2026 COOK INLET SALMON STOCK ASSESSMENT & FISHERY EVALUATION REPORT

February 2026 SSC

Lukas DeFilippo

Ecosystem Monitoring and Assessment Program, NMFS AFSC

With contributions from:

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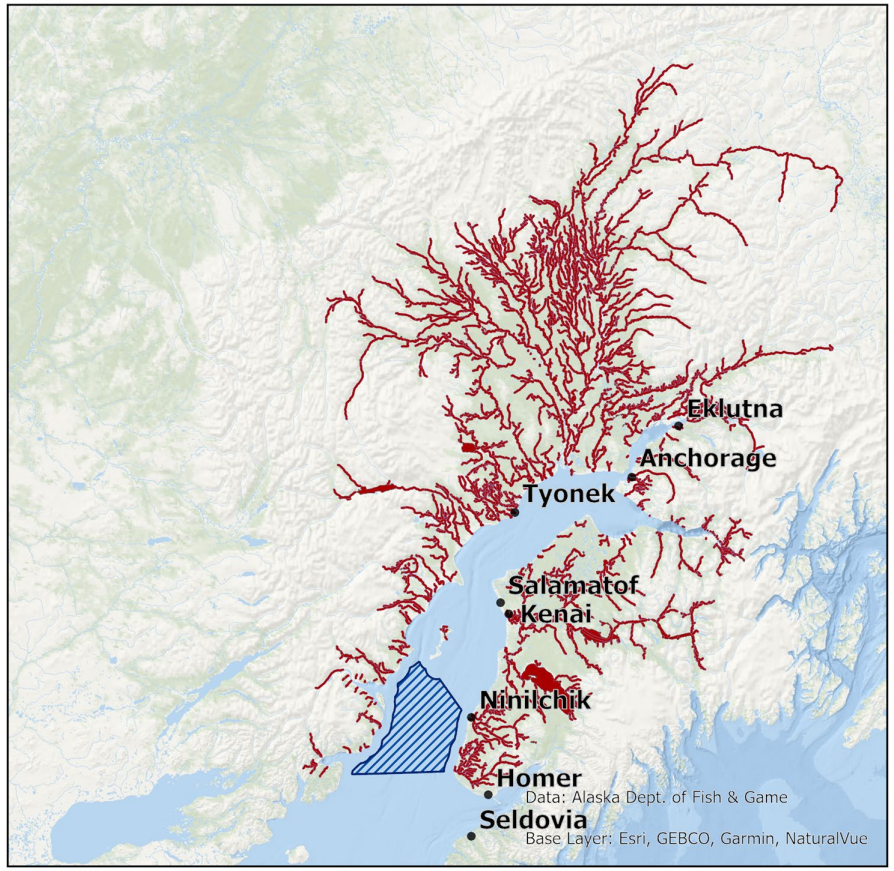
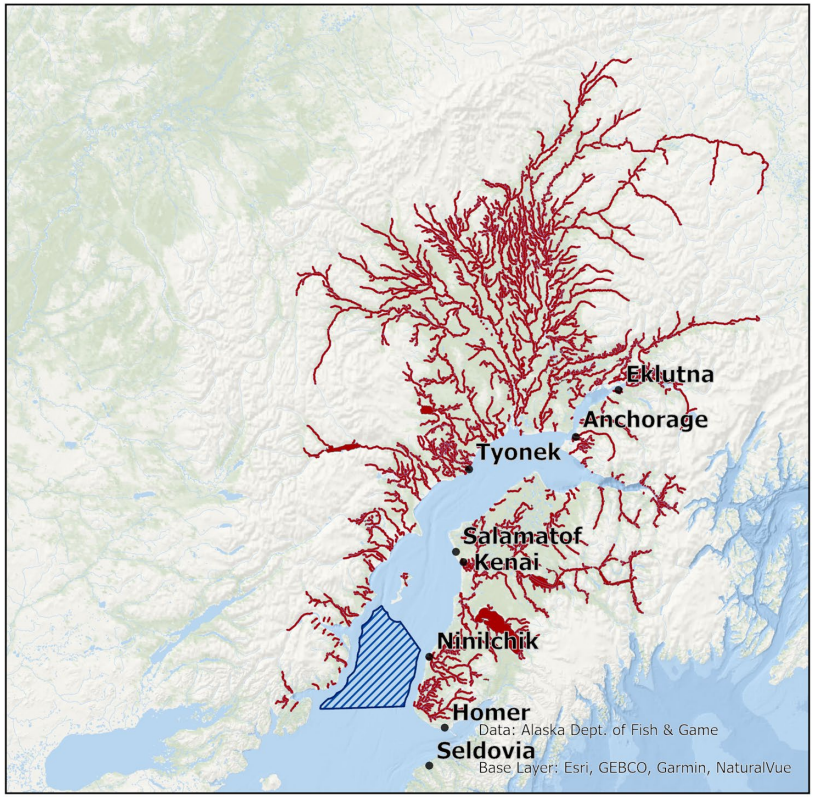


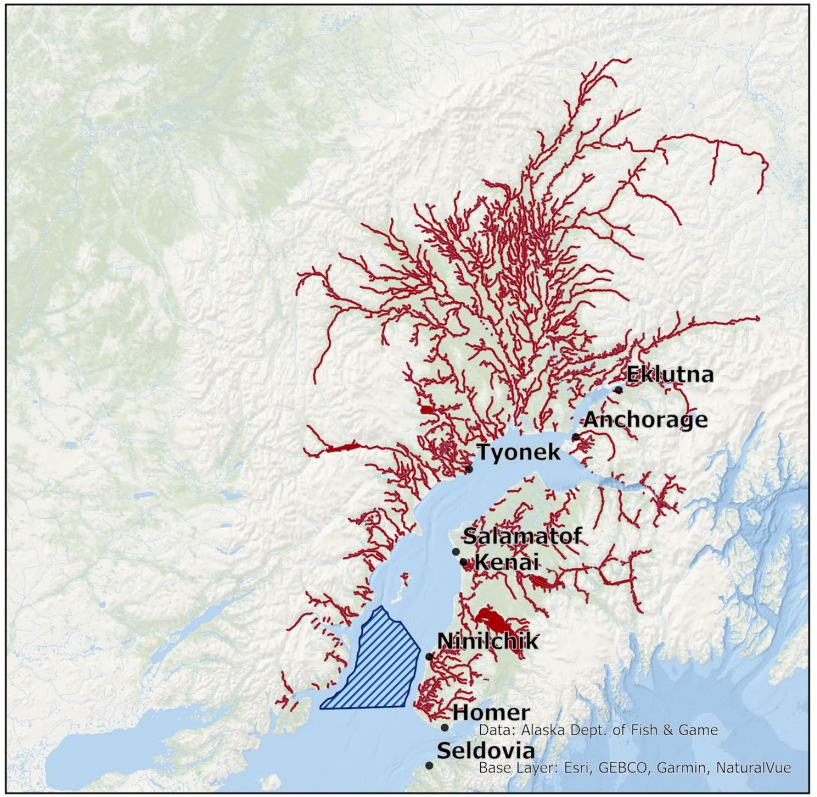
PRESENTATION OUTLINE

1. **Recap, SSC/workshop recommendations, updates for 2026**
   - **Tier -1 methodology**
   - **Tier -3 methodology**
2. 2025 EEZ fishery and postseason stock status summary
3. 2026 assessments for each stock
4. 2026 Summary of NMFS SAFE Team recommendations
5. Draft Coho salmon risk table
6. Social and economic considerations



COOK INLET STOCKS AND STOCK COMPLEXES IN SALMON FMP

- Kenai Late Run Sockeye Salmon (KNSOCK)
- Kasilof Sockeye Salmon (KASOCK)
- Aggregate "Other" Sockeye Salmon Stock Complex (AOSOCK)
- Aggregate Chinook Salmon Stock Complex (ACHIN)
- Aggregate Coho Salmon Stock Complex (COHO)
- Aggregate Chum Salmon Stock Complex (CHUM)
- Aggregate Pink Salmon Stock Complex (PINK)



RECAP: TIER 1 SDC (SAFE SECTION 3): Defining Overfished

- Sockeye salmon generation time (T) = 5 years
  - Average time: egg → fry → smolt → adult → spawn
- State harvest rate (F_{STATE})
  - Includes catch in all State waters (comm., recreational, etc.)
- Minimum Stock Size Threshold (MSST)
  - Used postseason to determine **overfished status**
  - (Escapement Target x Generation Time)/ 2
  - Compared to the sum of the most recent observed escapement over a generation time (cumulative escapements)

Overfished?

$$MSST > \sum_{i=t-T+1}^{t} Escapement_i = YES$$

$$MSST < \sum_{i=t-T+1}^{t} Escapement_i = NO$$

RECAP: TIER 1 SDC (SAFE SECTION 3): Defining Overfishing

- Maximum Fishing Mortality Threshold (MFMT)
  - Postseason to make **overfishing determination**
  - MFMT = (sum of the realized potential yield in EEZ for the recent generation) / (sum of the total run size for the most recent generation)
  - MFMT compared to EEZ harvest rate, F_{EEZ}
  - Overfishing?
    - F_{EEZ} > MFMT = Yes
    - F_{EEZ} < MFMT = No

$$y_t = \max(0, R_t - G_t - C_{STATE,t})$$

$$MFMT = \frac{\sum_{i=t-T+1}^{t} y_i}{\sum_{i=t-T+1}^{t} R_i}$$

$$F_{EEZ} = \frac{\sum_{i=t-T+1}^{t} C_{EEZ_i}}{\sum_{i=t-T+1}^{t} R_i}$$

$T = generation\ time$

$y = realized\ potential\ yield$

$R = total\ run\ size$

$G = escapement\ target$

$C = catch$

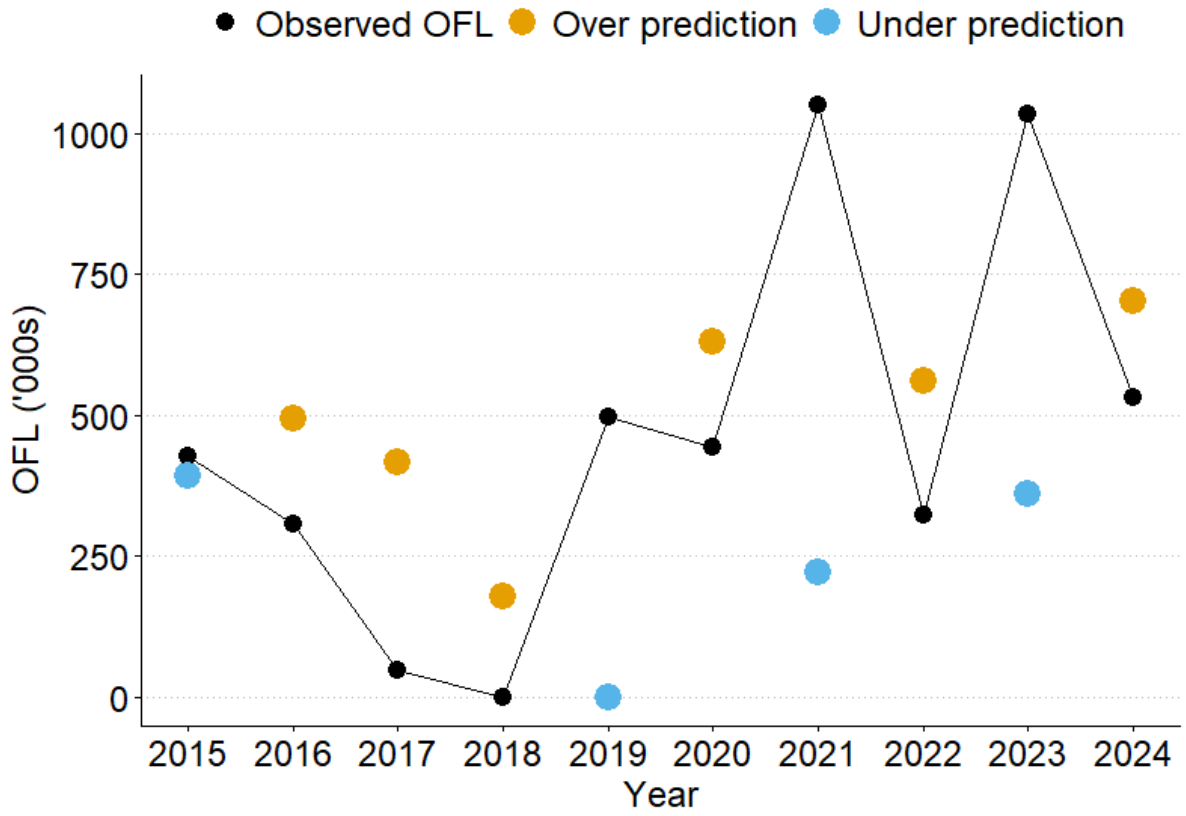
RECAP: TIER 1 Preseason SDC (SAFE SECTION 3): Defining OFL & ABC

- **Preseason** overfishing limit (OFL_{PRE})
  - The predicted max EEZ harvest after escapement target and projected State harvest
  - $OFL_{PRE} = \hat{R} - G - (\hat{R} * \hat{F}_{STATE})$
  - Simplified: OFL_{PRE} = (Forecasted total run size)–(Escapement target (S_{MSY})–(Projected State harvests)

- Acceptable biological catch (ABC)
  - OFL_{PRE} x Buffer that accounts for uncertainty to ensure that OFL_{PRE} is not exceeded

RECAP: TIER 3DC: Defining OFL → ABC Buffer

- ABC Buffer (scientific uncertainty)
  - Uses 10-year retrospective error in one-step ahead out of sample preseason predictions of OFL Integrates forecasted run size and State harvest rate error.
  - As of 2025 SAFE → Positive errors only (overforecasting)
  - Retrospective percent error using median symmetric accuracy (Morley et. al., 2018)
    - Describes the relative error



RECAP: TIER 3 SDC Forecast Methodology

- Preseason run size forecast and projected State harvest (F_{STATE})
  - Generated using autoregressive models; arima(p,q)
    - p = auto-regressive(AR) component and q = moving average (MA) component

$$F_{State} = \frac{C_{total} - C_{EEZ}}{Run\ Size}$$

$$\eta_t = \phi_1 \eta_{t-1} + e_t + \theta_1 e_{t-1}$$

Current year value; AR coefficient; White noise error; MA coefficient

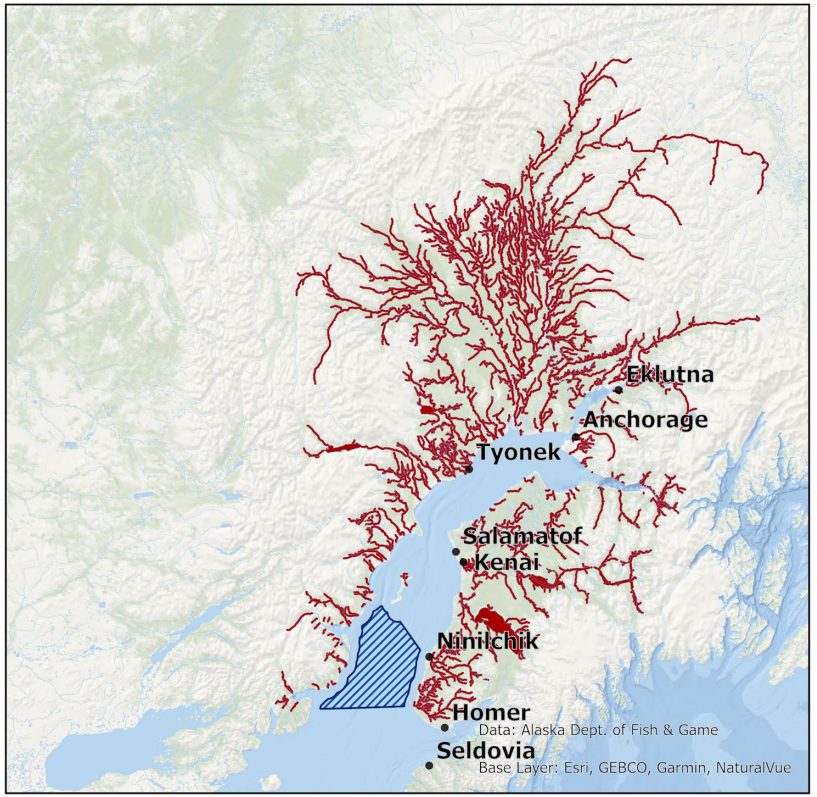
  - Fit in R using the auto.arima() function from the forecast package
    - Function selects the optimal forecast model using AIC
    - Uses the Hyndman-Khandakar algorithm

RECAP: Tier 3 SDC

- Tier 3 SDC dependent on historic EEZ catch estimates
- OFL = max rolling sum of CI EEZ catch over a species generation time (1999 – 2024)
- OFL_{PRE} = max average EEZ catch (max rolling average for a generation 1999 - 2024)
- ***Overfishing*** determined postseason based on the OFL
  - OFL vs. Cumulative Harvest (summed over a generation time)
- ***Overfished*** determination for Tier 3 stocks **with** indicator systems (AOSOCK, ACHIN, ~~COHO~~)
    - MSST vs. Cumulative Escapement (summed over a generation time)
- Buffer Range = 10 - 90%

SSC RECOMMENDATIONS FROM 2025

- **Stock assessment modeling workshop (May, 2025)**
  - Tier-1 stocks
    - Bayesian approach
  - Tier-3 stocks
    - Default buffers
    - Incomplete weir data
  - Risk Table Development
  - Social and Economic Considerations



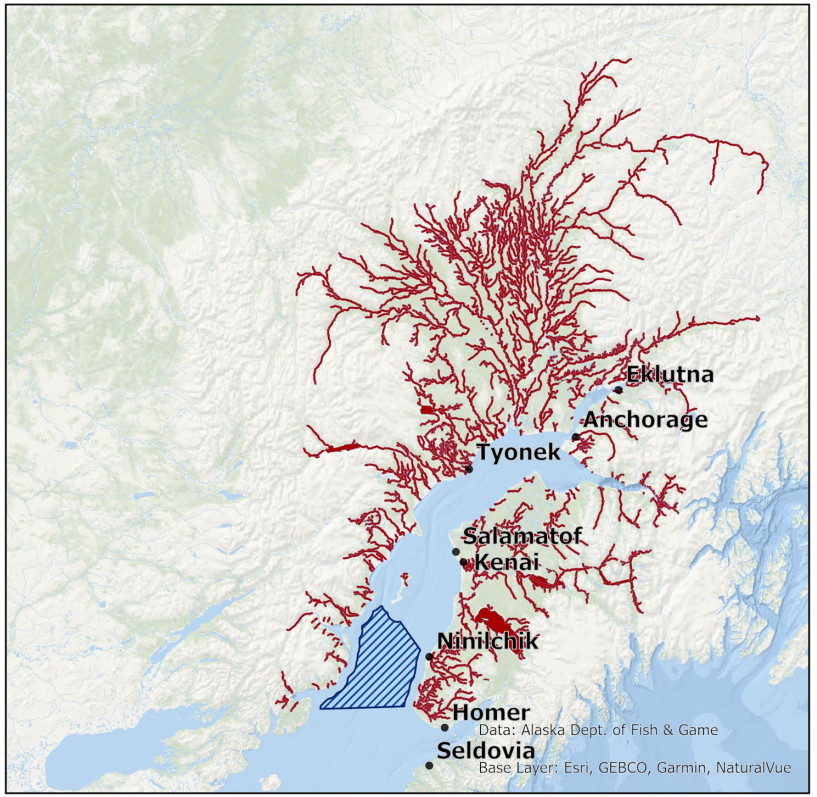
SSC RECOMMENDATIONS FROM 2025

- SSC Recommendation:

'Reviewing the SAFE methodology for the first time at the same meeting where harvest specifications are set - without the benefit of independent review - poses a significant challenge. Last year, the SSC highlighted the value of long-format Plan Team meetings for reviewing groundfish and crab stock assessments. These meetings serve as a critical forum for in-depth discussions, allowing for substantive progress in improving processes and models that support management decisions, as well as reviewing proposed methodological changes prior to harvest specifications. The SSC reiterates its recommendation from last year that a workshop, or series of workshops, focused on further developing Cook Inlet Salmon harvest specification and status determination methods'…

