2026 COOK INLET SALMON STOCK ASSESSMENT & FISHERY EVALUATION REPORT

February 2026 NPFMC

Lukas DeFilippo

Ecosystem Monitoring and Assessment Program, NMFS AFSC

With contributions from:

- Rich Brenner NMFS AKRO
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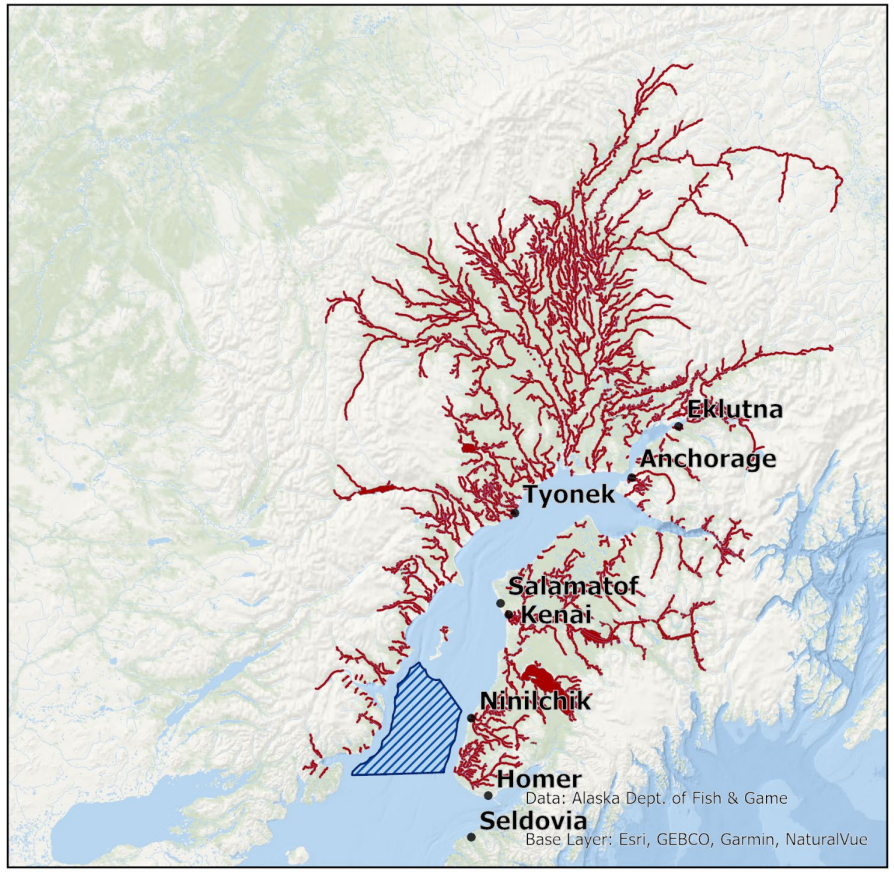
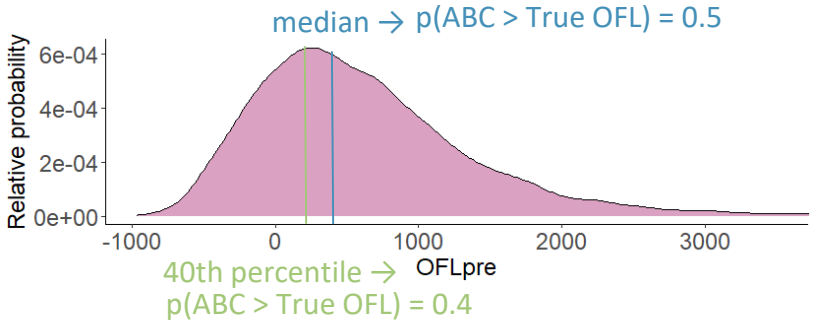


Changes to 2026 Tier-1 Assessment Methodology: 2025 SSC and Stock Assessment Modeling Workshop Recommendations

1. Bayesian approach for tier-1 stocks using longer time-series (run sizes from 1979-present) with two alternative buffer methodologies:
   a. **Retrospective** (positive errors, *i.e.,* similar to previous years' approach) using 25 year retrospective window (versus 10 year window used previously)
   b. **Percentile approach (i.e., P*)** → ABC values determined based on a given target probability of exceeding the true OFL under a given ABC value based on the posterior distribution of preseason OFL (Appendix B, Tables B1-B2)
2. AR-1 model for run size forecast (consistent with structure selected in past assessments by *auto.arima*)
3. State harvest forecast based on posterior predictive distribution of past state harvest rates (Beta(a,b))

