	**31.7**
Quinault	Natural	17.1	26.3	25.4	13.9	17.5	**15.0**
	Hatchery	19.8	29.4	29.6	26.9	27.0	**24.6**
Queets	Natural	3.5	6.5	7.0	11.1	7.8	**3.9**
	Hatchery	4.5	13.7	10.8	13.2	10.9	**11.8**
Hoh	Natural	2.1	6.2	5.8	7.0	4.2	**3.0**

PFMC Pre-I Table I-2 Cont.

TABLE I-2. Preseason adult coho salmon stock forecasts in thousands of fish. (Page 2 of 2)

Production Source and Stock or Stock Group		2016	2017	2018	2019	2020	2021
Quillayute Fall	Natural	4.5	15.8	10.6	14.7	9.2	**7.5**
	Hatchery	6.4	17.6	16.5	17.0	13.0	**15.1**
Quillayute Summer	Natural	0.3	1.5	2.7	1.2	0.8	**0.3**
	Hatchery	1.4	3.4	3.3	3.4	3.4	**3.4**
North Coast Independent Tributaries	Natural	1.9	6.5	4.1	8.1	5.1	**4.7**
	Hatchery	2.5	0.2	7.9	12.5	1.3	**0.1**
Puget Sound							
Strait of Juan de Fuca	Natural	4.4	13.1	7.2	8.8	7.5	**6.7**
	Hatchery	3.9	15.4	10.6	16.8	20.6	**12.5**
Nooksack-Samish	Natural	9.0	13.2	20.6	25.1	15.4	**35.3**
	Hatchery	28.8	45.6	61.3	59.8	42.5	**54.6**
Skagit	Natural	8.9	11.2	59.2	57.9	31.0	**58.4**
	Hatchery	4.9	7.6	13.1	9.9	18.2	**22.0**
Stillaguamish	Natural	2.8	7.6	19.0	23.8	19.5	**26.8**
	Hatchery	0.0	1.5	0.0	2.2	2.3	**4.0**
Snohomish	Natural	20.6	107.3	65.9	62.6	39.0	**60.0**
	Hatchery	16.7	62.0	38.3	43.7	26.6	**29.9**
South Sound	Natural	9.9	20.2	15.0	30.4	7.3	**27.5**
	Hatchery	27.1	102.4	103.0	180.4	164.0	**192.7**
Hood Canal	Natural	35.3	115.6	59.5	40.1	35.0	**28.8**
	Hatchery	83.5	74.9	84.5	87.9	72.2	**55.7**