- NMFS SAFE Team Response:

NPFMC staff arranged a workshop in May 2025 to discuss Feb 2025 SSC recommendations for the UCI stock assessment modeling methodology. All SSC members were invited to participate, and the meeting was available to the public. No report was generated from the workshop but there were discussions on how to best respond to SSC feedback from Feb 2025 on assessment model developments and long-term objectives for improving methodology. The NMFS SAFE Team greatly appreciated this additional opportunity for long-format feedback, and would support continuation of these workshops, or the creation of a Salmon Plan Team. A brief summary of the workshop provided by council staff is provided in the 2026 SAFE report on p. 13



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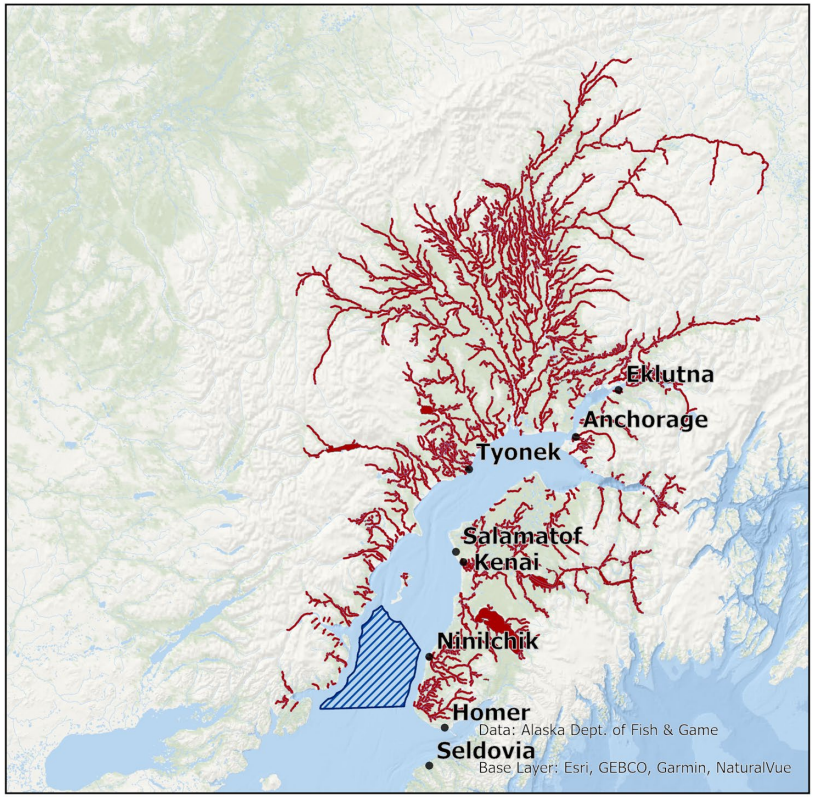
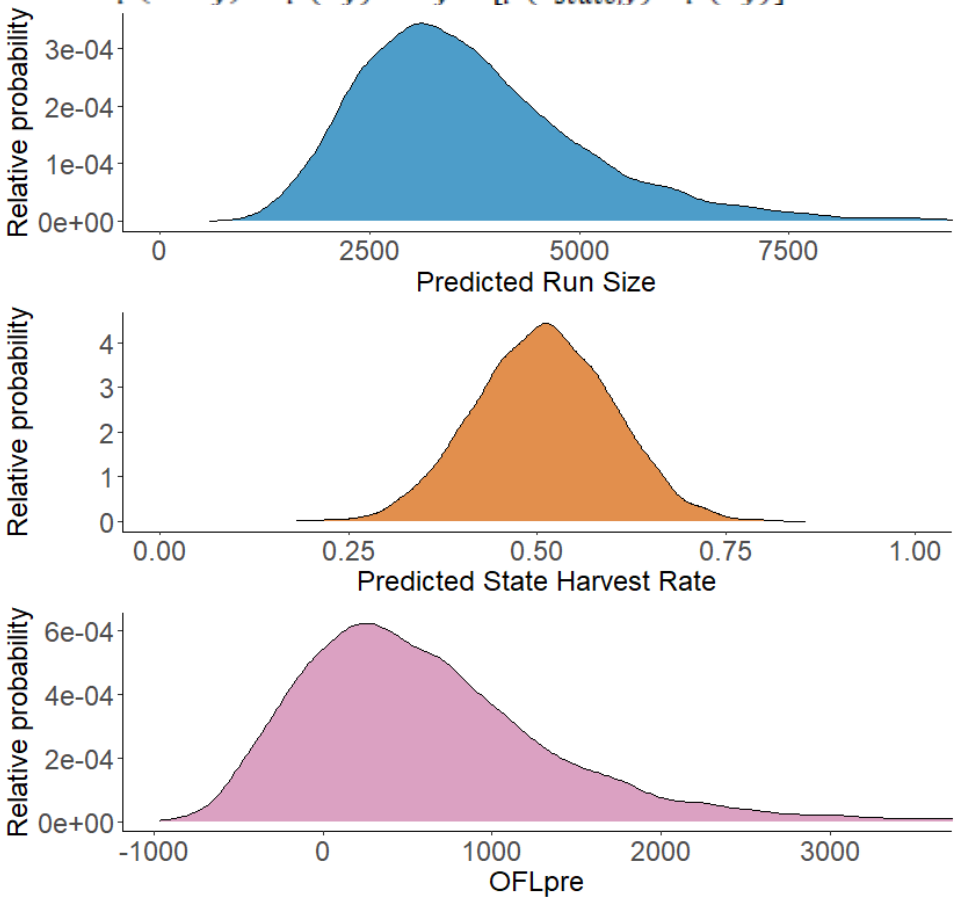


RECAP: 2025 BAYESIAN OFL MODEL (Appendix B 2025 SAFE)

- Similar to previous Tier 1 method
  - AR1 model for forecast
  - White noise model (KNSOCK) or MA (KASOCK) to project State harvest rate
  - However, arima function picks optimal model for each retro year when calculating the buffer. Bayesian model would use same models for each retro year
- Benefits:
  - Results in a distribution of probable OFL values that account for uncertainty in the PF and F_{STATE}.
  - Can make probabilistic statements about potential yield and ABC

$$p(\widehat{OFL}_y) = p(\hat{R}_y) - G_y - [p(\hat{F}_{state,y}) * p(\hat{R}_y)].$$



RECAP: 2025 BAYESIAN OFL MODEL (Appendix B 2025 SAFE)

- How to determine the buffer?
  - Retrospective testing and the probability of overforecasting?
  - Salmon plan team?
- Buffer
  - Predict OFL for previous ten years
  - Apply a range of buffers (10 - 90%)
  - Look at how many years the resulting ABC is larger than the observed postseason OFL (OFL_{POST})
  - Choose a buffer based on the risk of overforecasting

Buffer (%) $OFL_{PRE} \rightarrow ABC$	$P(ABC>OFL_{POST})$
10	.40
20	.40
30	.40
40	.20
50	.20
60	.20
70	.20
80	.20
90	.10

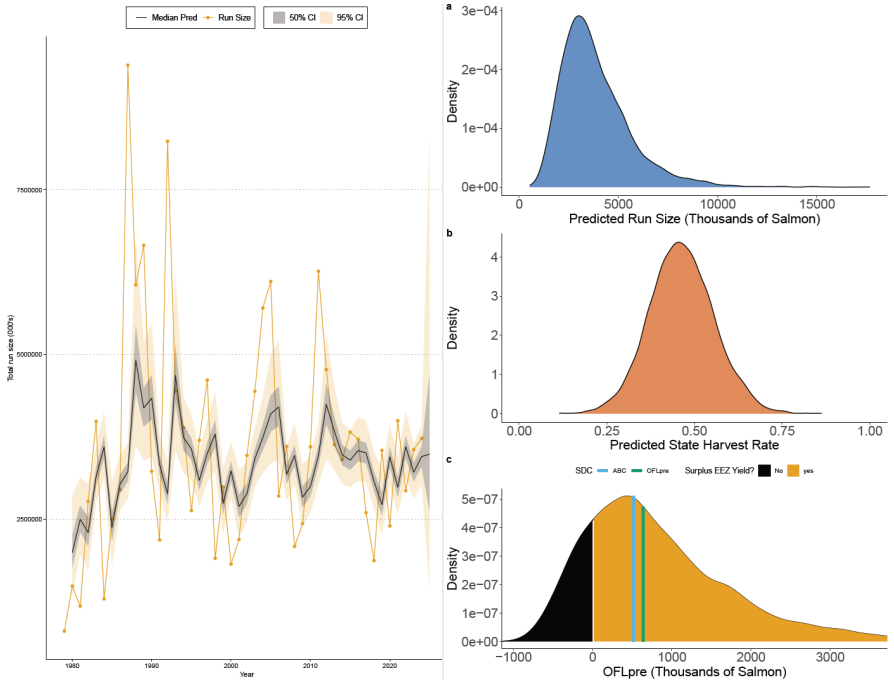
RECAP: 2025 BAYESIAN OFL MODEL

- SSC Recommendation:

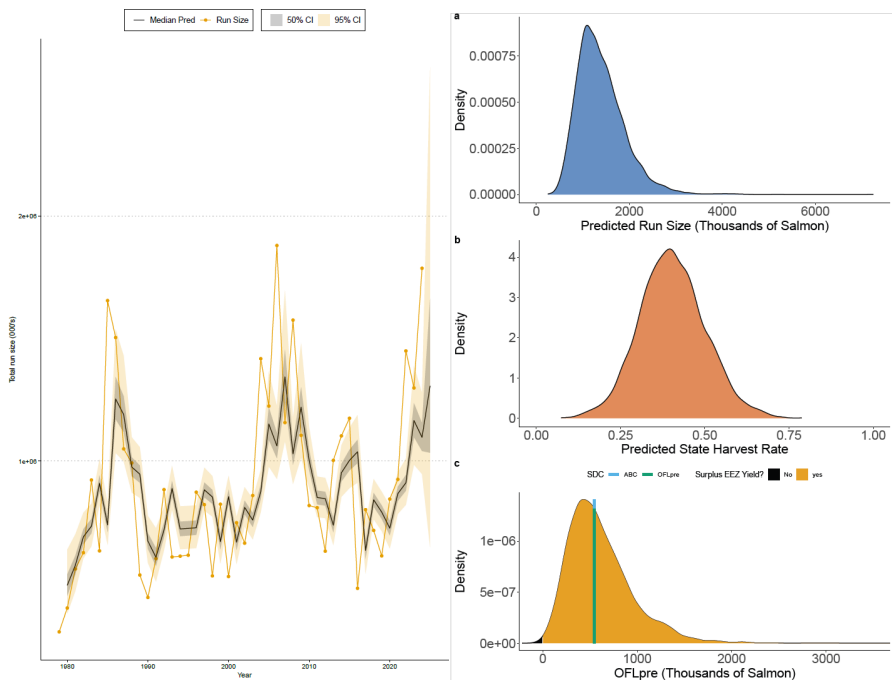
  'The SAFE team also provided a Bayesian approach that retrospectively evaluated the probability that an ABC exceeded the post-season OFL under different buffers on the preseason OFL. The SSC appreciates the SAFE team's work on this analysis, and supports further efforts to develop this model, including ***consideration of a longer time series*** *where available. The SSC further recommends the SAFE team* ***consider whether the magnitude of the buffer could be scaled relative to the cumulative probability of a preseason OFL<0 under the posterior distribution for this quantity, rather than the proportion of years in which the ABC was over forecasted****.'*

RECAP: 2025 BAYESIAN OFL MODEL
NMFS SAFE Team Response (Presented at 2025 Workshop)

Kenai Sockeye



Kasilof Sockeye



RECAP: 2025 BAYESIAN OFL MODEL
NMFS SAFE Team Response (Presented at 2025 Workshop)

	Kenai Sockeye				Kasilof Sockeye			
Year	Overfished	Overfishing	OFL_post	buffer	Overfished	Overfishing	OFL_post	buffer
1999	NA	NA	NA	0.4422	NA	NA	NA	0.2148
2000	NA	NA	NA	0.3272	NA	NA	NA	0.1022
2001	NA	NA	NA	0.4704	NA	NA	NA	0.2154
2002	NA	NA	NA	0.422	NA	NA	NA	0.1216
2003	NO	NO	974901	0.3022	NO	NO	766481	0.1348
2004	NO	NO	2090474	0.2524	NO	NO	1027129	0.0956
2005	NO	NO	3389647	0.1874	NO	NO	1134733	0.0426
2006	NO	NO	4176244	0.158	NO	NO	1188642	0.04
2007	NO	NO	4427259	0.3234	NO	NO	1436956	0.0154
2008	NO	NO	3805688	0.2716	NO	NO	1496026	0.0438
2009	NO	NO	2611547	0.4048	NO	YES	1228098	0.0202
2010	NO	NO	1810832	0.3786	NO	YES	1167412	0.038
2011	NO	NO	2233326	0.2652	NO	YES	1037414	0.0824
2012	NO	NO	2922230	0.1546	NO	YES	919125.3	0.0834
2013	NO	NO	3373351	0.1892	NO	YES	972201.6	0.1424
2014	NO	NO	3883385	0.2514	NO	NO	1073406	0.0462
2015	NO	NO	3810943	0.2698	NO	NO	1193521	0.0348
2016	NO	NO	2907694	0.2376	NO	NO	1113738	0.0348
2017	NO	YES	1739733	0.236	NO	NO	1072037	0.2204
2018	NO	YES	1306610	0.3322	NO	YES	949721.3	0.0904
2019	NO	YES	1294018	0.4548	NO	YES	818371.4	0.103
2020	NO	YES	1312020	0.2514	NO	NO	878042.8	0.1396
2021	NO	NO	2056519	0.3576	NO	NO	1175314	0.0676
2022	NO	NO	2334278	0.226	NO	NO	1795463	0.0596
2023	NO	NO	3351213	0.302	NO	NO	2380927	0.0272
2024	NO	NO	3385771	0.2468	NO	NO	3123847	0.027

1) Retrospectively apply Bayesian tier-1 forecast + buffer approach (based on p(OFL$\leq$0)) from 1999-2024
2) Assume EEZ catch = ABC and apply postseason status determination criteria
3) Run size, State harvest fixed at true historical values
4) Escapement = Run - (state harvest + EEZ catch)
5) Determine frequency of overfished/overfishing designation

RECAP: 2025 BAYESIAN OFL MODEL
NMFS SAFE Team Response (Presented at 2025 Workshop)

	Kenai Sockeye				Kasilof Sockeye			
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Concerns raised by workshop attendees/NMFS SAFE TEAM:

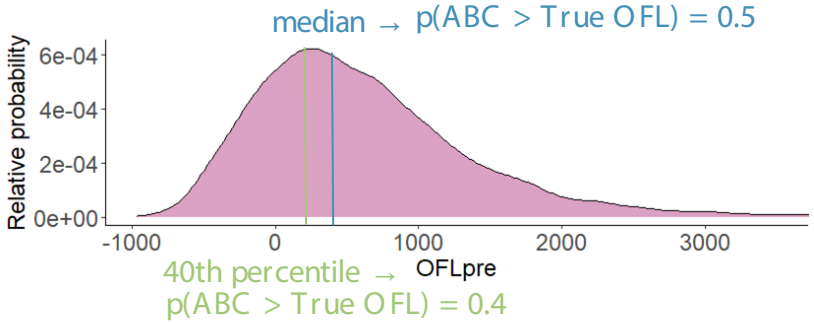
1) Buffer based cumulative probability of a preseason OFL<0 still does not address the intention of the OFL → ABC buffer (i.e., to be linked to a given target probability exceeding the OFL under a given ABC value)

1) Retrospective testing of this buffer approach indicated it may not be sufficient to avoid overfishing designations

2025 Workshop recommendations: Bayesian OFL Model

1. For 2026, advance the 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. **P* approach** → 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



SSC RECOMMENDATIONS FROM 2025

- Stock assessment modeling workshop (May, 2025)
  - Tier-1 stocks
    - Continued development, implementation of Bayesian approach to OFL/ABC determination
    - **Tier -3 stocks**
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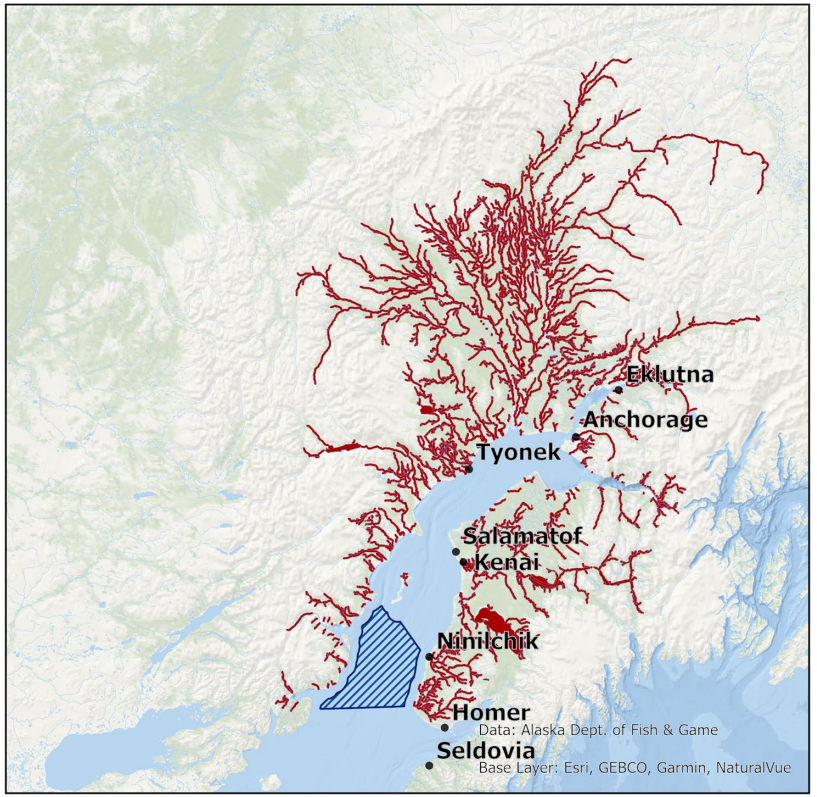
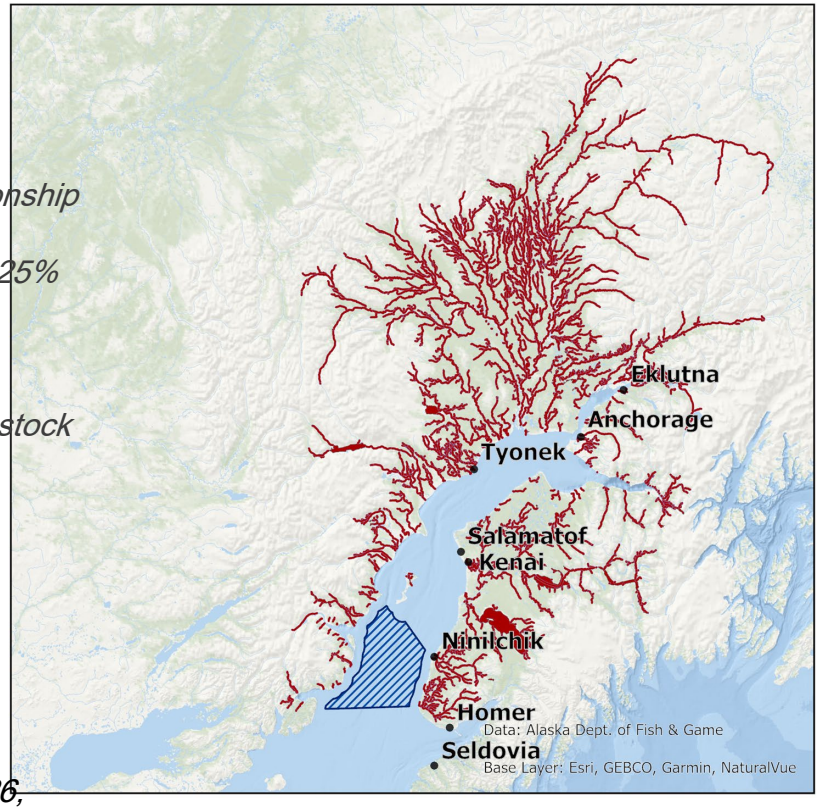