Preseason OFL posterior distribution



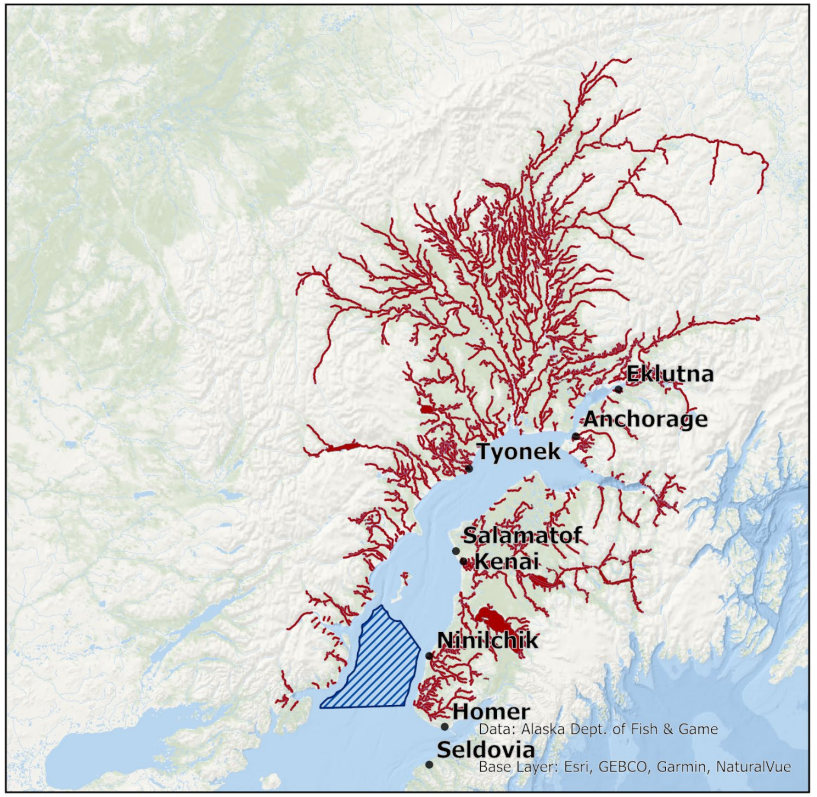
2026 Changes to Tier-3 Assessment Methodology:

- SSC Recommendation:

The SAFE team requested input from the SSC on how to treat overfished determinations with missing or incomplete weir data. The SSC recommends that the calculation of the cumulative escapement goal omit the indicator goal in years when the index is missing or incomplete. For example, when a weir count is missing, the escapement goal for that site in that year is not counted towards the cumulative escapement target over a generation.'

- NMFS SAFE Team Response:

The NMFS SAFE Team has implemented this change for the 2026 assessment cycle and SAFE report. Years in which the escapement count for a given indicator stock are missing are no longer counted towards aggregate escapement, and the escapement goal for that stock is not counted towards combined escapement targets and MSST.



2025 COOK INLET EEZ FISHERY SDC & SAFE Recommendation: No overfishing and No stocks overfished [Table 2. SAFE Report (page 11)]

Tier 1 Overfishing SDC | Tier 1-3 Overfished SDC | Tier 3 Overfishing SDC

Stock	Tier	MFMT	F_{EEZ}	MSST (000's)	Cum. Esc. (000's)	OFL (000's)	Cum. Harv. (000's)
KNSOCK	1	0.263	0.065	3,030	10,495	NA	NA
KASOCK	1	0.531	0.027	555	4,664	NA	NA
AOSOCK	3	NA	NA	100	557	907	537
ACHIN	3	NA	NA	40.5[1]	75	2.237	0.371
COHO	3	NA	NA	NA	NA	268	68
CHUM	3	NA	NA	NA	NA	390	146
PINK (ODD)	3	NA	NA	NA	NA	116	30

