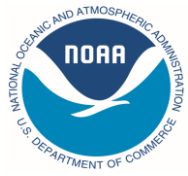
Stock Assessment and Fishery Evaluation Report for the Salmon Fisheries of the Cook Inlet Exclusive Economic Zone Area

2026 Preliminary Salmon SAFE

Compiled by

The NMFS Cook Inlet Salmon SAFE Team



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1 Executive Summary

This is the third Stock Assessment and Fishery Evaluation (SAFE) report for the Federal salmon fishery in Cook Inlet Area exclusive economic zone (CI EEZ). This CI SAFE provides the necessary information for the North Pacific Fishery Management Council's (Council) Scientific and Statistical Committee (SSC) to assess the status of the salmon stocks harvested in the CI EEZ during the 2025 CI EEZ salmon fishery and recommend status determination criteria (SDC), buffers, and the resulting acceptable biological catch (ABC) for the 2026 fishing season.

Under the terms of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the National Standard 1 Guidelines (50 CFR 600.310), and amendment 16 to the Fishery Management Plan for the Salmon Fisheries in the EEZ off Alaska (Salmon FMP), this SAFE uses the tier system and harvest specifications process described in the Salmon FMP to calculate SDC and recommend ABC. As allowed by the Salmon FMP and National Standard Guidelines, this SAFE incorporates changes to assessment methods that were recommended by the SSC during 2025, as well as a modeling workshop that convened in 2025 (Section 2.1). The National Marine Fisheries Service (NMFS) prepared this SAFE as part of the process to federally manage the salmon fisheries in the CI EEZ.

Proposed harvest specifications for the 2025 CI EEZ salmon fishery were published on April 4, 2025 (90 FR 14771); NMFS received 11 public comment letters on the proposed harvest specifications before the end of the comment period on May 5, 2025. Public comments pertaining to the 2025 CI SAFE were responded to in the final 2025 harvest specifications published on June 17, 2025 (90 FR 25508). The 2025 salmon fishing season in the CI EEZ began on June 19, 2025 and closed by regulation on August 15, 2025.

Summary of Changes for the 2026 SAFE

Based upon recommendations made by the SSC during the February 2025 Council meeting (Section 2; Appendix D), the NMFS SAFE Team made the following changes to the data and assessment methodology used to assess stock status and recommend SDC and ABC for the 2026 CI EEZ salmon fishing season:

1. 2024-2025 CI EEZ harvests are known, as opposed to past harvests (1999 – 2023) that were estimated as referenced in section 4.1 of this SAFE.
2. Autoregressive forecast models for Tier-1 stocks are implemented via Bayesian estimation using the same structure (AR-1) as in previous assessments. This approach allows greater stability in model structure as opposed to the previous methods using the *auto.arima* package (which can update model structure over time based on performance), and allows expanded consideration of options for OFL to ABC buffers, including explicitly relating buffers to overfishing risk as has been requested by the SSC.
3. OFL to ABC buffers are calculated using metrics of retrospective forecast skill, as in previous assessments. However, the historical window used to estimate retrospective forecast skill has been expanded from ten years to twenty-five years as recommended by the SSC
4. Additionally, we also present a new approach for calculating OFL to ABC buffers based on the probability of exceeding the OFL under a given ABC value using the posterior predictive distribution of preseason OFL
5. Where applicable, years with missing data for Tier-3 indicator stocks are omitted when calculating cumulative escapement and escapement-based targets (*e.g.*, MSST) over a generation time

2026 Tier, SDC, and Buffer Recommendations

For the 2026 assessment, Table 1 provides the 2026 SAFE Team recommendations for the OFL, the preseason OFL (OFL_{PRE}), the buffer to account for scientific uncertainty, and the resulting ABC.

This 2026 SAFE report contains discussion of the approach used for establishing potential yield for Tier 1 stocks, which is the basis for SDC and the resulting harvest specifications (See response to SSC comments in Section 2.1). For the 2026 SAFE, based on a recommendation from the SSC, $S_{MSY\text{-}POINT}$ (the point estimate of the number of spawners to result in maximum sustainable yield) was used for calculating potential yield (potential yield = available CI EEZ harvest after the achievement of spawning escapement at $S_{MSY\text{-}POINT}$, and, harvests that are likely to occur outside of the CI EEZ), which, in turn, is the basis for SDC (including the OFL_{PRE}) and the resulting harvest specifications.