SSC RECOMMENDATIONS FROM 2025

- SSC Recommendation:

'Overall, the SSC is concerned that a 15% default buffer does not adequately recognize the severe limitations of basing harvest specifications on historical catch statistics. These specifications do not respond to changes in the stock abundance due to varying environment conditions, and their relationship to sustainable yield is highly uncertain. In some cases, there is no adequate basis for determining overfished status. These limitations are the same as for Tier 6 groundfish, implying that the default 25% buffer to obtain the ABC for these stocks would be applicable to Tier 3 salmon stocks to maintain a consistent approach to uncertainty across FMPs. The SSC therefore ***requests the SAFE team adopt a default 25% buffer for developing harvest recommendations next year.*** *Departures from the 25% buffer (both higher and lower) should be justified based on specific issues for each aggregate stock complex such as data availability and quality.'*



- NMFS SAFE Team Response:

'The NMFS SAFE Team requests additional guidance on how to implement this recommendation. While it is straightforward to change the default buffer from 15% to 25% for stocks with an existing 15% buffer (e.g., aggregate 'other' UCI sockeye), we request additional details on the SSC's recommendation for how to apply this guidance for other stocks. i.e., how should this change affect stocks previously assigned buffers that were not at the default (15%) value. For consistency, in 2026, our recommended tier 3 buffers remain at their 2025 levels, pending additional guidance from the SSC on how to implement this recommendation'

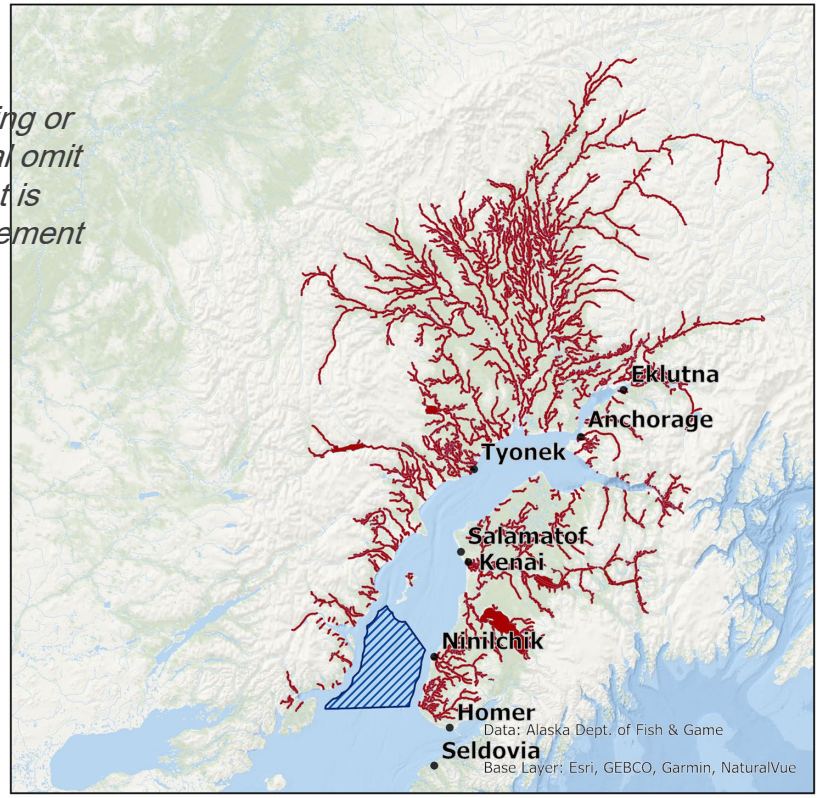
SSC RECOMMENDATIONS FROM 2025

- 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.



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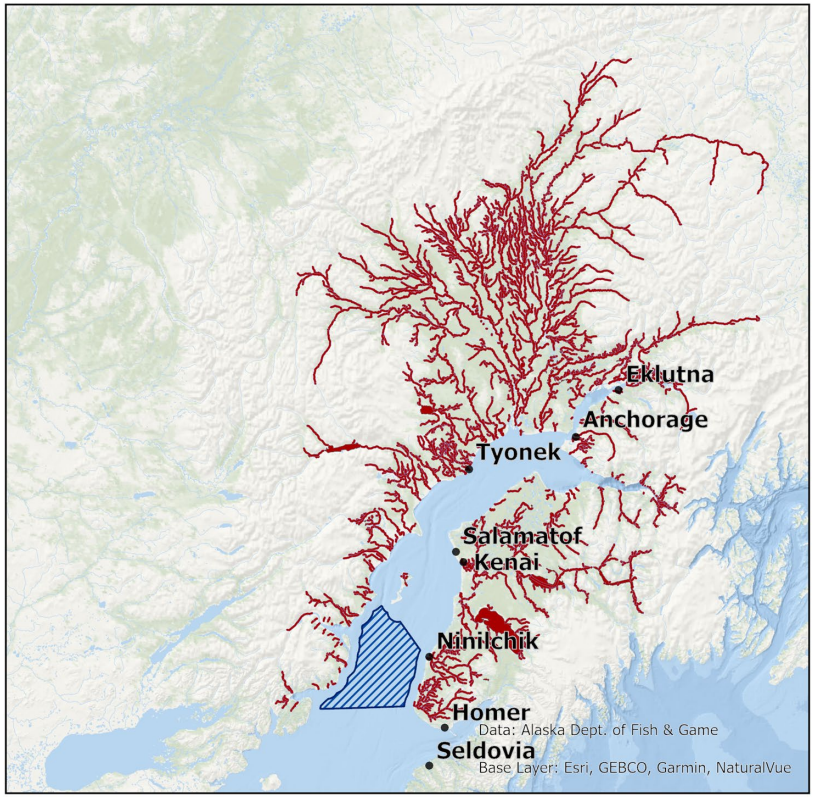
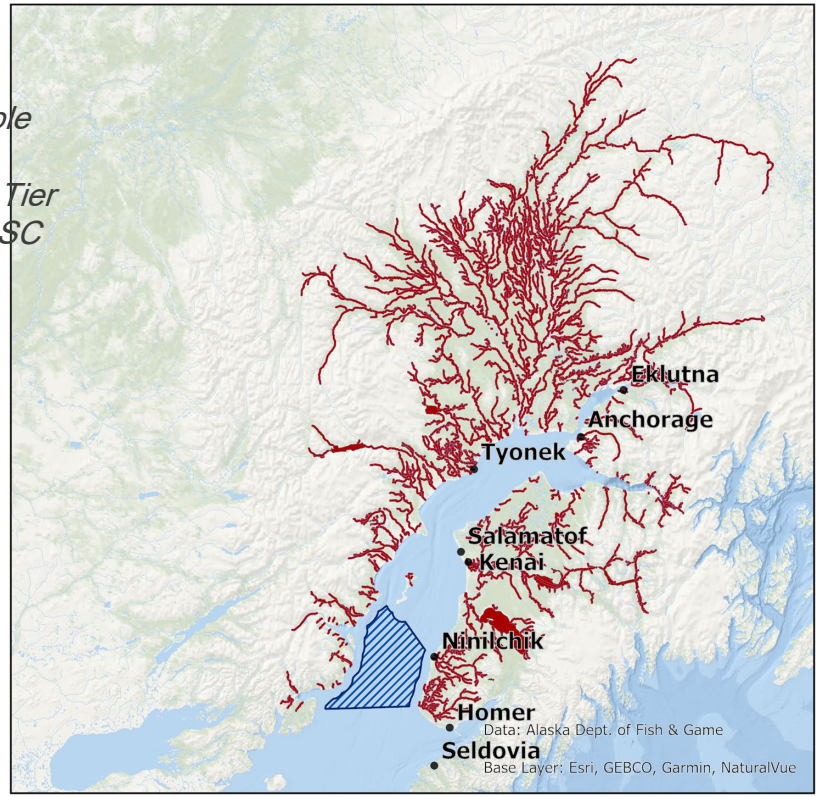


SSC RECOMMENDATIONS FROM 2025

- SSC Recommendation:

'The SSC appreciates the draft risk table for the aggregate coho salmon complex. While the risk table served to highlight the serious concerns regarding the status of Cook Inlet coho, the scoring was elevated compared to how the risk table has been used for groundfish. Attributes that are typical of Tier 3 stocks should not result in an elevated risk score as they are reflected in the default buffer. The SSC looks forward to further refinement of risk tables for the aggregate salmon stocks in the Cook Inlet EEZ.'



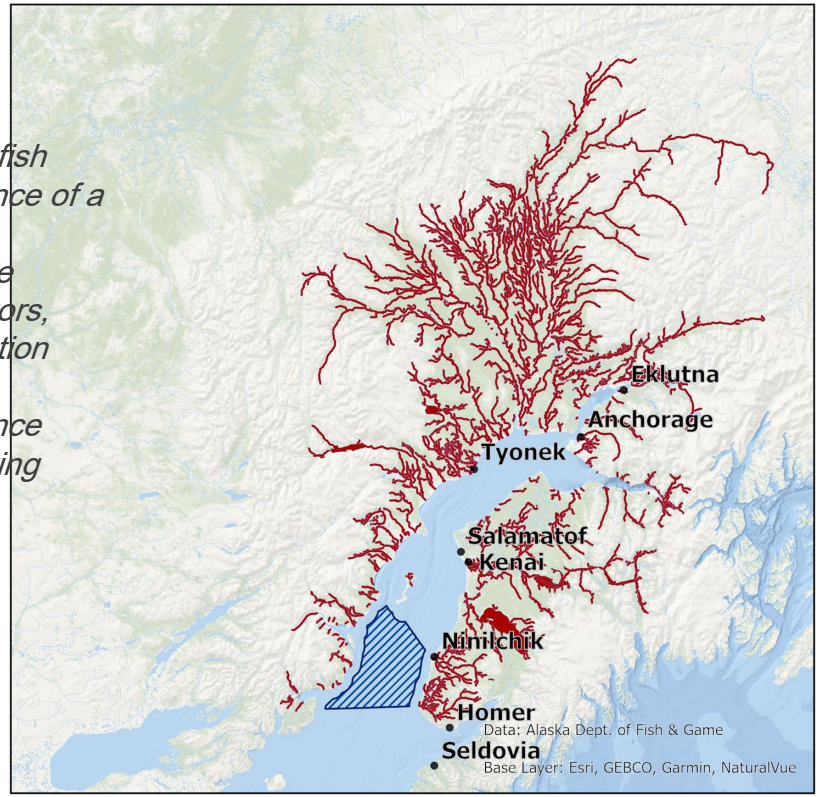
- NMFS SAFE Team Response:
  - Updated COHO risk table (Appendix A, 2026 SAFE, p.107)

SSC RECOMMENDATIONS FROM 2025

- SSC Recommendation:

'The SSC looks forward to the SAFE incorporating a summary of scientific information on the most recent social and economic condition of the relevant fishing interests, fishing communities, and the fish processing industries. The SSC recognizes the capacity challenges facing the analysts in the absence of a plan team. However, it is important in the context of NS8 to capture the differential distribution of impacts associated with the change to federal management in the early years, especially if there are substantial changes in patterns of engagement or dependency for fishing communities, fishery sectors, and/or fishery support sectors. It is difficult in general to capture information on correlation or causation of changes seen in retrospect, especially with respect to those who exit the fishery. Further, it is important to capture changes in participation across commercial, sport, personal use, and subsistence fisheries, as well as the potential for new or returning entrants, including those represented in evolving Tribal fishery initiatives.'

- NMFS SAFE Team Response:
  - Social and economic considerations now included in Appendix E of 2026 SAFE (p.124)



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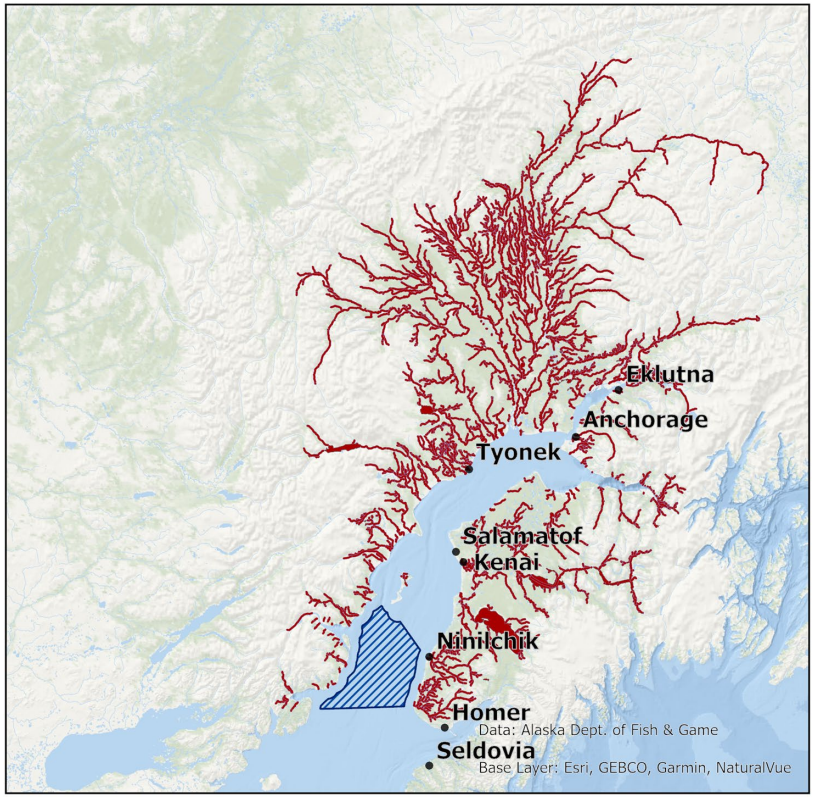


2025 COOK INLET EEZ FISHERY SDC & SAFE Recommendation:

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	45	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

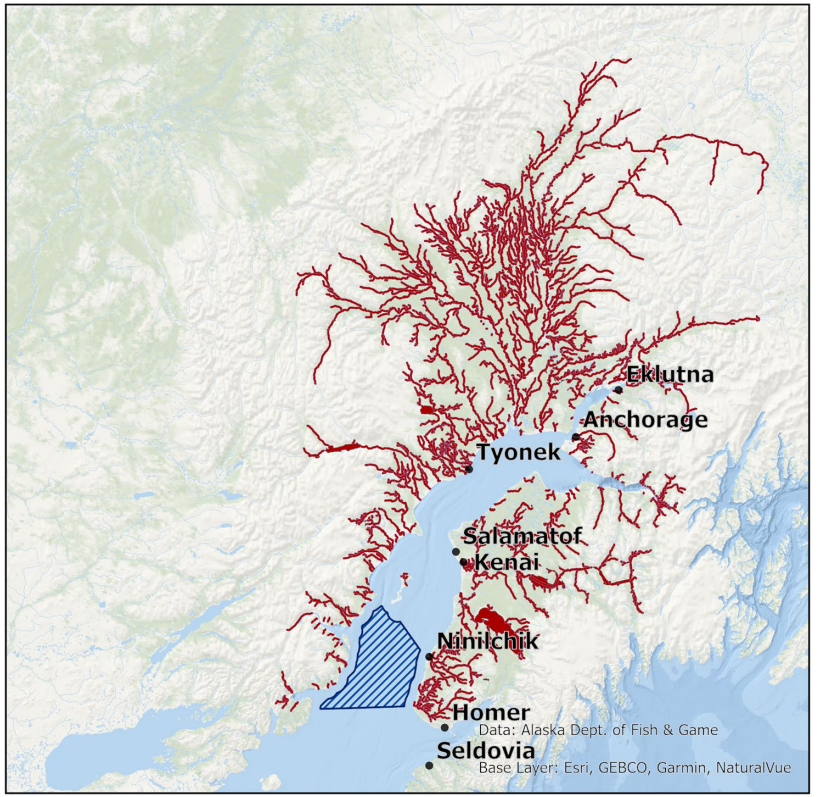
2025 COOK INLET EEZ FISHERY:
HARVEST SPECIFICATION VS. CATCH [Table 3. SAFE Report (page 11)]

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	97,058	78,006	78,006	27,236	NA
PINK-ODD	3	58,174	52,357	52,357	6,080	NA

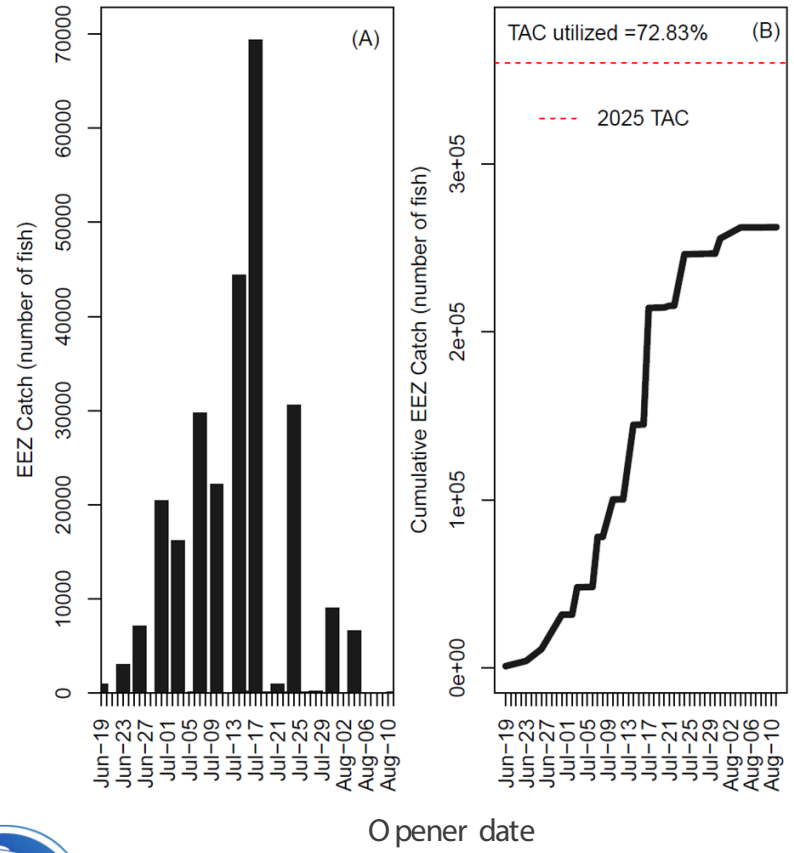
*combined TAC and catch for Kenai late-run sockeye, Kasilof sockeye, and Aggregate 'other' sockeye salmon

PRESENTATION OUTLINE

1. 2025 Recap, SSC/workshop recommendations, updates for 2026
   - Tier-1 methodology
   - Tier-3 methodology
2. 2025 EEZ fishery and postseason stock status summary
3. **2026 assessments for each stock**
4. 2026 Summary of NMFS SAFE Team recommendations
5. Draft Coho salmon risk table
6. Economic and community considerations