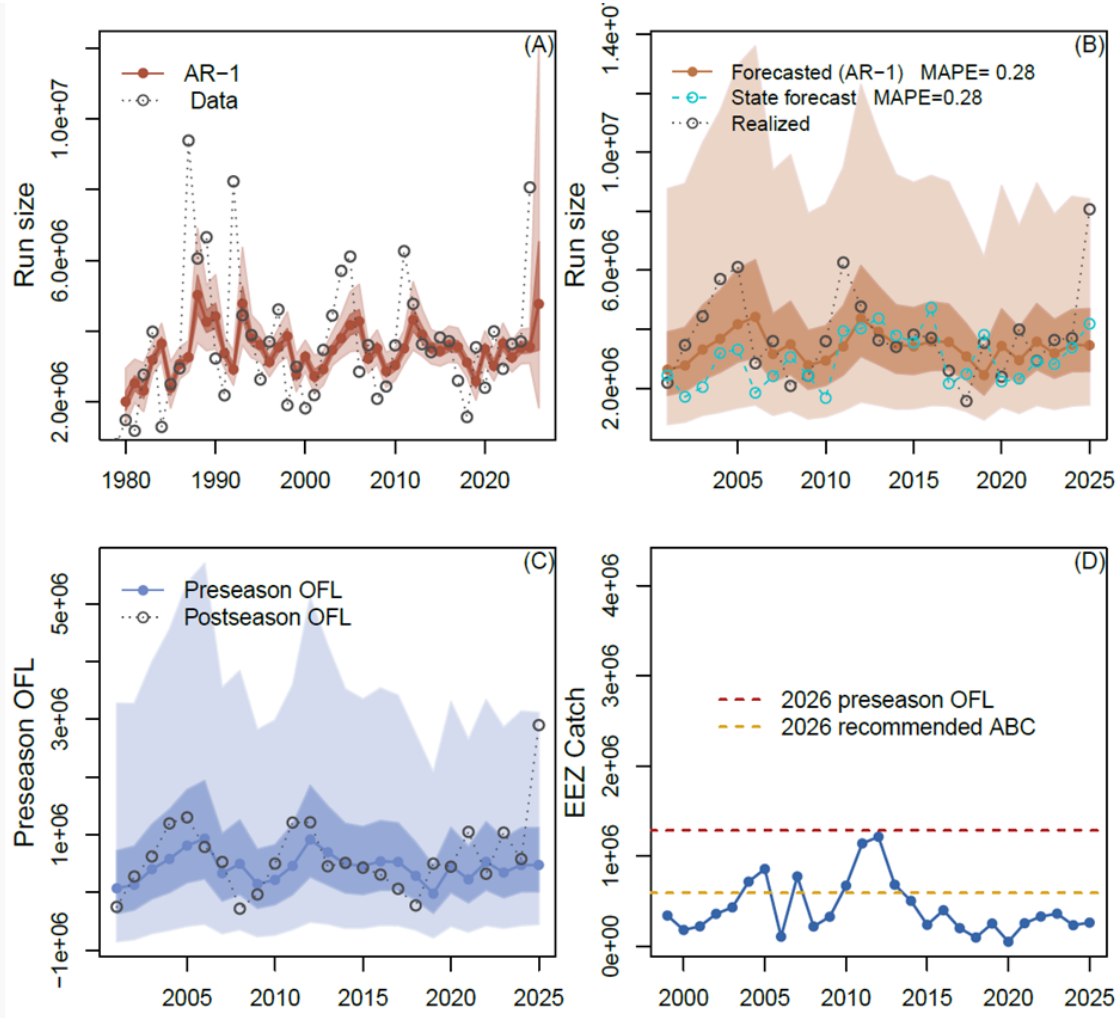
[1]Corrected from 2026 SAFE

2025 COOK INLET EEZ FISHERY: HARVEST SPECIFICATION VS. CATCH [Table 3. SAFE Report (page 11)]

Stock	Tier	OFL_{PRE}	ABC/ ACL	TAC	Catch	Sockeye Catch
KNSOCK	1	514,761	360,332			262,415
KASOCK	1	664,294	285,646	800,126*	385,905*	30,872
AOSOCK	3	181,351	154,148			92,617
ACHIN	3	373	261	261	46	NA
COHO	3	67,013	16,753	16,753	15,444	NA
CHUM	3	97,508	78,006	78,006	27,236	NA
PINK-ODD	3	58,174	52,357	52,357	6,080	NA

*combined TAC and catch for Kenai late-run sockeye, Kasilof sockeye, and Aggregate 'other' sockeye salmon