Questions

Washington Department of FISH and WILDLIFE

Legislative Update

Tom McBride

Washington Department of FISH and WILDLIFE

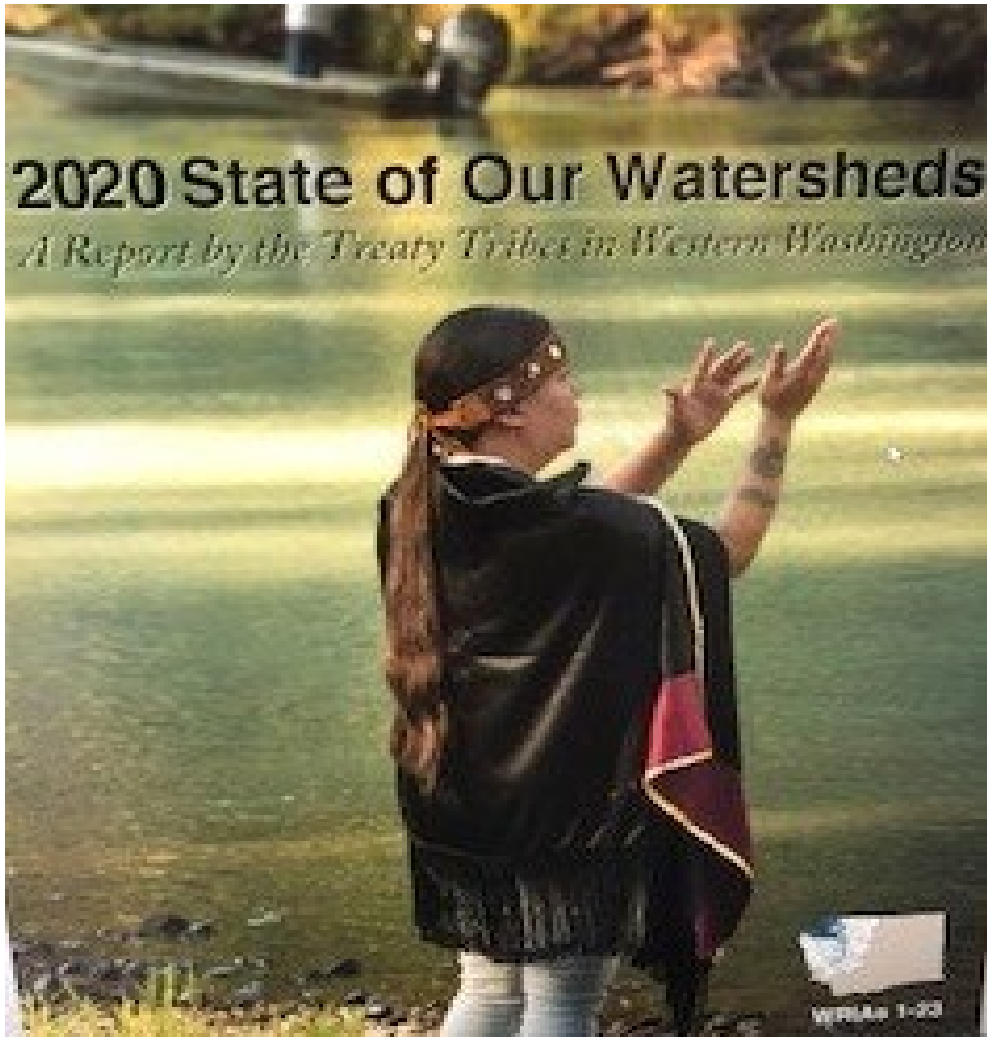
Habitat: Bold Actions are Necessary

Jeff Davis
Director of Conservation Policy

"All" salmon need properly functioning watershed conditions

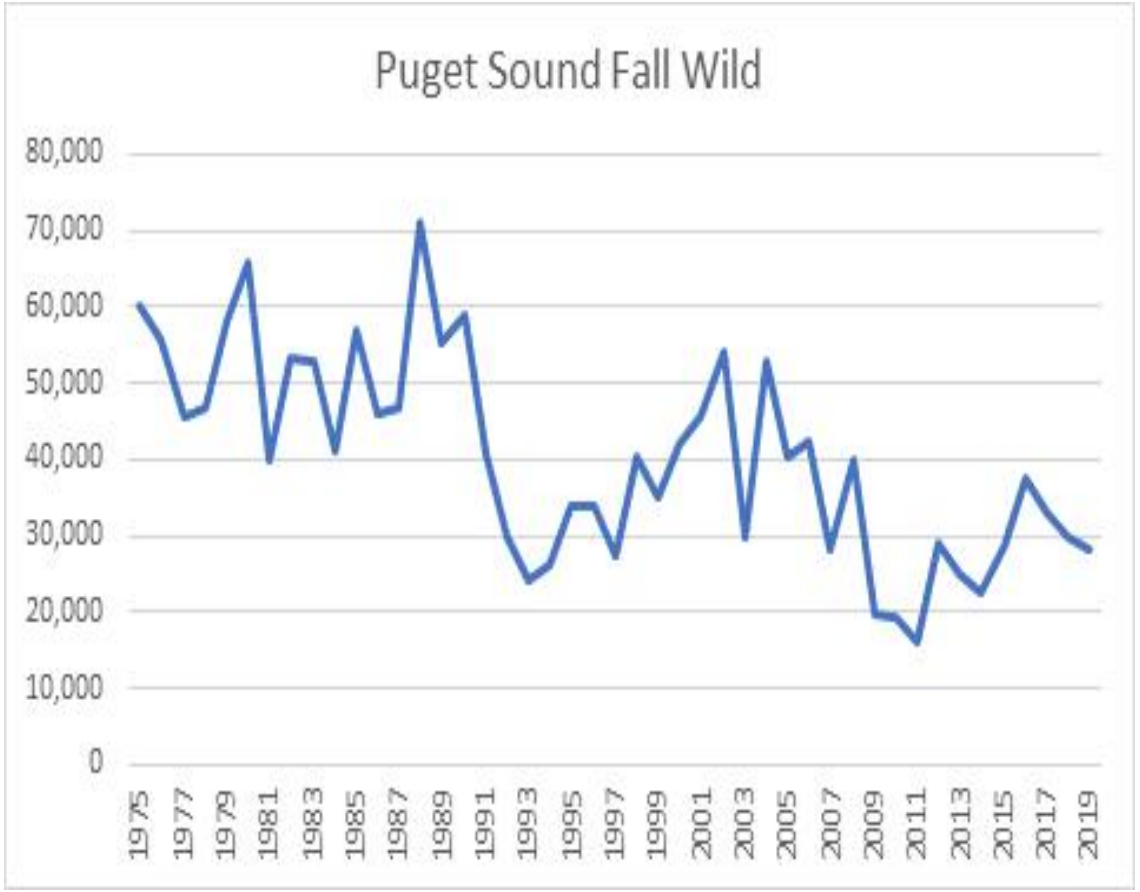
Key watershed indicators – NOAA 1996

- Water quality (temp, sediment, contaminants)
- Habitat access (fish passage barriers)
- Habitat elements (pools, substrate, LWD, off-channel, streambank stability, refugia, etc.)
- Flow/ hydrology (peak/ base flow.)
- Watershed conditions (impervious, forest cover, riparian, etc.)



Some key changes!

Smaller chinook and coho = fewer eggs and shallower redds + increasing flood frequency and intensity + hotter and less summer baseflow = FURTHER TROUBLE



“Houston….we have a problem!”

Salmon recovery plans and Growth Management planning

- Salmon recovery plans target properly functioning conditions vs GMA only target critical areas
- No net loss is the current standard
- Human population growth is projected to increase by 3 million in the next 2 decades
- Only 22% of the identified habitat restoration investment has been made to date and we continue to see a net loss of habitat

RECOVERY NOT INTEGRATED INTO GROWTH PLANNING!!

Bold actions to get ahead of the increasing challenges

- Salmon recovery plan elements “must” be including into growth management planning
- The current watershed conditions “must” be formally established
- Private projects “must” actually achieve no net loss, while public projects “must” deliver a net ecological gain
- Net gains and no net loss must be tracked to ensure collective efforts are moving watersheds towards properly functioning conditions
- Monitoring the environmental conditions and salmon and steelhead responses are critical to inform adaptive management needs
- State, tribal and local governments “must” all work together to pull it off

“Ask not what salmon recovery can do for you. Ask what you can do to recover salmon.”

Restoration of opportunities and future generations are depending on us!

Washington Department of FISH and WILDLIFE

Comments on Co-management

JT Austin, Kelly Susewind, Lorraine Loomis, and Shawn Yanity

Co- management

“North of Falcon today isn’t about winning or losing. It’s about working together to carefully craft conservative fisheries that protect the weakest salmon stocks while providing for harvest when possible.”

- Northwest Indian Fisheries Commission Chair Lorraine Loomis and WDFW Director Kelly Susewind

In memory of Doug Milward
1953-2021

Thank you for participating