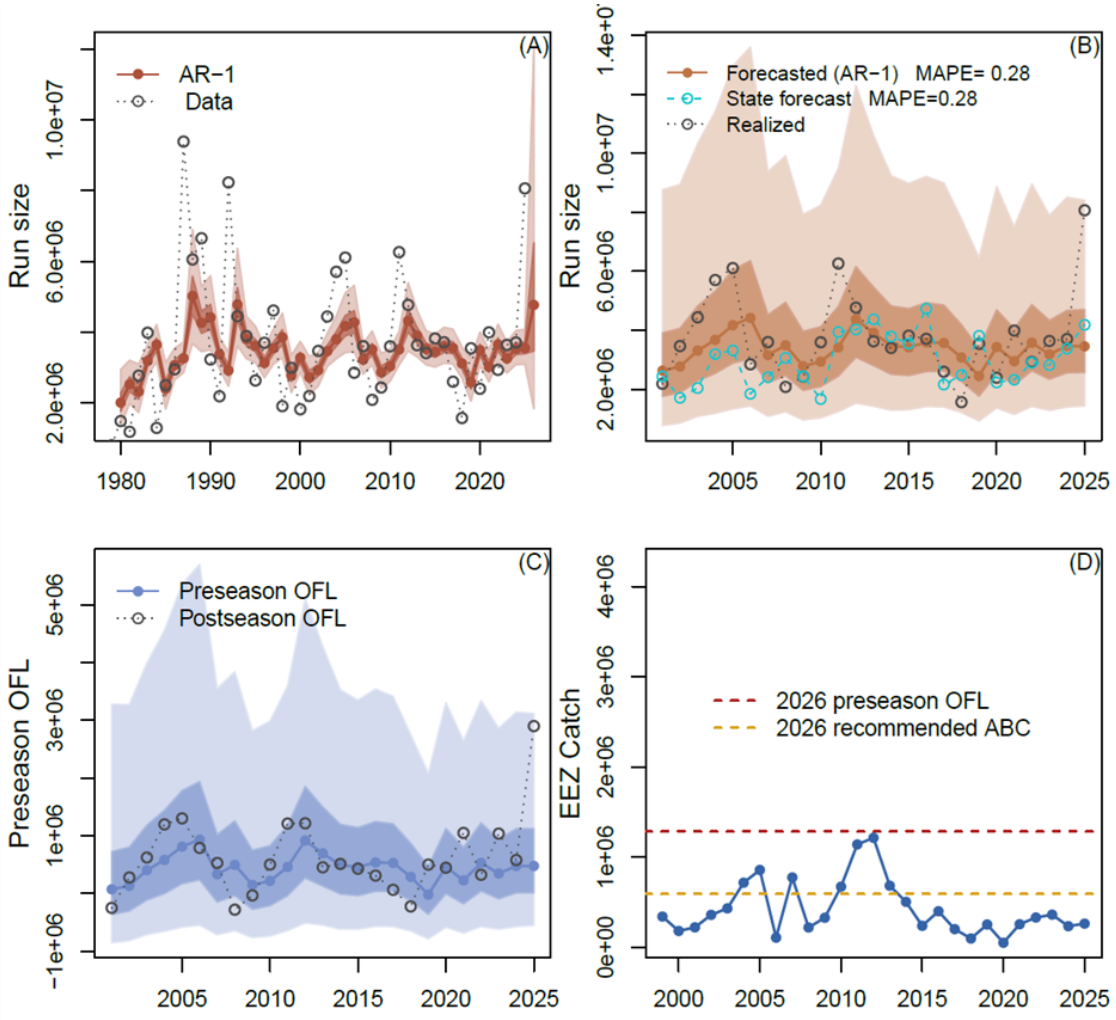


KENAI LATE RUN SOCKEYE SALMON (KNSOCK) (Section 4.
2025 POSTSEASON



- 2025 NMFS preseason forecast = 3.454 M
- 2025 ADF&G total run size estimate = 8.068M
- State escapement goal range = 750K - 1.3M
- $S_{MSY\text{-}POINT}$ = 1.212M
- 2025 escapement = ~3.85M
- 2025 projected State harvest rate = 50%
- 2025 realized State harvest rate = 49%
- 2025 realized EEZ harvest = 262,415
- 2025 ABC = 360,332
- 2025 OFL_{pre} = 514,716

KENAI LATE RUN SOCKEYE SALMON (KNSOCK) (Section 4.
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)
- Recommended ABC = 591,509

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 (run size only)	**4,767,278**	**1,284,478**	**0.539**	**591,509**
Bayes retrospective (run size + F_{state})	4,767,278	1,284,478	0.509	630,447
auto.arima (2025 method)	4,791,947	1,340,962	0.602	533,266

KENAI LATE RUN SOCKEYE SALMON (KNSOCK) (Section 4.1) 2026 PRESEASON (P* 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

Fisheries Research 257 (2023) 106502

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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]

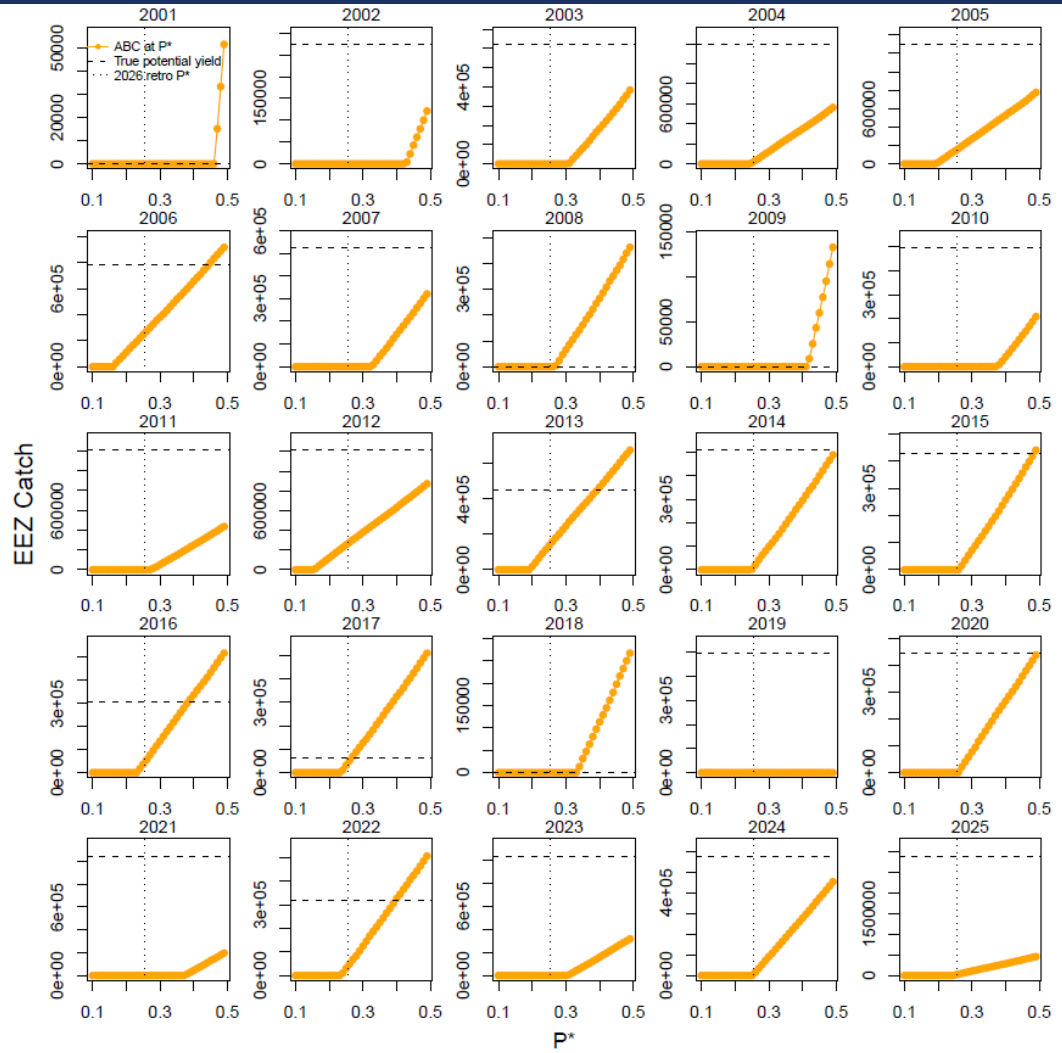
[a] Fisheries Ecology Division, Southwest Fisheries Science Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Santa Cruz, CA, USA

[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)*:
  - P* = 0.5 → risk neutral approach
  - P* = 0.4-0.45 → PFMC precedent for groundfish and coastal pelagic species
  - P*= 0.33-0.35 considered in risk-averse options (IPCC; PFMC)

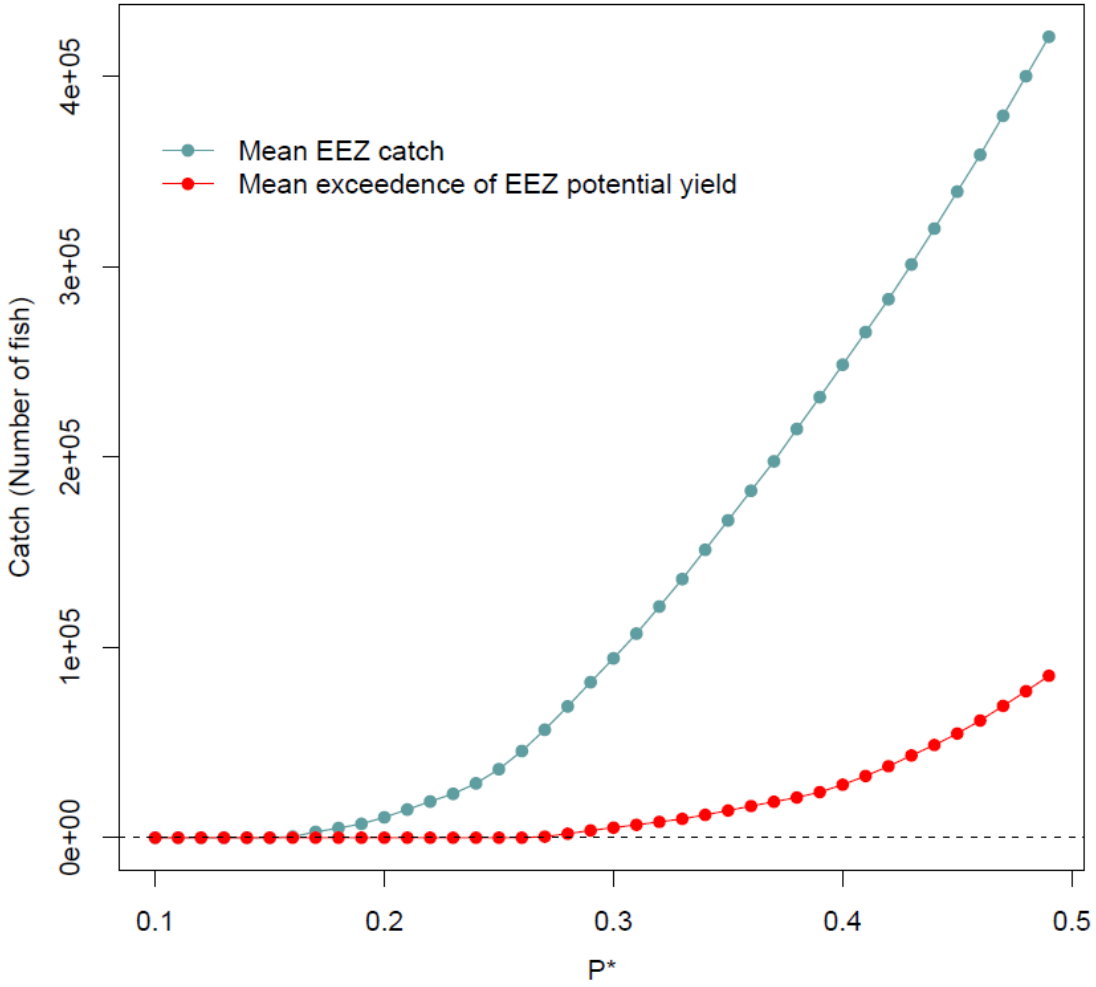
*Satterthwaite, W. H., & Shelton, A. O. (2023). Methods for assessing and responding to bias and uncertainty in US West Coast salmon abundance forecasts. *Fisheries Research*, *257*, 106502.

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



- → Retrospective analyses (2001-2025) → one-year-ahead forecasting of OFL, define ABC based on given 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

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



→ Retrospective analyses (2001-2025) → one-year-ahead forecasting of OFL, define ABC based on given 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

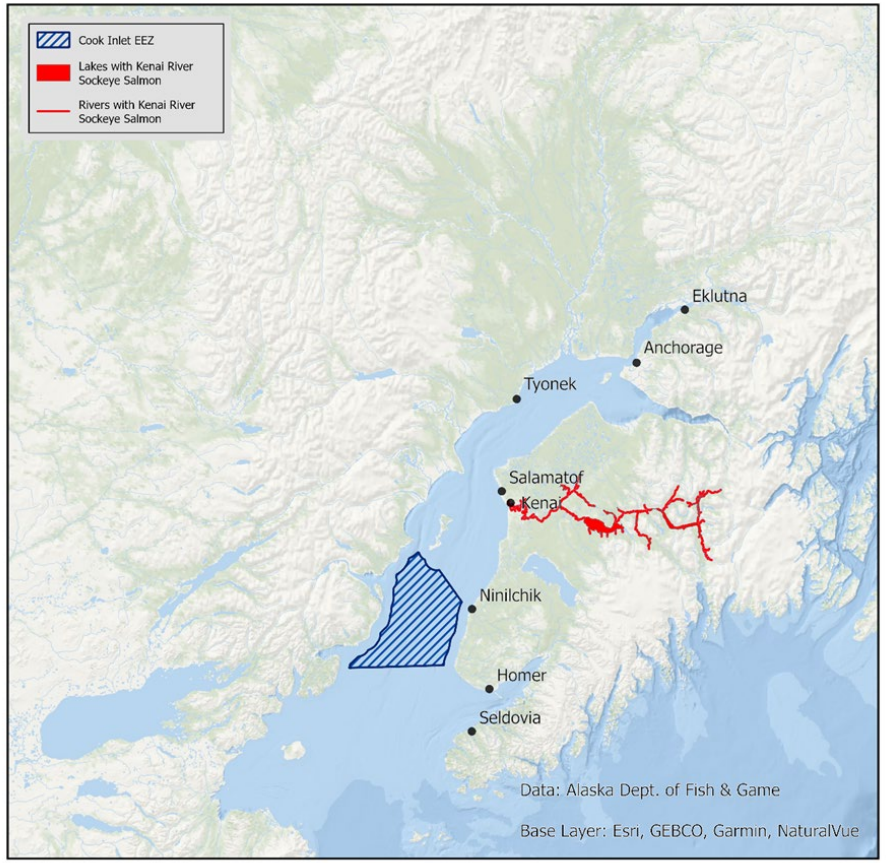
KENAI LATE RUN SOCKEYE SALMON (KNSOCK) (Section 4.1)
SUMMARY OF RECOMMENDATIONS

2025 Postseason Recommendations :

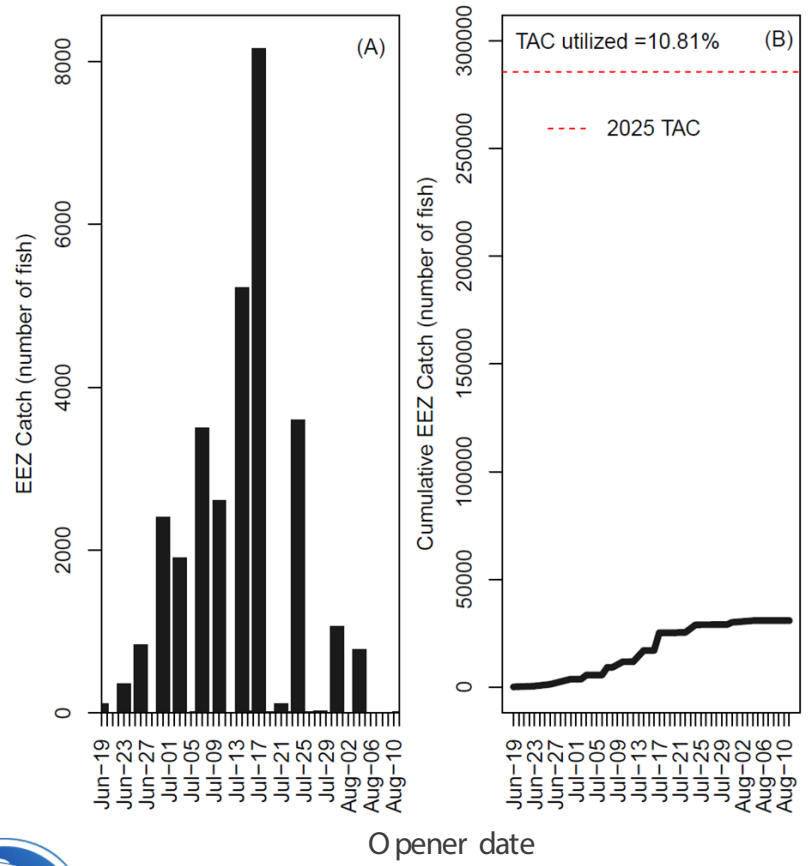
- Not overfished in 2025 → MSST (3.03M) < Cumulative Escapement (10.5M)
- No overfishing in 2025 → F_{EEZ} (0.065) < MFMT (0.263)

2026 Preseason Recommendations :

- Tier……1
- MFMT (EEZ overfishing rate)…….0.265
- MSST (overfished value)……..……..3,030,000 fish
- OFL_{PRE}……1,284,478 fish
- Buffer……53.9%
- ABC ……..……591,509

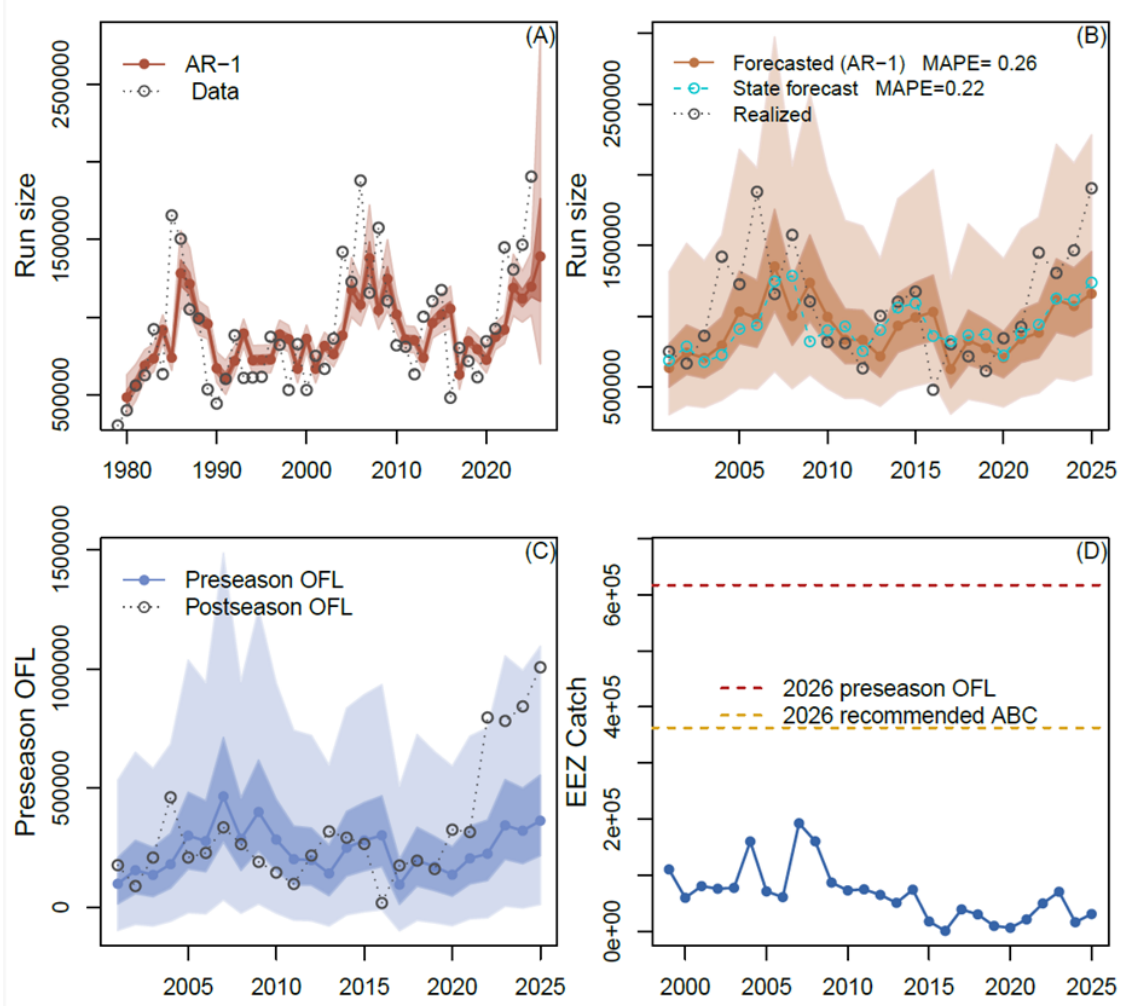


KASILOF SOCKEYE SALMON (KASOCK) (Section 4.3)
2025 POSTSEASON



- 2025 NMFS preseason forecast was 1.313M
- 2025 ADF&G total run size estimate is 1.905M
- State escapement goal range = 140K - 320K
- $S_{MSY\text{-}POINT}$ = 222K
- 2025 escapement = 1.197M
- 2025 projected State harvest rate = 0.325
- 2025 realized State harvest rate = 0.355
- 2025 realized EEZ harvest = 30,872
- 2025 ABC = 285,646
- 2025 OFL_{pre} = 664,294