KENAI LATE RUN SOCKEYE SALMON (KNSOCK) (Section 4.2)
2026 PRESEASON



- 2026 forecasted (AR-1) run size = 4.767M
- 2026 forecasted F_{STATE} = 47%
- 2026 Potential Yield/OFL_{pre}= 1.284M
- Retrospective buffer = 53.9%
  - P* = 25-26% probability of ABC > True OFL_{pre} (Appendix B, Table B1, p. 113)
- SAFE team recommended ABC = 591,509

- **SSC recommendations:**
  - **buffer = 27%**
  - **ABC = 937,993**

KENAI SOCKEYE SALMON (KNSOCK) (Section 4.2)
COMPARISON OF ALTERNATIVE TIER-1 PRESEASON METHODS

Method	Forecasted 2026 run size	2026 OFL_{pre}	2026 Buffer	2026 ABC
Bayes retrospective	**4,767,278**	**1,284,478**	**0.539**	**591,509**
auto.arima (2025 method)	4,791,947	1,340,962	0.602	533,266

KENAI LATE RUN SOCKEYE SALMON (KNSOCK) (Section 4.2)
2026 PRESEASON (percentile approach, Appendix B, Table B1, p.113)

p (ABC>true OFL) (p*)	buffer	ABC
0.1	0.928	92,779
0.11	0.898	131,648
0.12	0.866	171,947
0.13	0.837	209,157
0.14	0.811	242,540
0.15	0.784	276,895
0.16	0.76	308,414
0.17	0.735	339,998
0.18	0.712	369,560
0.19	0.691	397,016
0.2	0.667	427,969
0.21	0.643	458,600
0.22	0.621	486,945
0.23	0.6	513,718
0.24	0.577	543,809
0.25	0.555	571,445
0.26	0.532	600,730
0.27	0.512	627,327
0.28	0.492	652,120
0.29	0.471	680,028
0.3	0.448	709,636
0.31	0.426	737,883
0.32	0.405	763,990
0.33	0.383	792,065
0.34	0.363	818,320
0.35	0.34	848,100
0.36	0.317	877,550
0.37	0.296	904,156
0.38	0.274	932,396
0.39	0.252	961,008
0.4	0.231	987,780
0.41	0.208	1,017,853
0.42	0.186	1,045,726
0.43	0.166	1,071,198
0.44	0.142	1,102,051
0.45	0.118	1,133,338
0.46	0.095	1,162,537
0.47	0.073	1,190,257
0.48	0.049	1,221,372
0.49	0.024	1,253,162

Retrospective buffer (NMFS SAFE Team recommendation)

SSC recommended buffer

Fisheries Research 257 (2023) 106502

Contents lists available at ScienceDirect

Fisheries Research

journal homepage: www.elsevier.com/locate/fishres

Methods for assessing and responding to bias and uncertainty in U.S. West Coast salmon abundance forecasts

William.H. Satterthwaite [a,*], Andrew Olaf Shelton [b]