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)
- Recommended ABC = 362,866

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 (run size only)	1,391,412	617,006	0.412	362,866
Bayes retrospective (run size + F_{state})	1,391,412	617,006	0.459	333,842
auto.arima (2025 method)	1,410,014	740,565	0.898	75,660

KASILOF SOCKEYE SALMON (KASOCK) (Section 4.3)
2026 PRESEASON (P* approach, Appendix B, Table B2, p.114)

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

Retrospective buffer

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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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- From Satterthwaite and Shelton (2023)*:
  - P* = 0.5 → risk neutral approach
  - P* = 0.4-0.45 → PFMC precedent for groundfish and coastal pelagic species
  - P*= 0.33-0.35 considered in risk-averse options (IPCC; PFMC)

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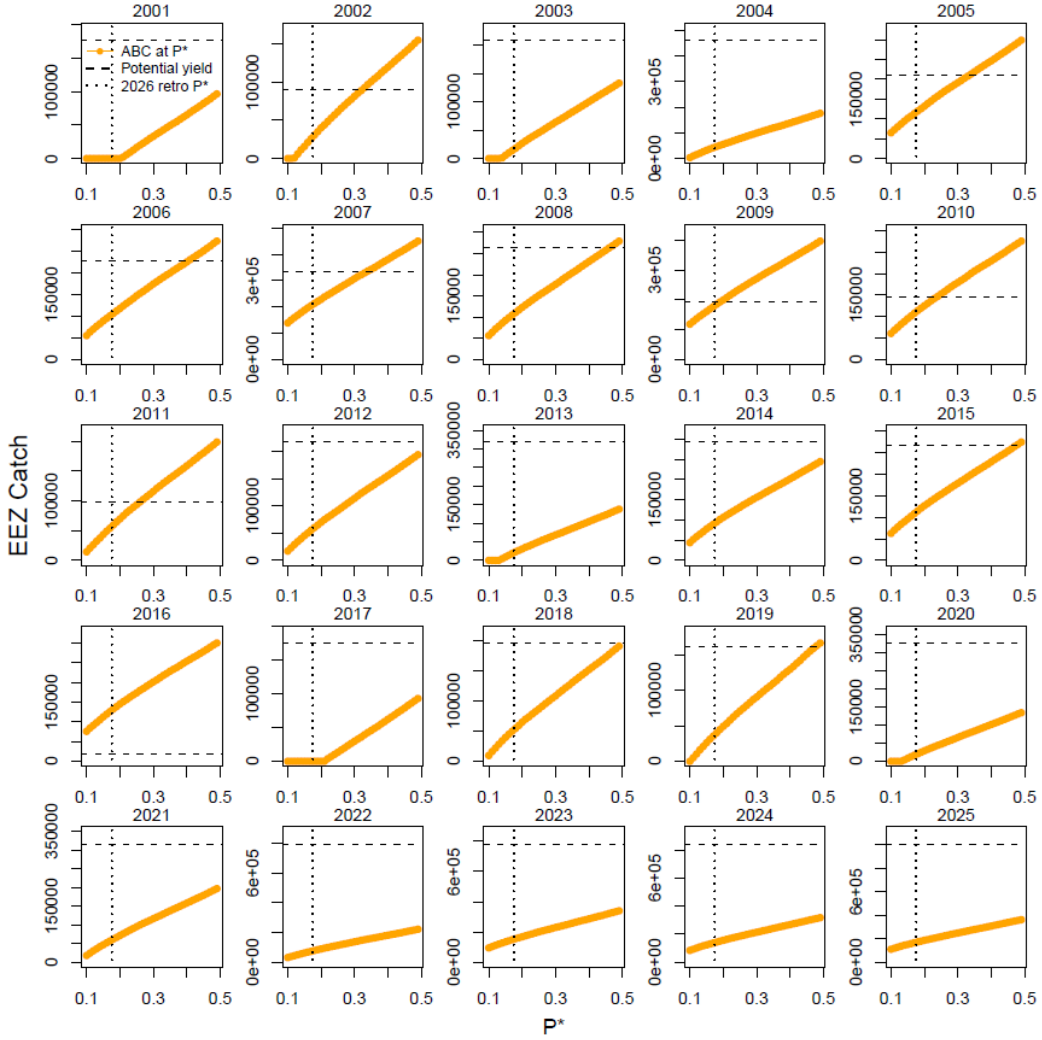
KASILOF SOCKEYE SALMON (KASOCK)
2026 PRESEASON (P* approach, retrospective analyses)

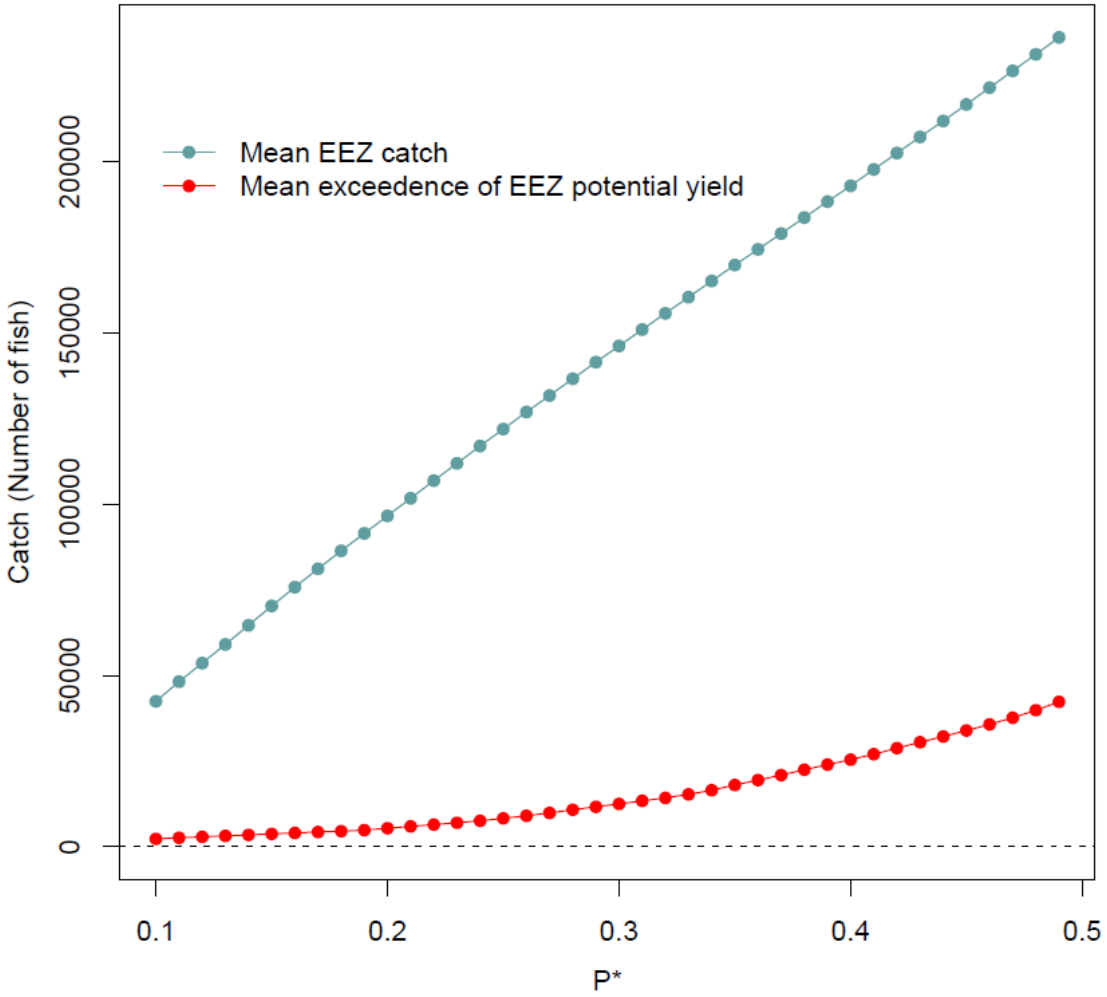


→ Retrospective analyses (2001-2025) → one-year-ahead forecasting of OFL, define ABC based on given P* value

→ 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)
2026 PRESEASON (P* approach, retrospective analyses)



→ Retrospective analyses (2001-2025) → one-year-ahead forecasting of OFL, define ABC based on given 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

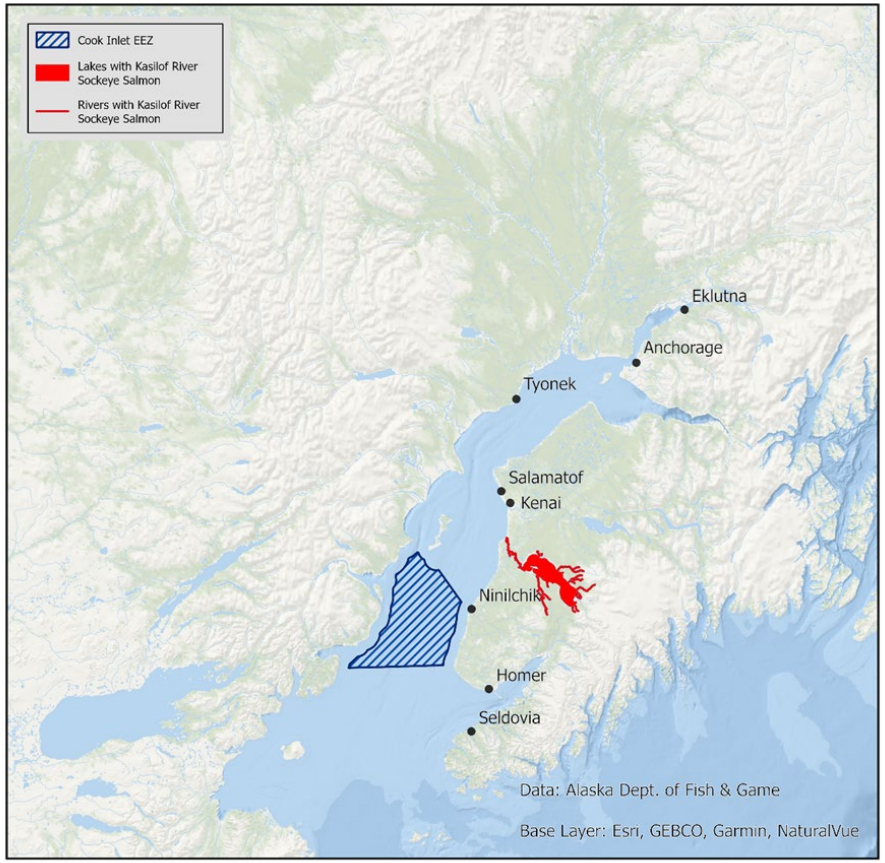
KASILOF SOCKEYE SALMON (KASOCK) (Section 4.3)
SUMMARY OF RECOMMENDATIONS

2025 Postseason Recommendations :

- Not overfished in 2025 → MSST (555K) < Cumulative Escapement (4.664M)
- No overfishing in 2025 → F_{EEZ} (0.027) < MFMT (0.531)

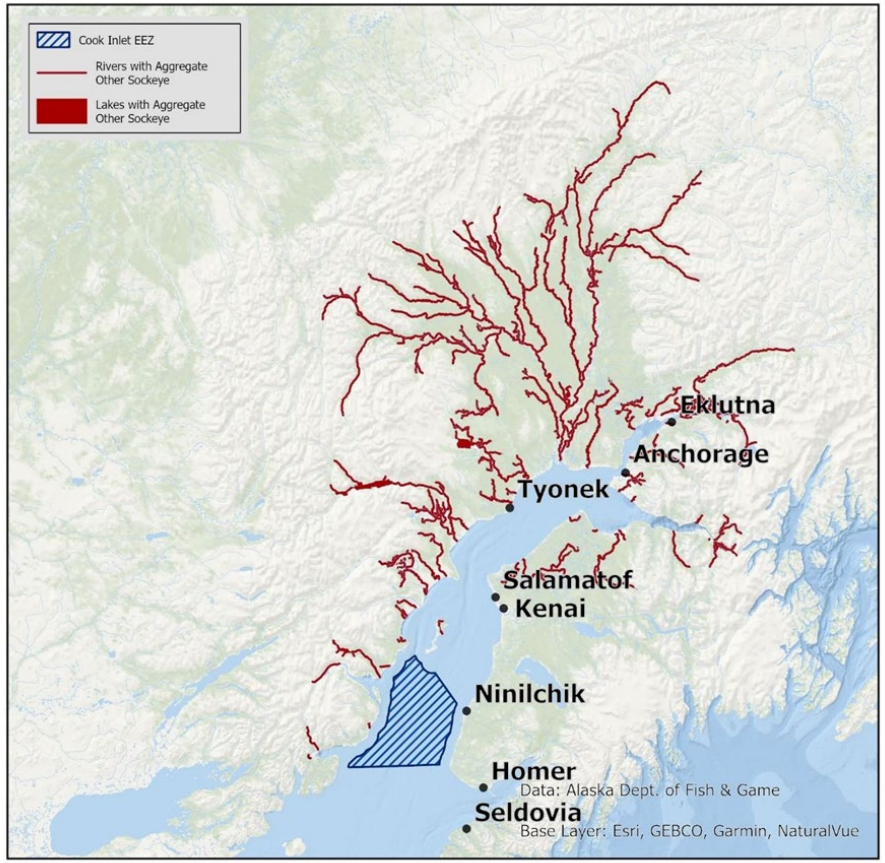
2026 Preseason Recommendations :

- Tier……1
- MFMT (EEZ overfishing rate)…….0.538
- MSST (overfished value)……..……..555,000 fish
- OFL_{PRE}……617,006 fish
- Buffer……41.2%
- ABC ……..……362,866

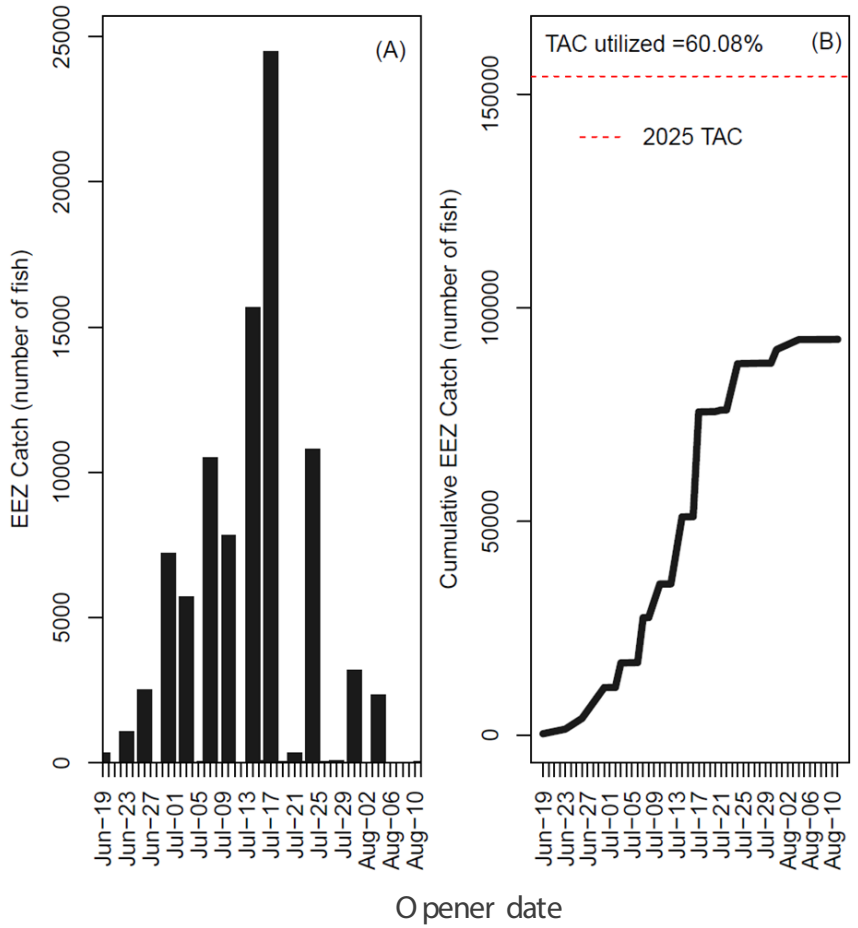


AGGREGATE "Other" SOCKEYE SALMON (AOSOCK)
TIER 3 (Section 4.4)

- All other UCI sockeye salmon harvested in the CI EEZ, except Kenai and Kasilof stocks.
- Four indicator stocks:
  - Fish Creek (15,000 - 45,000)
  - Chelatna Lake (20,000 - 45,000)
  - ~~Judd Lake (15,000 - 40,000)~~ (Missing index)*
  - Larson Lake (15,000 - 35,000)
  - **Sum of lower bounds = 50K**
- Indicator stocks allow for making an Overfished determination (i.e., MSST vs. Cumulative Esc) for Tier 3 stocks.
  - Must have reliable indices of escapement*



AGGREGATE "Other" SOCKEYE SALMON (AOSOCK)
2025 CI EEZ FISHERY (Section 4.4)



- 2025 MSST = 100K
- 2025 cum. escapement = 557K
- 2025 postseason OFL = 907K
- 2025 cum. EEZ harvest = 537K
- 2025 Preseason OFL = 181,351
- 2025 ABC/TAC = 154,148
- 2025 EEZ harvest= 92,617

Overfished SDC

Overfishing SDC

AGGREGATE "Other" SOCKEYE SALMON (AOSOCK) BUFFER RECOMMENDATIONS (Section 4.4)

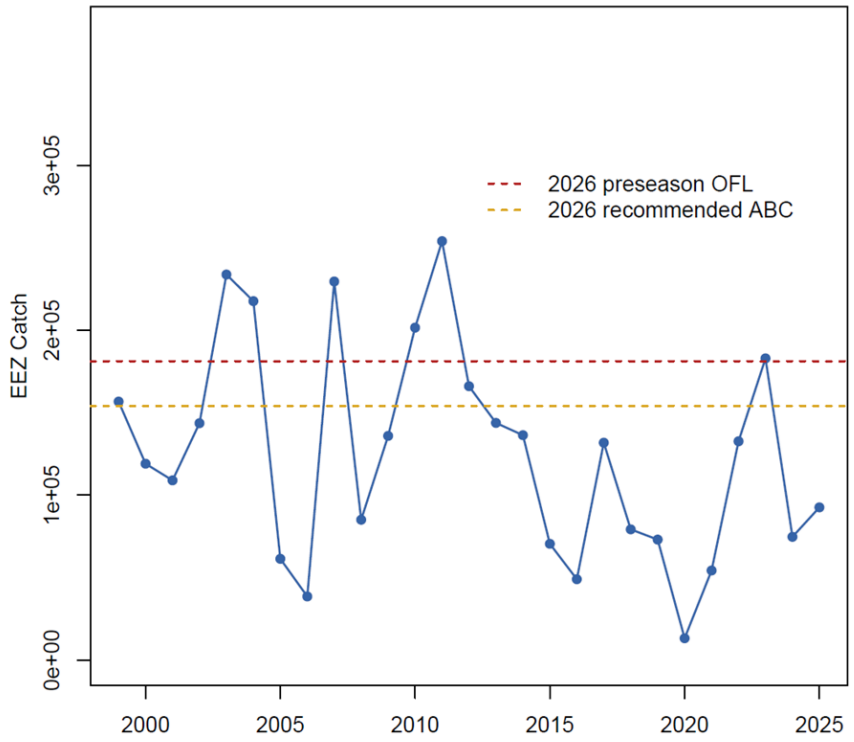
Buffer justification (15%) → (same as 2025)

- Buffer range 10 - 90% (low concern - high concern)
- Indicator stocks have met escapement targets in recent years.
- Buffer accounts for uncertainty in ensuring that OFL_{PRE} is not exceeded

	Chelatna Lk.		Judd Lk.		Larson Lk.		Fish Ck.			
Year	L.B	Esc.	L.B.	Esc.	L.B	Esc.	L.B.	Esc.	Sum of L.B.	Sum Esc.
2021	20	NS	15	49	15	22	15	99	45	171[a]
2022	20	NS	15	38	15	17	15	59	45	115[a]
2023	20	NS	15	NS	15	38	15	45	30	83[a,b]
2024	20	NS	15	NS	15	16	15	38	30	54[a,b]
2025	20	59	15	NS	15	33	15	43	50	135[b]

[a]Chelatna Lake weir not operated in these years
[b]Judd Lake counts not determined in these years
NS = no survey

AGGREGATE "Other" SOCKEYE SALMON (AOSOCK)
2026 SDC (Section 4.4)



2026 OFL_{PRE} = 181,351

2026 ABC = 154,149

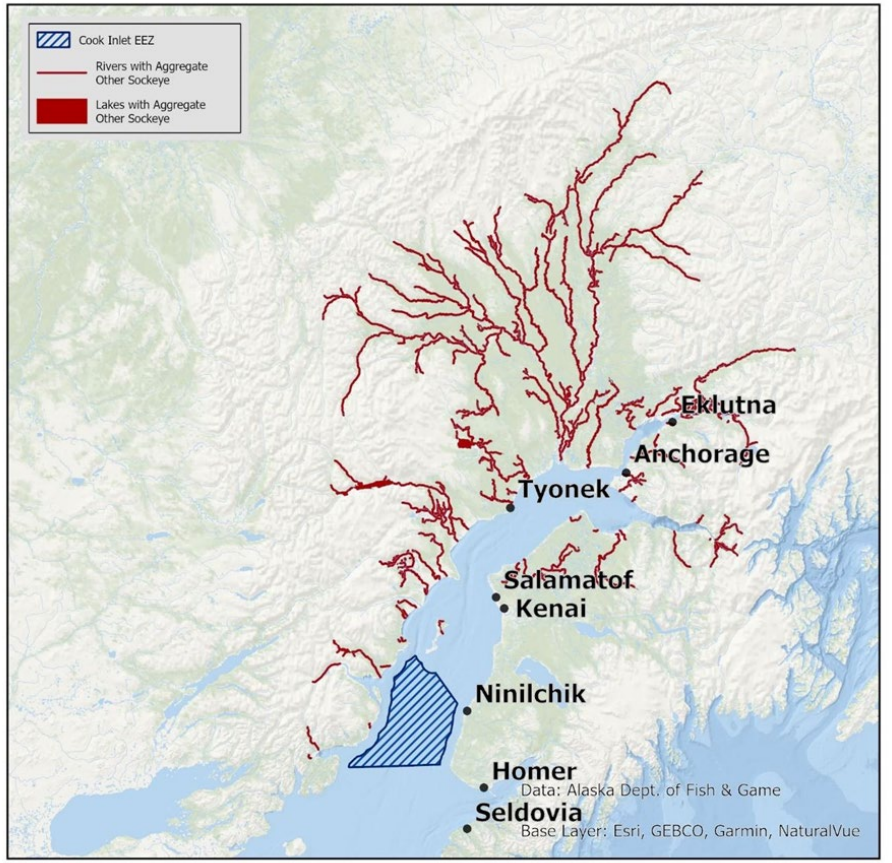
AGGREGATE "Other" SOCKEYE SALMON (AOSOCK)
SUMMARY OF RECOMMENDATIONS (Section 4.4)

2025 Postseason Recommendations :

- Not overfished in 2025 → MSST (100K) < Cumulative Escapement (557K)
- No overfishing in 2025 → Cum. EEZ Catch (537K) < OFL (907K)

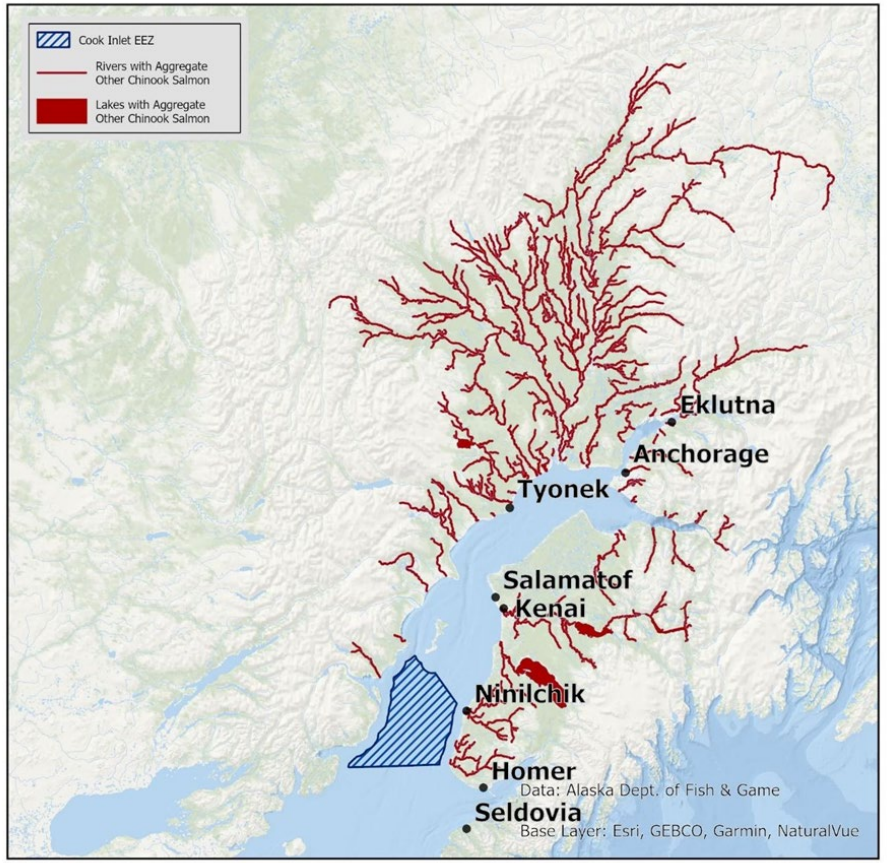
2026 Preseason Recommendations :

- Tier……3
- MSST (overfished value)……..……..100,000 fish
- OFL……906,757 fish
- OFL_{PRE}……181,351 fish
- Buffer……15%
- ABC ……..……154,149 fish

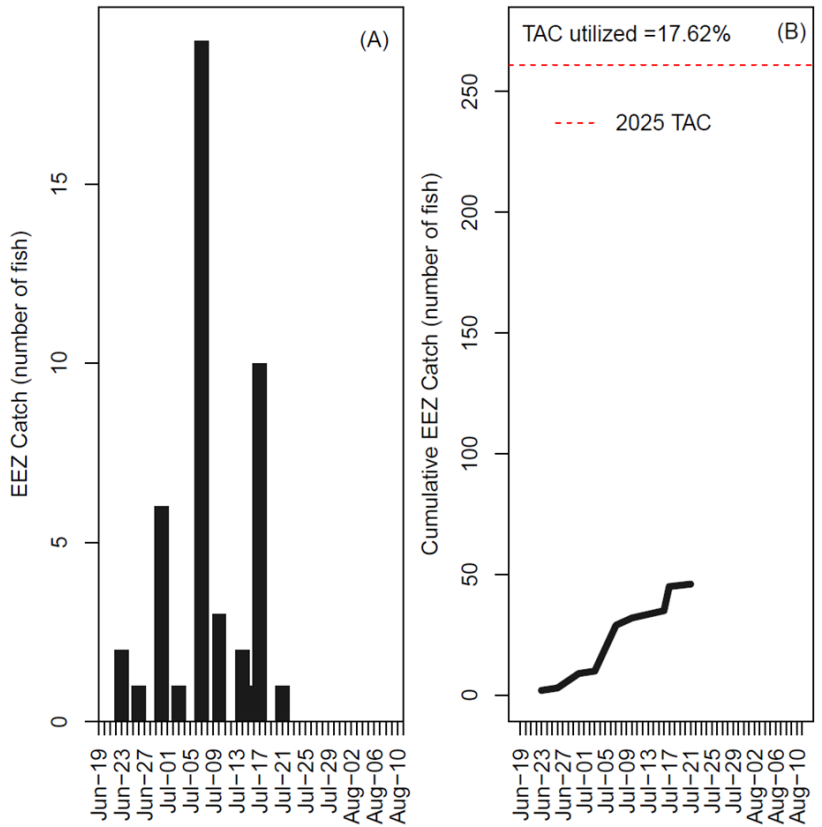


AGGREGATE CHINOOK SALMON STOCK COMPLEX (ACHIN
TIER 3 (Section 4.5)

- All UCI Chinook salmon harvested in the CI EEZ
- Generation time = 6 years
- Indicator stock:
  - Kenai River Late Large Chinook Salmon (15,000 - 30,000)
    - Only Chinook salmon >75 cm METF (~ >13 lbs.)
- Indicator stocks allow for making an Overfished determination (i.e., MSST vs. Cumulative Esc) for Tier 3 stocks.



AGGREGATE CHINOOK SALMON STOCK COMPLEX (ACHIN
2025 CI EEZ FISHERY (Section 4.5)



- 2025 MSST = 45K
- 2025 cum. escapement = 75K
- 2025 postseason OFL = 2,237
- 2025 cum. EEZ harvest = 371
- 2025 Preseason OFL = 373
- 2025 ABC/TAC = 261
- 2025 EEZ harvest = 46

Overfished SDC

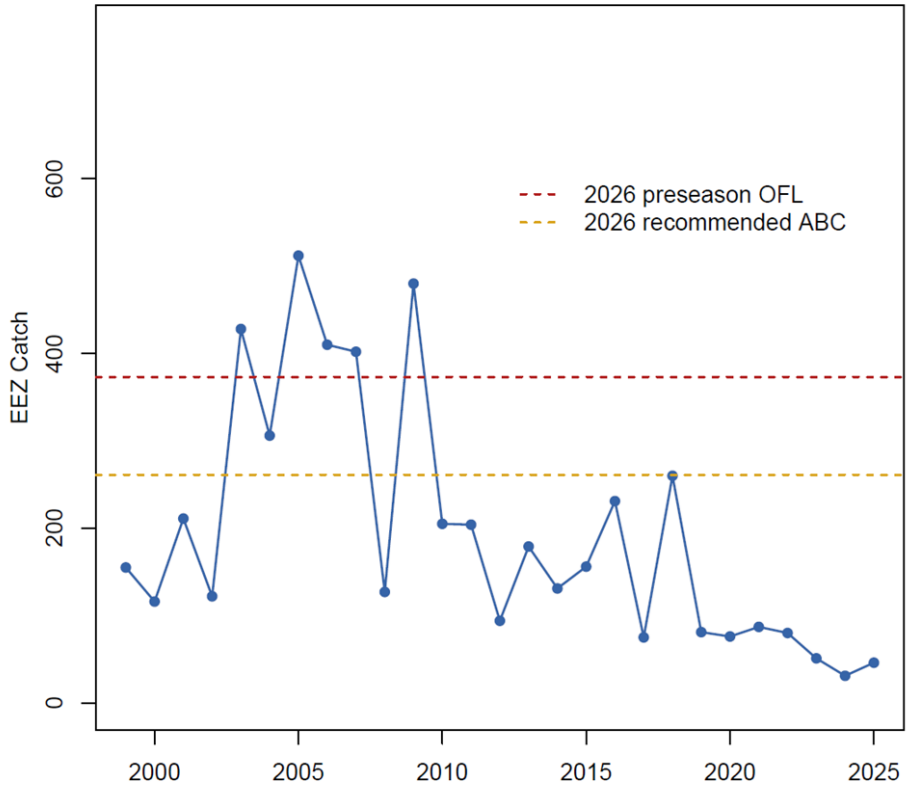
Overfishing SDC

AGGREGATE CHINOOK SALMON STOCK COMPLEX (ACHIN
BUFFER RECOMMENDATION (Section 4.5)

Buffer justification (30%) → (same as 2025)

- Buffer range 10 - 90% (low concern - high concern)
- Indicator stock not in, or approaching overfished
  - But is a State "Stock of Concern"
- Not thought to be targeted in CI EEZ (commercial)
- Genetics & weight indicate that Kenai R. Chinook represent a small proportion of the EEZ catch
- State lists 5 CI Chinook stocks listed a "Stocks of Concern"
- Indicator stock appears to have met escapement goal in 2025

AGGREGATE CHINOOK SALMON STOCK COMPLEX (ACHIN
2026 SDC (Section 4.5)



2026 OFL_{PRE}= 373 fish

2026 ABC = 261 fish

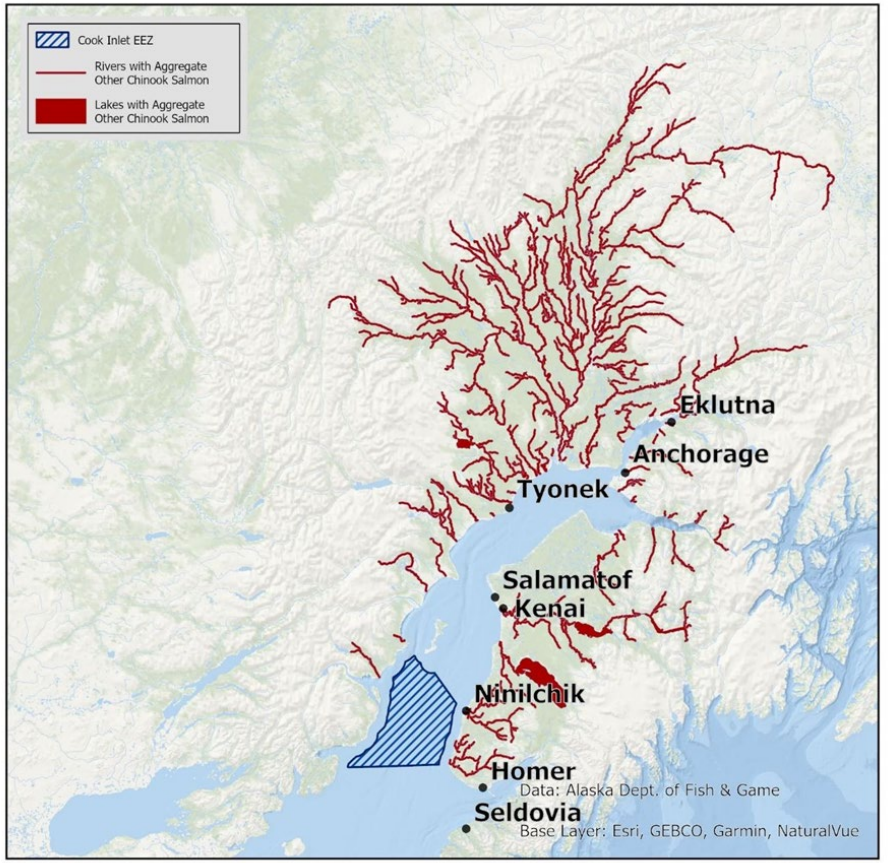
AGGREGATE CHINOOK SALMON STOCK COMPLEX (ACHIN
SUMMARY OF RECOMMENDATIONS (Section 4.5)

2025 Postseason Recommendations :

- Not overfished in 2025 → MSST (45K) < Cumulative Escapement (75K)
- No overfishing in 2025 → Cum. EEZ Catch (371) < OFL (2,237)

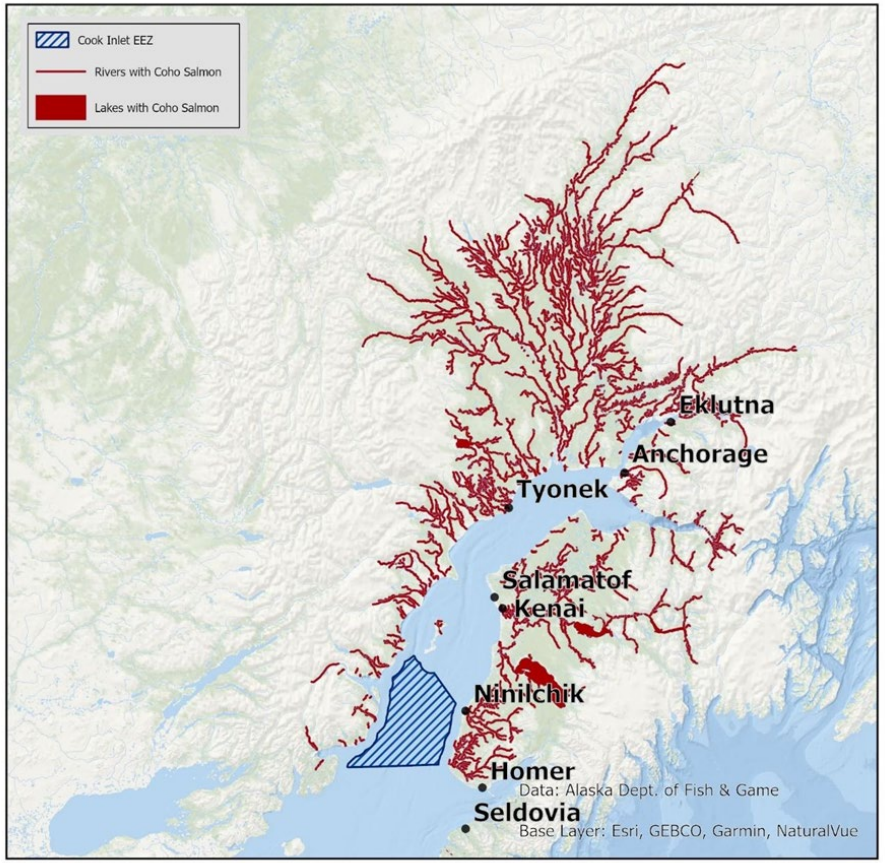
2026 Preseason Recommendations :

- Tier……3
- MSST (overfished value)……..……..45,000 fish
- OFL……2,237 fish
- OFL_{PRE}……373 fish
- Buffer……30%
- ABC ……..……261 fish

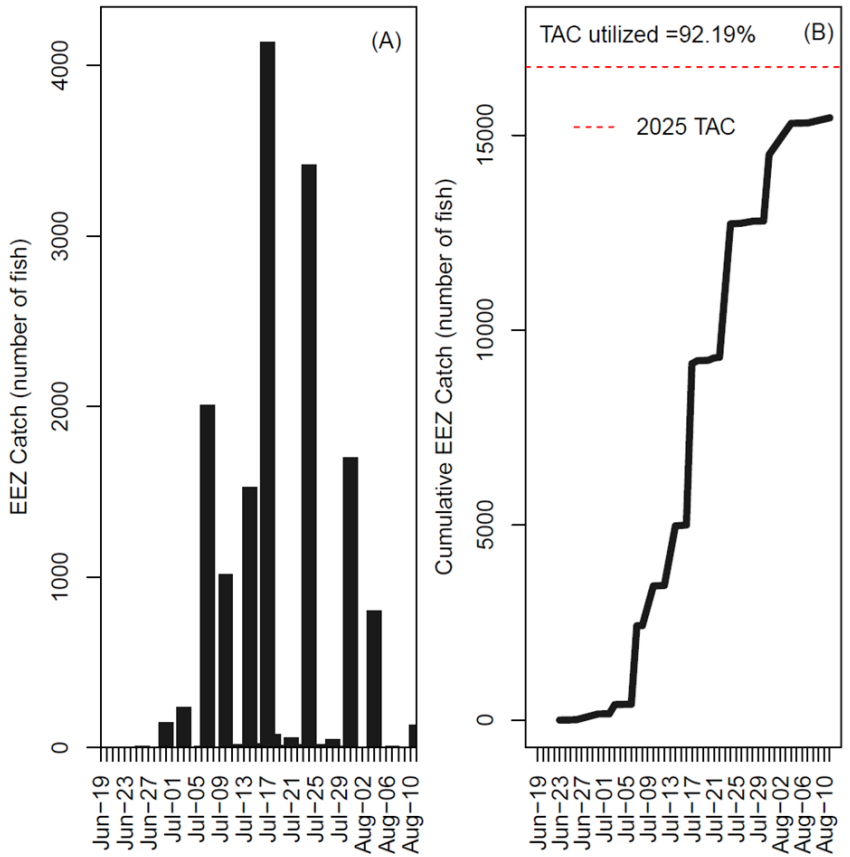


AGGREGATE COHO SALMON STOCK COMPLEX (COHO)
TIER 3 (Section 4.6)