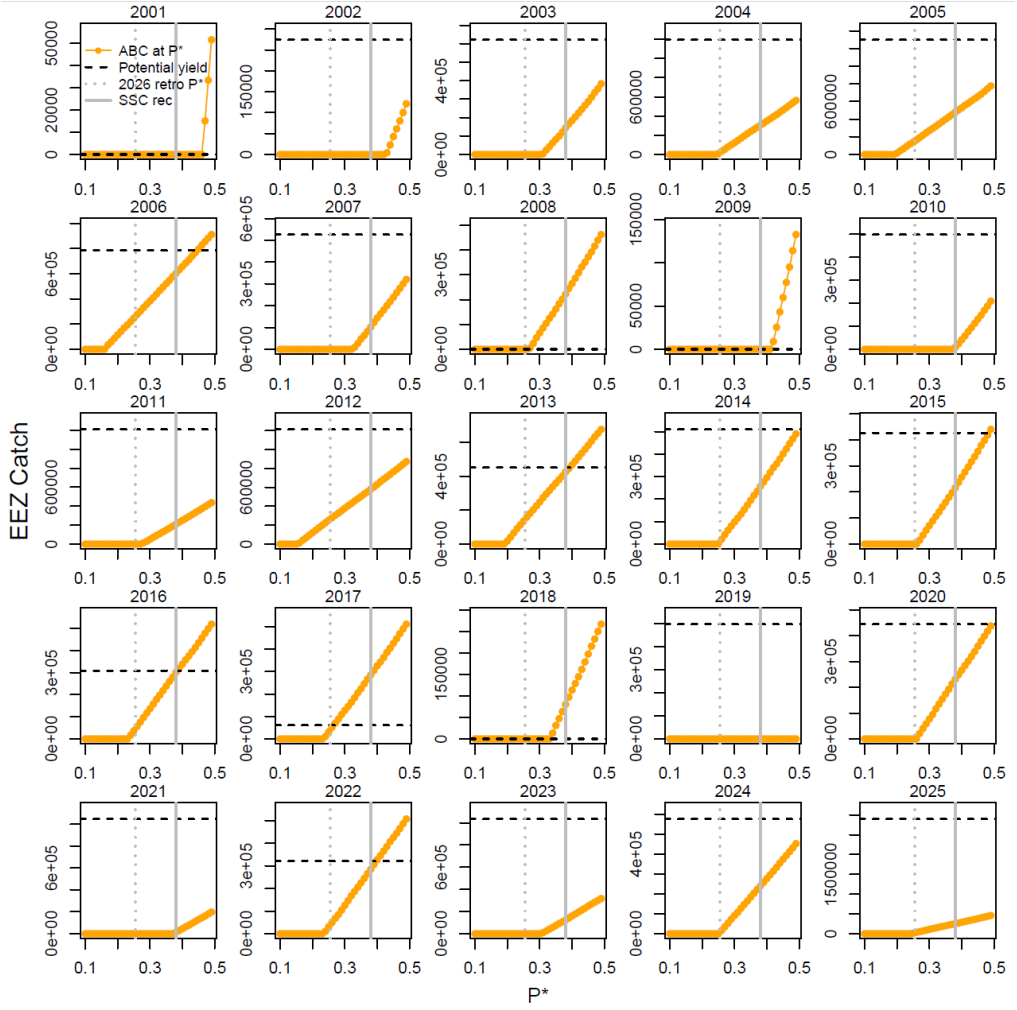
[a] Fisheries Ecology Division, Southwest Fisheries Science Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Santa Cruz, CA, USA

[b] Conservation Biology Division, Northwest Fisheries Science Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Seattle, WA, USA

- From Satterthwaite and Shelton (2023)*:
  - 0.33; 0.35 **considered in risk-averse options** (IPCC; PFMC)
  - 0.4-0.45 → **PFMC precedent** for groundfish and coastal pelagic species

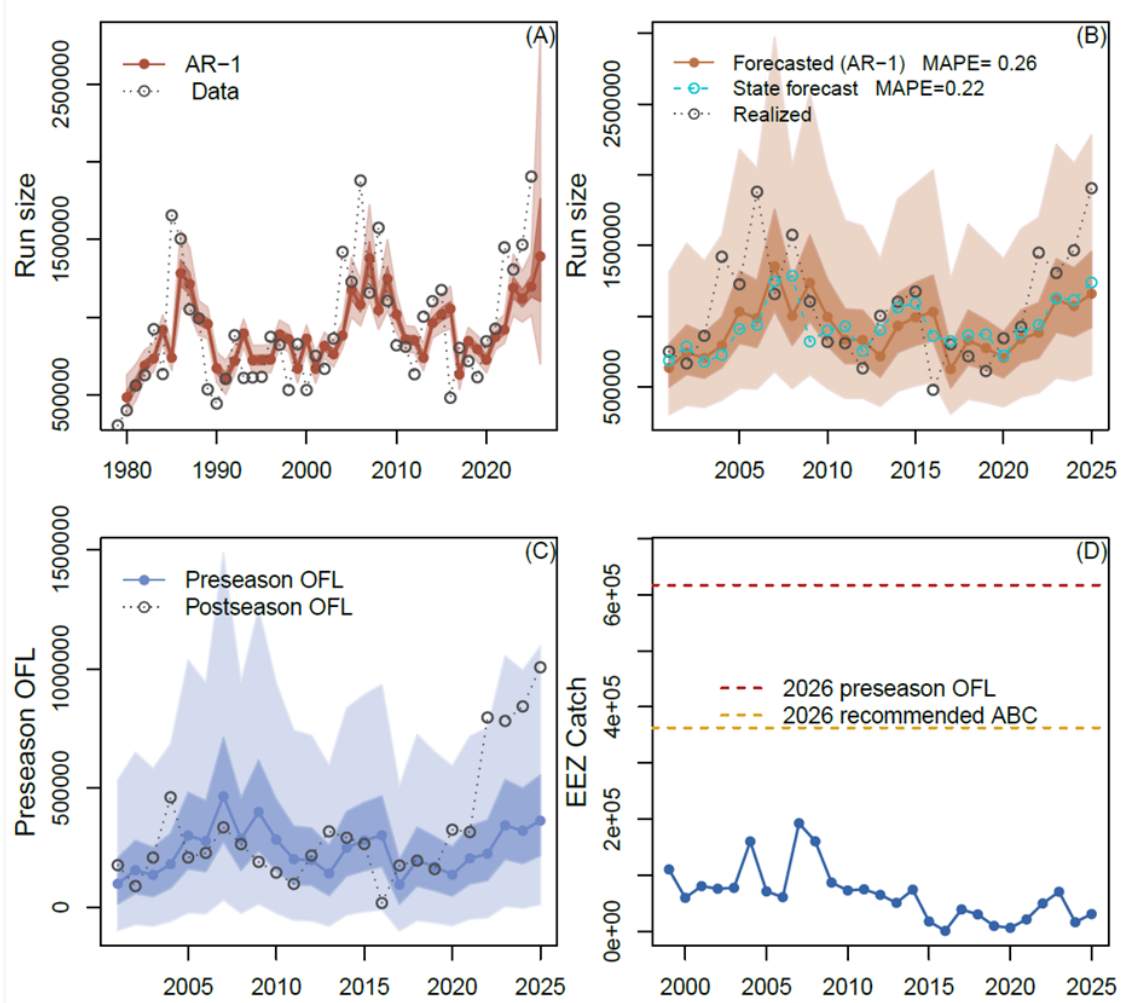
*Satterthwaite, W. H., & Shelton, A. O. (2023). Methods for assessing and responding to bias and uncertainty in US West Coast salmon abundance forecasts. *Fisheries Research*, *257*, 106502.

KENAI LATE RUN SOCKEYE SALMON (KNSOCK)
2026 PRESEASON (percentile approach, retrospective analyses)



- Retrospective analyses (2001-2025) → one-year-ahead forecasting of OFL, define ABC based on given percentile/P* value
- Run size, State harvest fixed at true historical values
- Calculate preseason ABC under each P* value → compare to true OFL/EEZ potential yield for each year

KASILOF SOCKEYE SALMON (KASOCK) (Section 4.3)
2026 PRESEASON



- 2026 forecasted (AR-1) run size = 1.391M
- 2026 forecasted F_{STATE} = 0.388
- 2026 Potential Yield/OFL_{pre}= 617K
- Retrospective buffer = 41.2%
  - p* = 17-18% risk of ABC > True OFL_{pre} (Appendix B, Table B2, p. 114)
- SAFE Team recommended ABC = 362,866

- **SSC recommendations:**
  - **buffer = 20.6%**
  - **ABC = 489,936**

KASILOF SOCKEYE SALMON (KASOCK) (Section 4.3)
COMPARISON OF ALTERNATIVE TIER-1 PRESEASON METHODS

Method	Forecasted 2026 run size	2026 OFL_{pre}	2026 Buffer	2026 ABC
Bayes retrospective	**1,391,412**	**617,006**	**0.412**	**362,866**
auto.arima (2025 method)	1,410,014	740,565	0.898	75,660

KASILOF SOCKEYE SALMON (KNSOCK) (Section 4.2)
2026 PRESEASON (percentile approach, Appendix B, Table B1, p.113)

Retrospective buffer (NMFS SAFE Team recommendation)