- All UCI coho salmon harvested in the CI EEZ
- Generation time = 4 years
- Indicator stocks:
  - Deshka River (10,200 - 24,100)
  - Little Susitna River (9,200 - 17,700)
- Indicator stocks may allow for making an Overfished determination (i.e., MSST vs. Cumulative Esc) for Tier 3 stocks.
  - **Must have reliable indices of escapement → both indices missing/incomplete for 2022-2025 (Munro & Gatt 2025)→ overfished status cannot be assessed**



AGGREGATE COHO SALMON STOCK COMPLEX (COHO)
2025 CI EEZ FISHERY (Section 4.6)



- 2025 postseason OFL = 268K
- 2025 cum. EEZ harvest = 68K
- 2025 Preseason OFL = 67,013
- 2025 ABC/TAC = 16,753
- 2025 EEZ harvest = 15,444

Overfishing SDC

AGGREGATE COHO SALMON STOCK COMPLEX (COHO) STOCK SUMMARY (Section 4.6)

- Deshka River
  - Missing or incomplete counts 2020-2025
- Little Susitna River
  - Missing or incomplete counts 2018-2019; 2022 - 2025
- **NMFS SAFE Team Recommendation: Overfished status cannot be assessed for 2025**

	Deshka River		Little Susitna River					
Year	L.B.	Esc.	L.B.	Esc.	Total Esc.	MSST	Cum. Esc.	Total Catch
2020	10,200	5,368[a]	9,200	10,765	10,765	24,950[d]	88,932[d]	226,730
2021	10,200	3,338[a]	9,200	10,923	10,923	19,400[d]	45,205[d]	277,235
2022	10,200	3,168[a]	9,200	3,162[a,b]	NA[a]	NA[e]	NA[e]	214,742
2023	10,200	1,817[a,c]	9,200	3,726[a,c]	NA[a]	NA	NA[e]	166,669
2024	10,200	642[a,c]	9,200	964[a,c]	NA	NA[e]	NA[e]	97,450
2025	10,200	3,869[a,c]	9,200	4,506[a,c]	NA	NA[e]	NA[e]	213,317

[a]Incomplete weir count. Note that incomplete weir counts are not counted towards total escapement (Esc.), cumulative escapement (Cum.Esc), or MSST. In years where both indices were missing or incomplete, escapement, cumulative escapement and MSST are treated as NAs

[b]ADF&G considers the escapement goal met

[c]ADF&G estimates the escapement goal was not met

[d] At least one index stock's escapement count was missing or incomplete in this year. Cumulative escapement and MSST should be interpreted cautiously.

[e] Both index stock's escapement count was missing or incomplete in this year and thus escapement and MSST cannot be reliably be determined

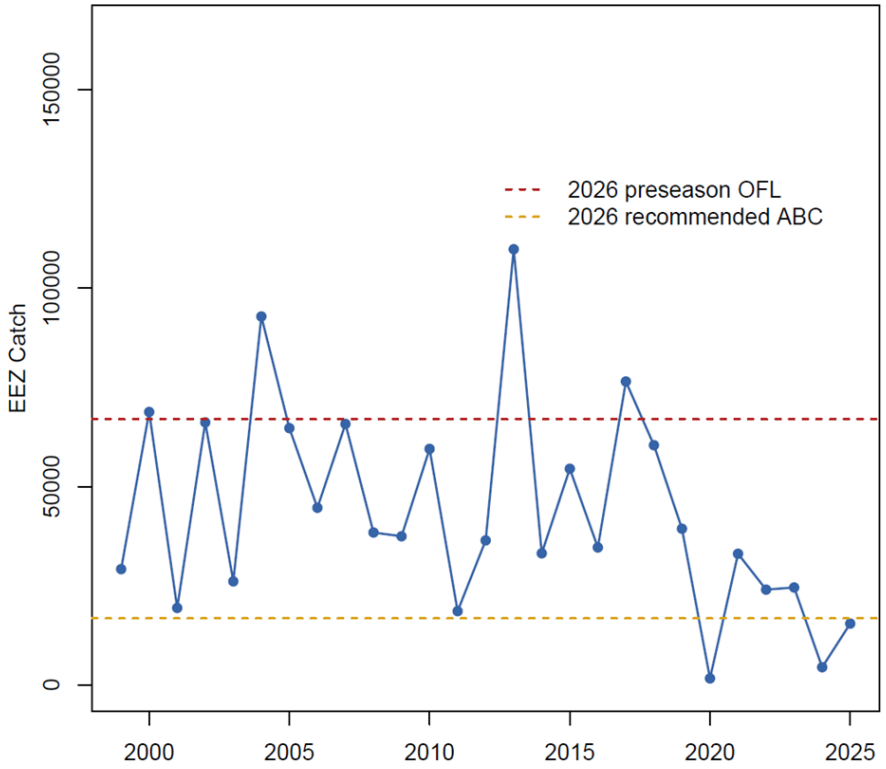
AGGREGATE COHO SALMON STOCK COMPLEX (COHO) BUFFER RECOMMENDATIONS (Section 4.6)

Buffer justification (75%) → (same as 2025)

- Buffer range 10 - 90% (low concern - high concern)
- Indicator Stocks have incomplete assessments due to weirs washing out → unlikely that escapement goals achieved
- Size makes coho susceptible to gillnets
- Important prey for CI Beluga Whales

- *See also draft risk table for COHO (Appendix A, p. 107)*

AGGREGATE COHO SALMON STOCK COMPLEX (COHO)
2026 SDC (Section 4.6)



2026 OFL_{PRE} = 67,013

2026 ABC = 16,753

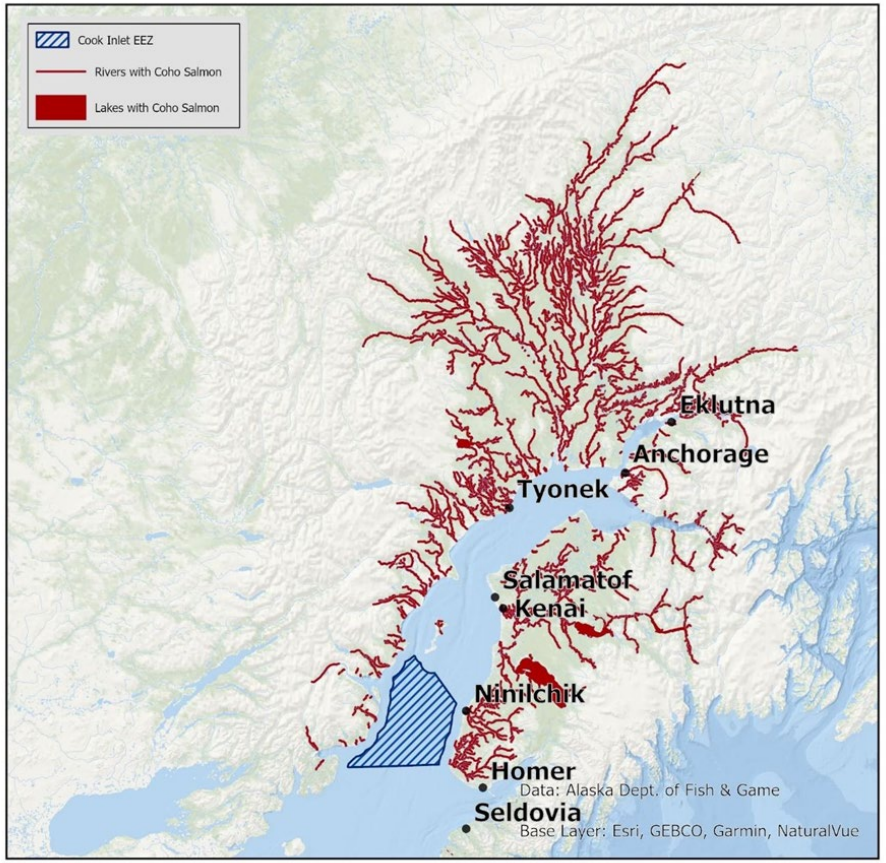
AGGREGATE COHO SALMON STOCK COMPLEX (COHO)
SUMMARY OF RECOMMENDATIONS (Section 4.6)

2025 Postseason Recommendations :

- Overfished status for 2025 cannot be assessed
- No overfishing in 2025 → Cum. EEZ Catch (68K) < OFL (268K)

2026 Preseason Recommendations :

- Tier.....3
- OFL.....268,053 fish
- OFL_{PRE}.....67,013 fish
- Buffer.....75%
- ABC .....16,753 fish

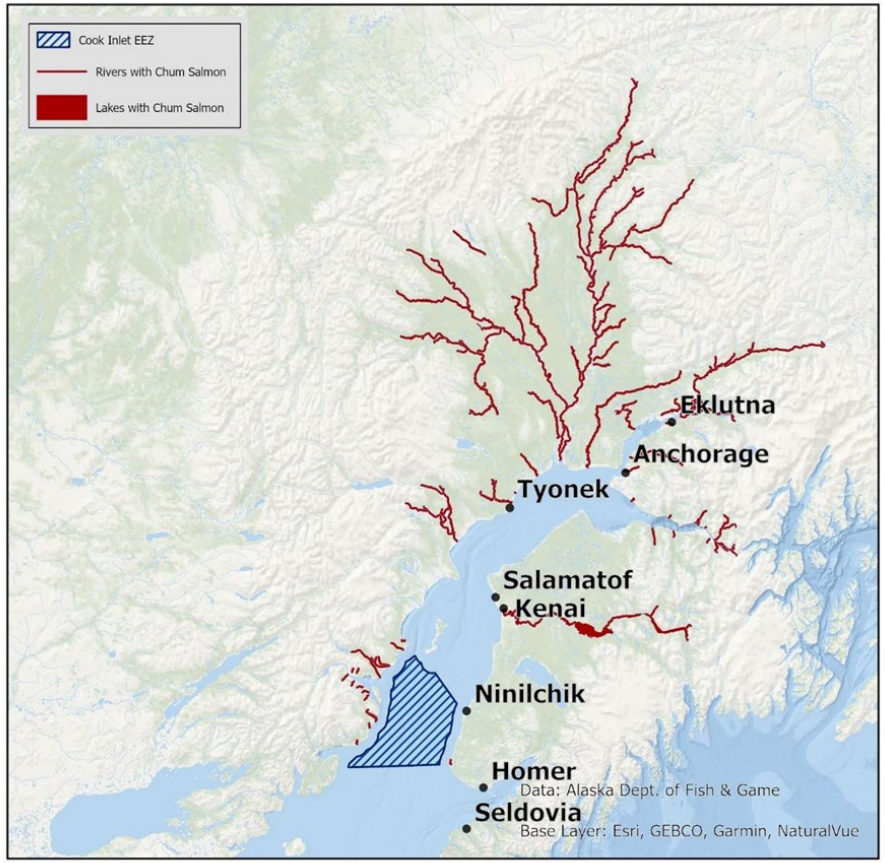


DRAFT COHO RISK TABLE (APPENDIX A, p.107)

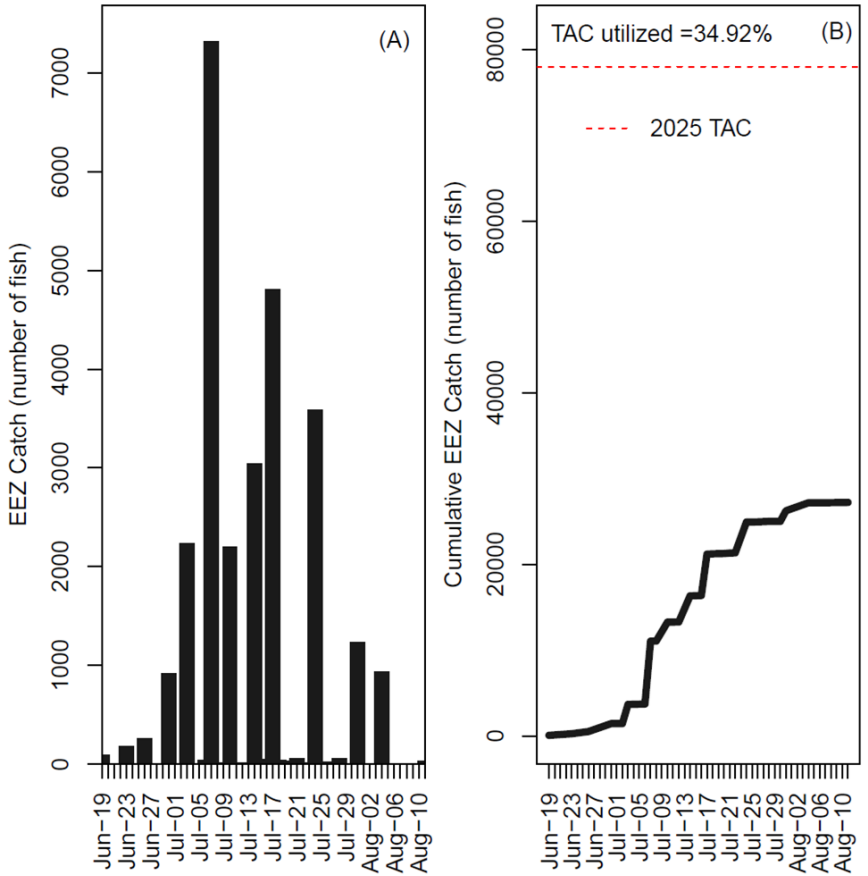
Assessment-related	*Population dynamics*	*Ecosystem*	*Fishery-informed stock*
Level 1 – Normal Concern	**Level 1 – Normal Concern**	**Level 2 – Increased Concern**	**Level 2 – Increased Concern**
• Tier 3 Stock uses historical EEZ harvest to set SDC • Uncertainty in historical EEZ harvest estimates can be addressed via Tier-3 range of precautionary buffers • Recent (2024-2025) EEZ harvests known rather than estimated (pre-2024)	• Coho life history known. • Poor returns in recent years → fluctuations in abundance are not uncommon for coho salmon • Low returns (e.g., below escapement goals) do not necessarily indicate conservation concern	• Warmer ocean temps in 2025 on shelf/gyre, inc. marine heatwave status • Reduced marine survival of monitored coho stocks in SE Alaska • Avg. prey in 2015 • No expected change in predators, higher but not extremely high competition with pink salmon	• Size, migration pathways makes them susceptible to gillnet harvest. • Recent harvests have remained below ABC/OFL values • Recent (2024-2025) EEZ harvests known rather than estimated (pre-2024)

AGGREGATE CHUM SALMON STOCK COMPLEX (CHUM)
TIER 3 (Section 4.7)

- All UCI chum salmon harvested in the CI EEZ
- Generation time = 4 years
- No Indicator stocks



AGGREGATE CHUM SALMON STOCK COMPLEX (CHUM)
2025 CI EEZ FISHERY (Section 7.7)



- 2025 postseason OFL = 390K
- 2025 cum. EEZ harvest = 146K
- 2025 Preseason OFL = 97,058
- 2025 ABC/TAC = 78,006
- 2025 EEZ harvest = 27,236

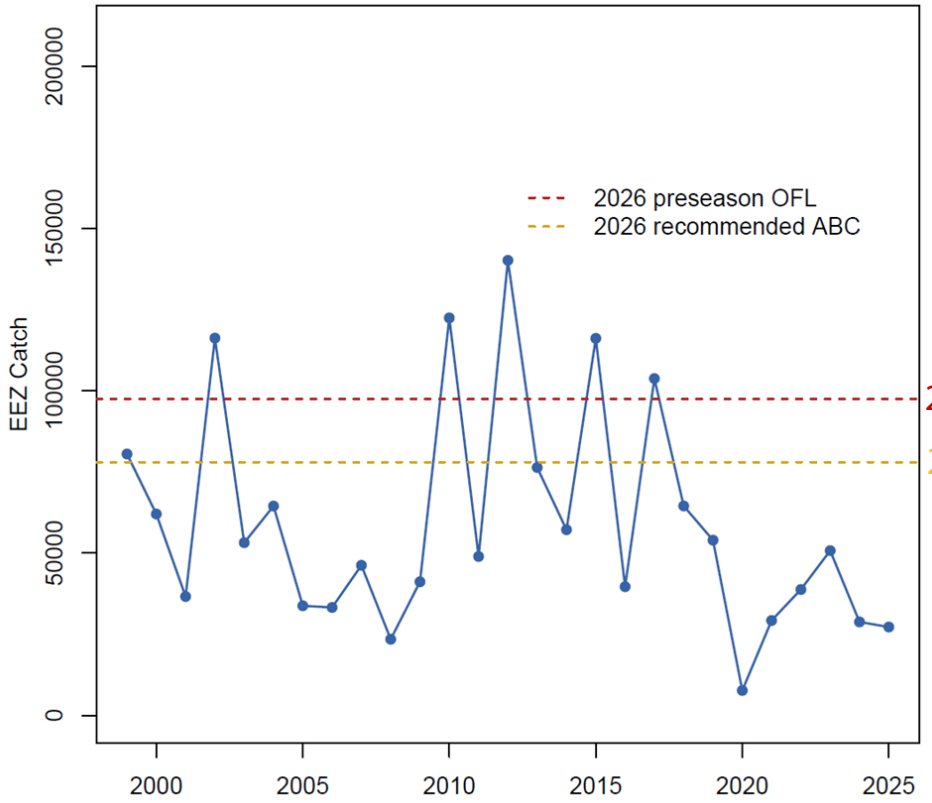
Overfishing SDC

AGGREGATE CHUM SALMON STOCK COMPLEX (CHUM)
BUFFER RECOMMENDATIONS (Section 4.7)

Buffer justification (20%) → (same as 2025)

- Buffer range 10 - 90% (low concern - high concern)
- Size makes chum susceptible to gillnets
- Historic catch is assumed to be incidental
- Few CHUM watersheds vs. other CI stocks

AGGREGATE CHUM SALMON STOCK COMPLEX (CHUM)
2026 SDC (Section 7.7)