SSC recommended buffer

p (ABC>true OFL) (p*)	buffer	ABC
0.1	0.542	282,483
0.11	0.522	295,072
0.12	0.505	305,569
0.13	0.487	316,359
0.14	0.471	326,352
0.15	0.454	337,010
0.16	0.437	347,298
0.17	0.422	356,903
0.18	0.408	365,522
0.19	0.394	373,693
0.2	0.379	382,866
0.21	0.365	391,614
0.22	0.351	400,362
0.23	0.337	409,138
0.24	0.325	416,620
0.25	0.313	423,773
0.26	0.3	431,961
0.27	0.288	439,243
0.28	0.275	447,235
0.29	0.263	454,477
0.3	0.252	461,279
0.31	0.24	468,707
0.32	0.227	477,119
0.33	0.213	485,311
0.34	0.2	493,353
0.35	0.188	500,802
0.36	0.176	508,212
0.37	0.164	515,658
0.38	0.152	523,174
0.39	0.139	531,189
0.4	0.128	538,284
0.41	0.115	546,164
0.42	0.102	554,108
0.43	0.089	562,284
0.44	0.076	570,121
0.45	0.064	577,740
0.46	0.05	586,202
0.47	0.038	593,812
0.48	0.024	602,229
0.49	0.012	609,600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Methods for assessing and responding to bias and uncertainty in U.S. West Coast salmon abundance forecasts

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KASILOF SOCKEYE SALMON (KASOCK)
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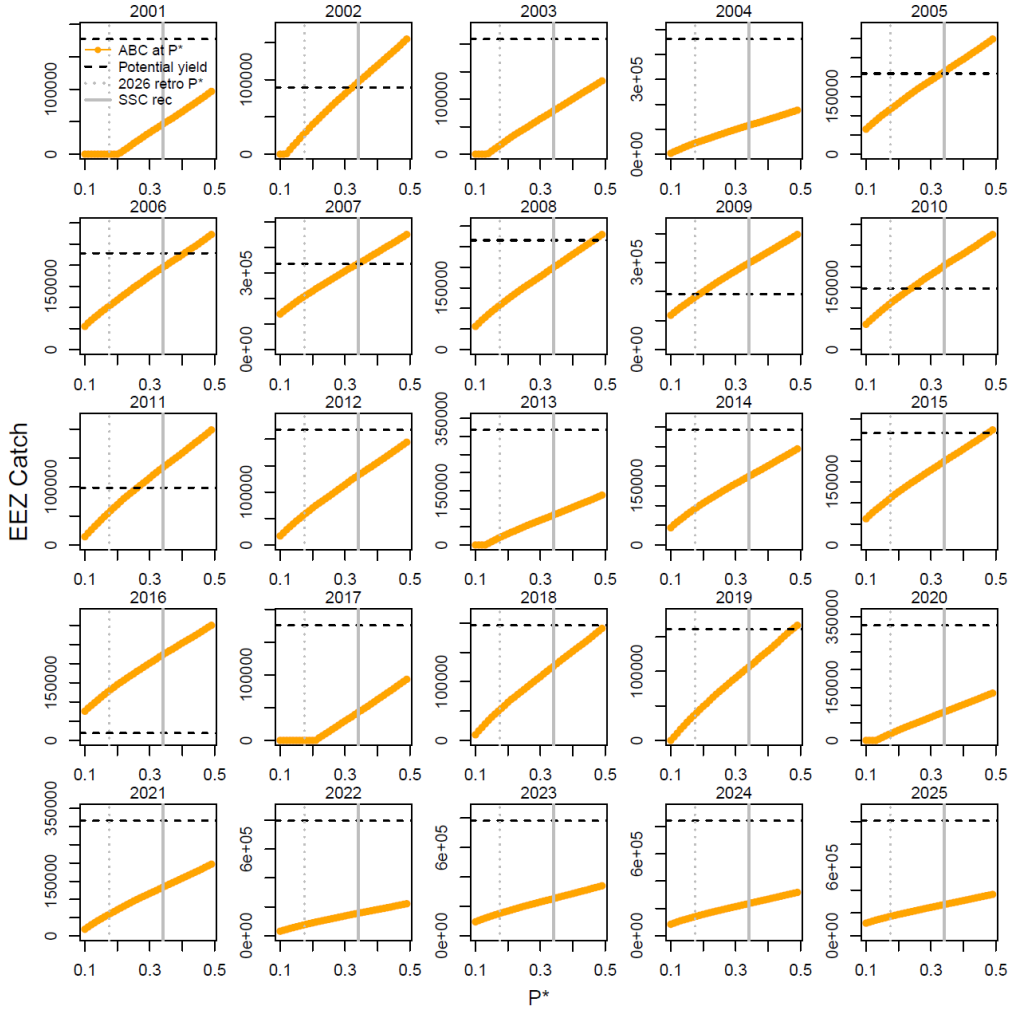

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- Run size, State harvest fixed at true historical values
- Calculate preseason ABC under each P* value → compare to true OFL/EEZ potential yield for each year

2026 Preseason SDC Summary (Table 1, p.8)

Stock	Tier	MFMT	MSST	OFL	OFL_{pre}	Buffer	ABC
KNSOCK**	1	0.265	3,030,000	NA	1,284,478	**53.9%**	591,509
KASOCK**	1	0.538	555,000	NA	617,006	**41.2%**	362,866
AOSOCK	3	NA	NA*	906,757	181,351	15%	154,149
ACHIN	3	NA	40,500[1]	2,237	373	30%	261
COHO	3	NA	NA*	268,053	67,013	**75%**	16,753
CHUM	3	NA	NA	390,030	97,508	20%	78,006
PINK (EVEN)	3	NA	NA	282,813	141,406	10%	127,266

SSC recommendations:

Buffer	ABC
27.0%	**937,993**
20.6%	**489,936**
60%	**26,805**

*While MSST may be used to assess overfished status for these stocks, determining MSST for 2026 will depend on the availability/number of indicator stocks with escapement data and thus cannot be reliably determined as a preseason quantity

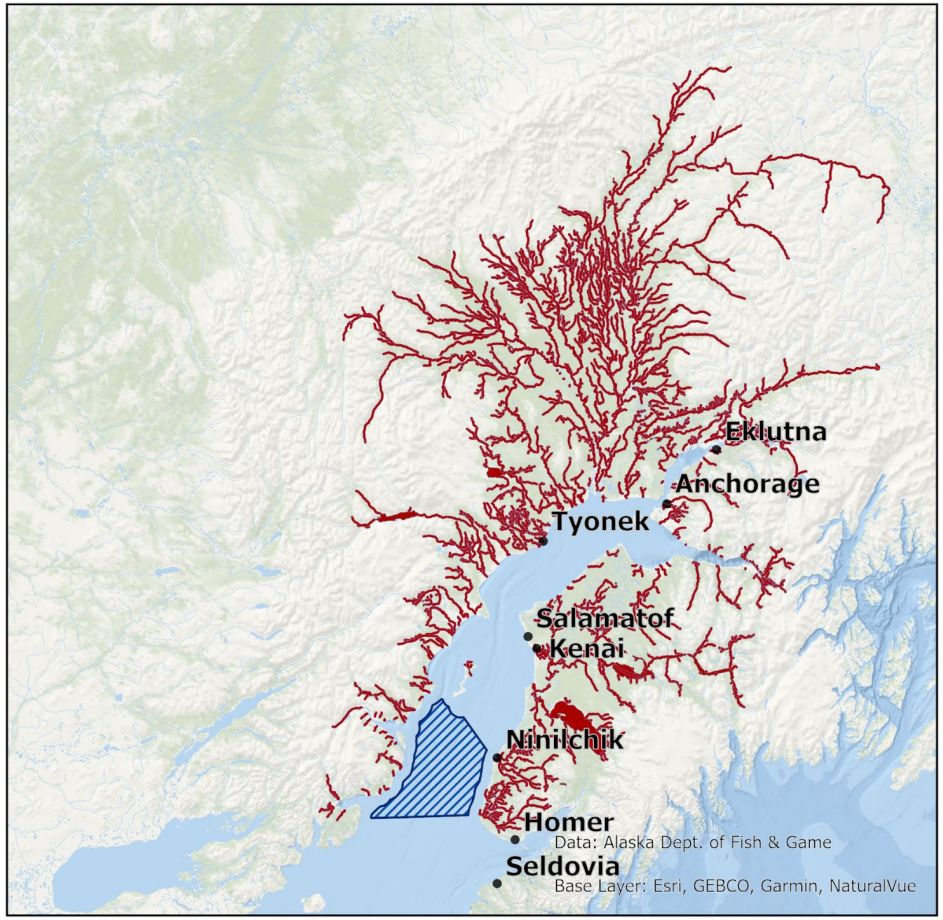
** MFMT, OFL_{PRE}, and ABC were calculated using preliminary sport and personal use harvest estimates. Final values will be presented in future CI SAFE reports pending finalized data from ADF&G.

[1]Corrected from 2026 SAFE

Thank you!


NOAA Fisheries


NOAA Fisheries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Data: Alaska Dept. of Fish & Game
Base Layer: Esri, GEBCO, Garmin, NaturalVue


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