2026 OFL_{PRE} = 97,508

2026 ABC = 78,006

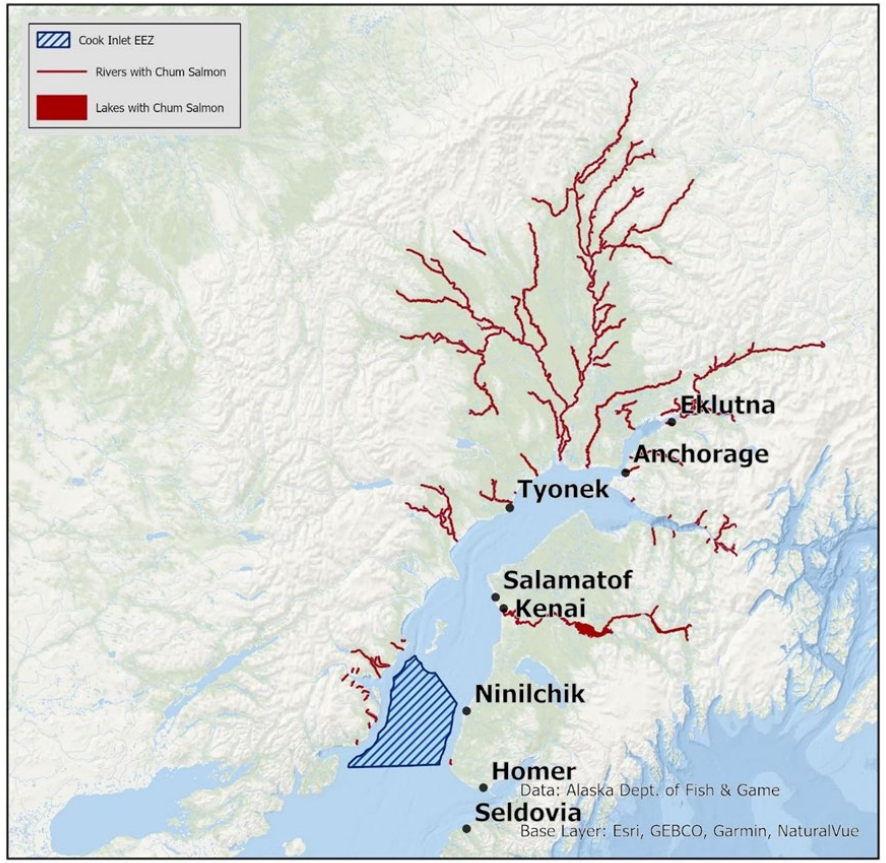
AGGREGATE CHUM SALMON STOCK COMPLEX (CHUM)
SUMMARY OF RECOMMENDATIONS (Section 4.7)

2025 Postseason Recommendations :

- Overfished status not assessed
- No overfishing in 2025 → Cum. EEZ Catch (146K) < OFL (390K)

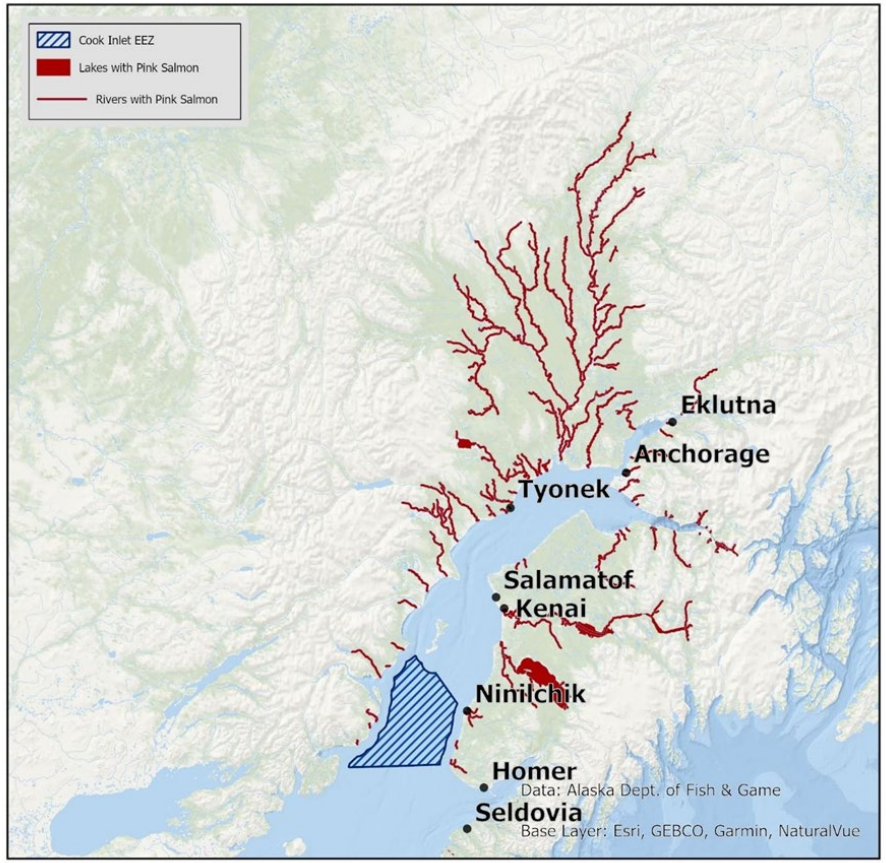
2026 Preseason Recommendations :

- Tier……3
- OFL……390,030 fish
- OFL_{PRE}……97,508 fish
- Buffer……20%
- ABC ……..……78,006 fish

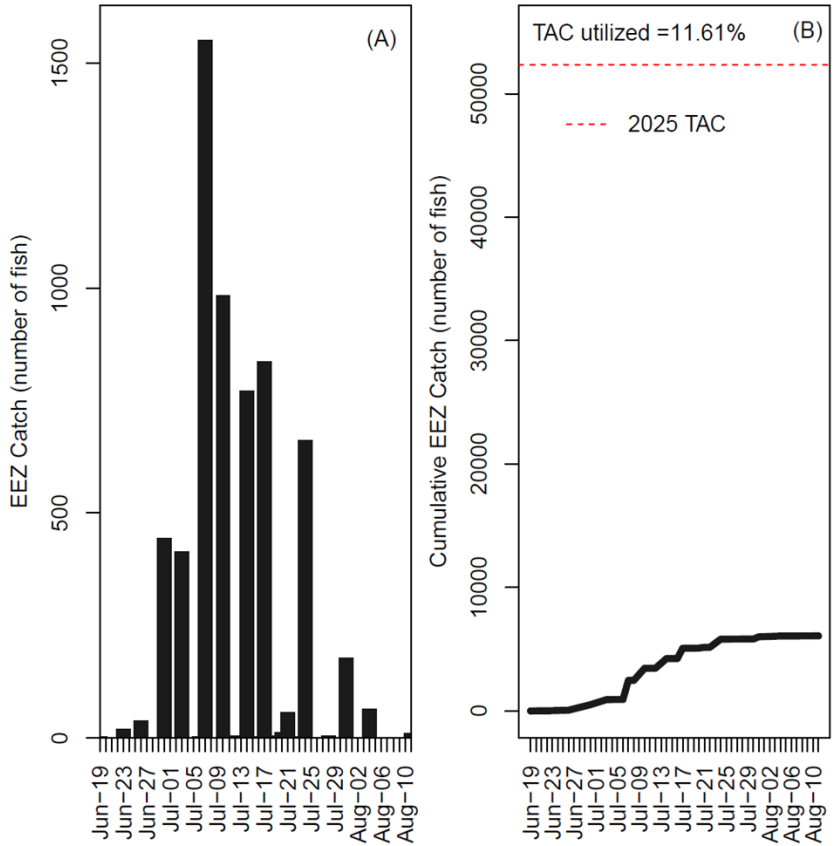


AGGREGATE PINK SALMON STOCK COMPLEX (PINK)
TIER 3 (Section 4.8)

- All UCI pink salmon harvested in the CI EEZ
- No Indicator stocks
- Generation time = 2 years
- Strict 2-year life history (even and odd year runs completely separate
- Separate SDC for even- and odd-year classes



AGGREGATE PINK SALMON STOCK COMPLEX (PINK)
2025 CI EEZ FISHERY (PINK ODD-YEAR LINEAGE) (Section 4.8)



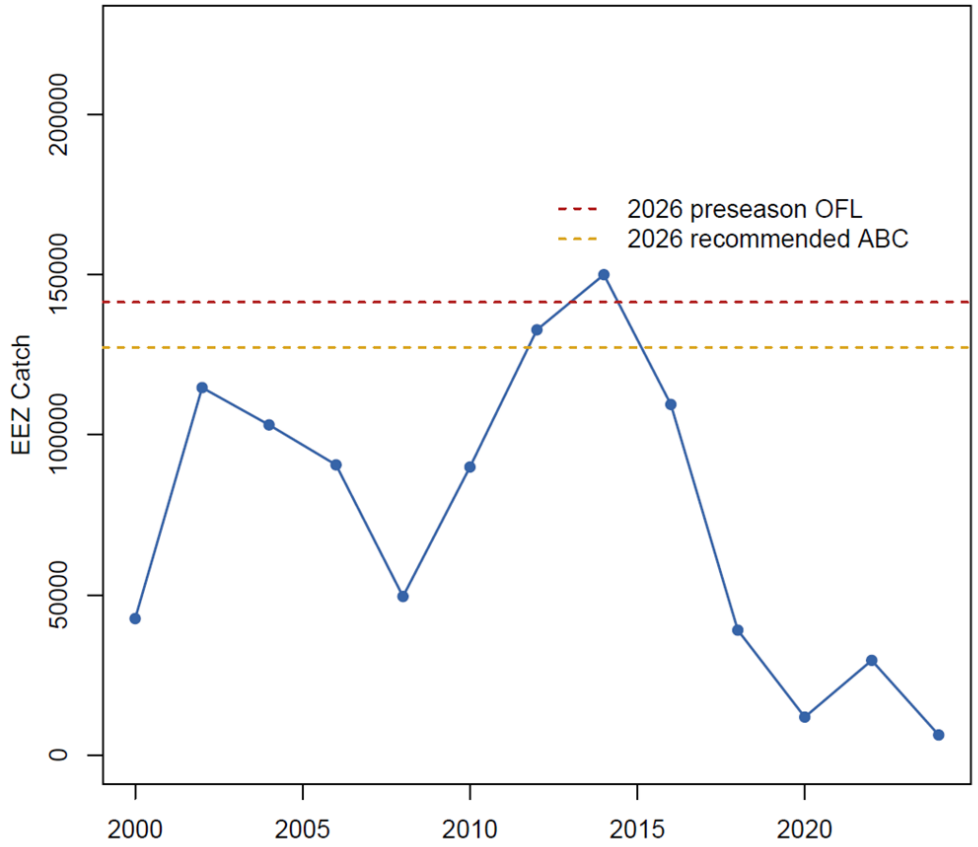
- 2025 postseason OFL = 116K
- 2025 cum. EEZ harvest = 30K
- 2025 Preseason OFL = 58,174
- 2025 ABC/TAC = 52,357
- 2025 EEZ harvest = 6,080

AGGREGATE PINK SALMON STOCK COMPLEX (PINK)
2026 BUFFER RECOMMENDATION (Section 4.8)

Buffer justification (10%)

- Buffer range 10 - 90% (low - high concern)
- Small size makes PINK less susceptible to gillnets
- Historic catch is assumed to be incidental

AGGREGATE PINK SALMON STOCK COMPLEX (PINK)
2026 SDC (PINK EVEN-YEAR LINEAGE) (Section 4.8)



2026 OFL_{PRE} = 141,406

2026 ABC = 127,266

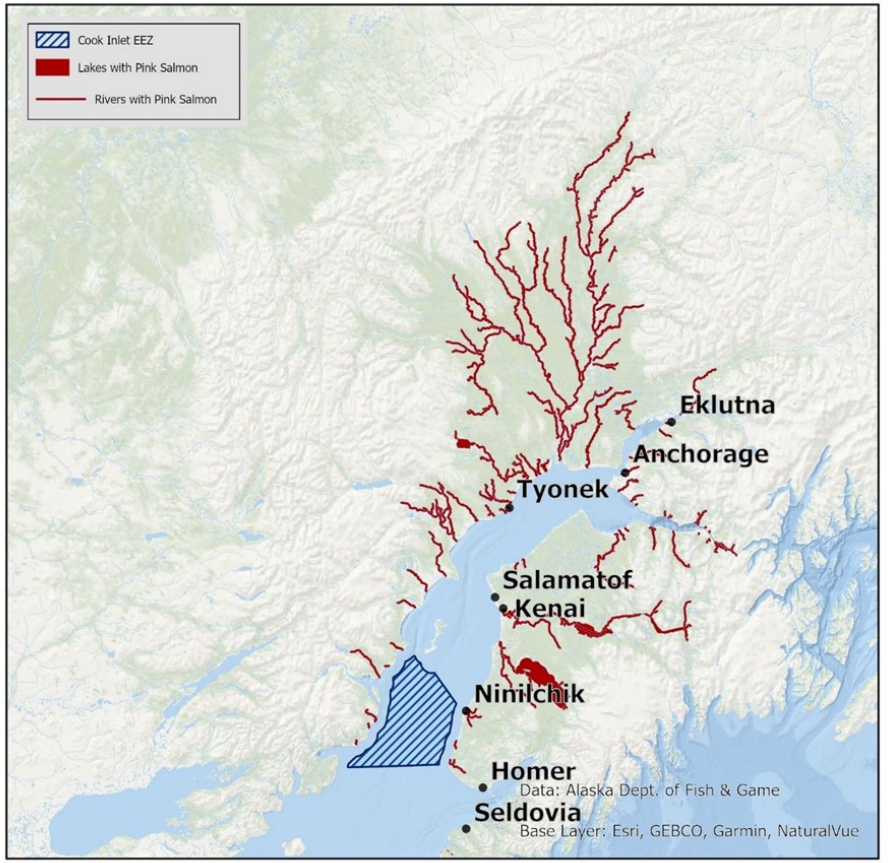
AGGREGATE PINK SALMON STOCK COMPLEX (PINK)
SUMMARY OF RECOMMENDATIONS (Section 4.8)

2025 Postseason Recommendations :

- Overfished status not assessed
- No overfishing in 2025 → Cum. EEZ Catch (30K) < OFL (116K)

2026 Preseason Recommendations :

- Tier.....3
- OFL.....282,813 fish
- OFL_{PRE}.....141,406 fish
- Buffer.....10%
- ABC .....127,266 fish



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	45,000	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

*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.

Economic and Community Considerations (Appendix E, p.124)

Table E2. CI EEZ commercial salmon harvests ex-vessel value (U.S. $) and the proportional value (%) of EEZ harvests by species. Data from ADF&G season summaries (Lipka and Stumpf 2024; Lipka and Stumpf 2025) and the NMFS catch and landings reports.

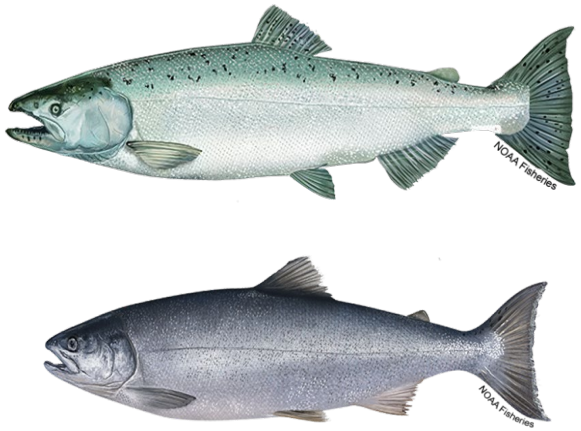
Year	Sockeye		Chinook		Coho		Pink		Chum	
2024	$3,250,835	95.43%	$1,275	0.04%	$12,374	0.36%	$4,797	0.14%	$137,069	4.02%
2025	$3,645,181	93.56%	$1,643	0.04%	$99,587	2.56%	$23,646	0.61%	$126,170	3.24%
Total	$6,896,016	94.43%	$2,918	0.04%	$111,961	1.53%	$28,443	0.39%	$263,239	3.60%

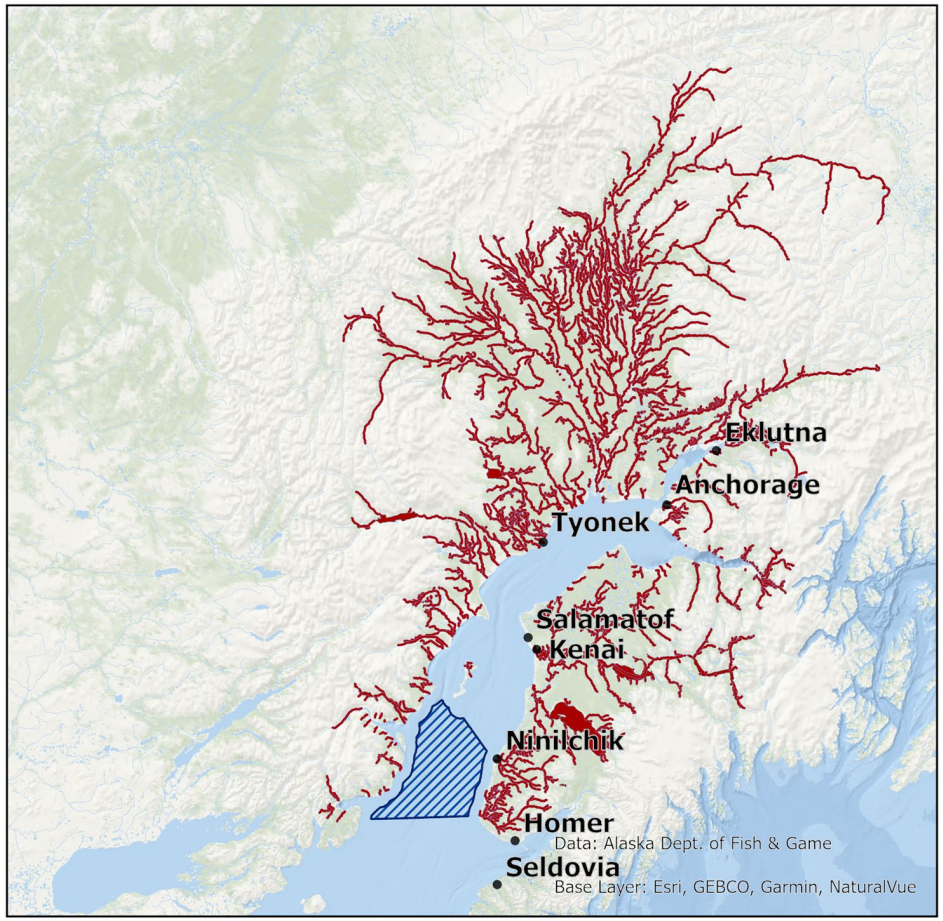
Economic and Community Considerations (Appendix E, p.124)

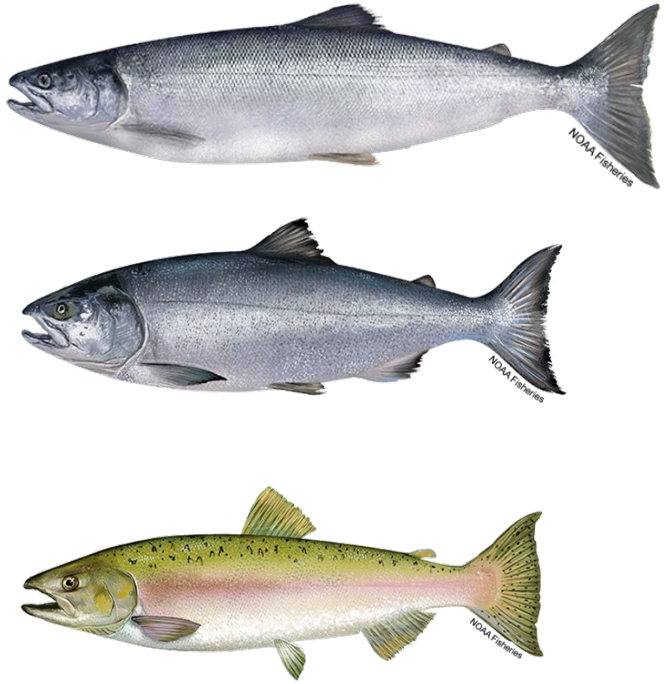
2025 CI EEZ fishery economic and community summary:

- → Total ex-vessel value: $3.9M
  - → No estimate yet for wholesale value.
- → 247 Federal permits issued, with 218 permits delivering.
- → 7 Federal processing permits issued
- → Landings by port: Cordova (2%), Homer (39%), Kasilof (23%), Kenai (35%), Ninilchik (1%)

Thank you!


NOAA Fisheries
NOAA Fisheries


Eklutna
Anchorage
Tyonek
Salamatof
Kenai
Ninilchik
Homer
Seldovia
Data: Alaska Dept. of Fish & Game
Base Layer: Esri, GEBCO, Garmin, NaturalVue


NOAA Fisheries
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