The NMFS SAFE Team recommended SDC and harvest specifications based on sources of uncertainty and the biological attributes of the species being assessed; however, additional sources of uncertainty were not factored into the 2026 SAFE recommendations, including the inability to confirm historical estimates of salmon harvests in the CI EEZ prior to 2024 (which are a substantial basis for the 2024-2026 recommendations); the level of participation in the EEZ salmon fishery prior to 2024; the spatial distribution of fishing effort within the CI EEZ prior to 2024 and effects of that effort on harvests of weaker stocks (Chinook and coho salmon in particular); and harvests and harvest rates for individual stocks and species given the new management structure of having both State of Alaska (State) and Federal salmon fisheries in CI. To the extent practicable, the NMFS SAFE Team aims to incorporate additional sources of uncertainty and include risk tables (see Appendix A) into future assessments and welcomes input on assumptions, estimates, and analyses used in this 2026 SAFE.

Table 1.NMFS SAFE Team recommendations for the 2026 CI EEZ salmon fishery. Values for Tier 1 stocks are based on the point estimate of S_{MSY} ($S_{MSY\text{-}POINT}$) as the escapement target for SDC and resulting harvest specifications (MFMT, MSST, OFL, recommended buffers, and the resulting ABC/ACL). Buffers for the Tier 1 stocks are calculated based on the methods described in the SAFE and account for uncertainty in the preseason forecast and estimated harvests in fisheries outside the CI EEZ.

Stock	Tier	MFMT	MSST	OFL	OFL_{PRE}	Buffer	ABC/ACL
Kenai River Late-Run Sockeye (KNSOCK)**	1	0.265	3,030,000	NA	1,284,478	53.9%	591,509
Kasilof Sockeye (KASOCK)**	1	0.538	555,000	NA	617,006	41.2%	362,866
Aggregate "Other" Sockeye (AOSOCK)	3	NA	NA*	906,757	181,351	15%	154,149
Aggregate Chinook (ACHIN)	3	NA	45,000	2,237	373	30%	261
Aggregate Coho (COHO)	3	NA	NA*	268,053	67,013	75%	16,753
Aggregate Chum (CHUM)	3	NA	NA	390,030	97,508	20%	78,006
Aggregate Pink (even-year) (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.

Summary of Buffers to Account for Scientific Uncertainty in Reducing the Preseason Overfishing Limits (OFL_{PRE}) to the Acceptable Biological Catch (ABC)

Full assessments for Federal salmon stocks harvested in the CI EEZ are provided in Section 4 of this SAFE, with the following summaries for each stock intended to provide considerations for the buffers that are recommended by the SSC for reducing the OFL_{PRE} to the resulting ABCs.

Tier 1 Kenai River late run sockeye salmon, Section 4.2: The NMFS SAFE Team recommends a buffer of 53.9%. The buffers account for uncertainty associated with the predicted total run size, harvests in State fisheries, and the achievement of the spawning escapement target ($S_{MSY\text{-}POINT}$ based on SSC recommendation). Kenai late run sockeye salmon harvested in the CI EEZ during 2025 made up approximately 11% of the overall (State + Federal) drift gillnet harvest of this stock in Upper Cook Inlet (262,415 of 2,394,846).

Tier 1 Kasilof River sockeye salmon, Section 4.3: The NMFS SAFE Team recommends a buffer of 41.2%. The buffers account for uncertainty associated with the predicted total run size, harvests in State fisheries, and the achievement of the spawning escapement target ($S_{MSY\text{-}POINT}$ based on SSC recommendation). Kasilof sockeye salmon harvested in the CI EEZ during 2025 made up approximately 11% of the overall (State + Federal) drift gillnet harvest of this stock in Upper Cook Inlet (30,872 of 281,747).

Tier 3 Aggregate Other sockeye salmon, Section 4.4: The NMFS SAFE Team recommends a buffer of 15%. The NMFS SAFE Team recommendation that the Aggregate sockeye salmon stock complex is healthy given the degree to which this stock has achieved spawning escapement goals concomitant with historical estimates of harvests. While sockeye salmon are considered vulnerable to harvest with gillnets in the CI EEZ based on their size, State data suggests there are many sockeye salmon spawning locations throughout Upper Cook Inlet, with an estimated total run size for the AOSOCK stock complex believed to be as large or larger than KASOCK. The AOSOCK stock complex could be considered for a Tier 2 designation in the future if additional escapement data were available to estimate total run size, which would be necessary to calculate a harvest rate from the CI EEZ portion of the fishery. Kasilof sockeye salmon harvested in the CI EEZ during 2025 made up approximately 11% of the overall (State + Federal) drift gillnet harvest of this stock in Upper Cook Inlet (92,617 of 844,350).

Tier 3 Aggregate Chinook salmon, Section 4.5: The NMFS SAFE Team recommends a buffer of 30%. This recommendation reflects a heightened level of concern given that there are several Chinook salmon stocks listed as "Stocks of Concern" by the State of Alaska, including the Kenai Late Run large Chinook salmon indicator stocks for the ACHIN stock complex. In addition, Chinook salmon are currently at a low state of abundance throughout the eastern North Pacific. However, there were only 46 Chinook salmon harvested during the CI EEZ salmon fishery during 2025. Chinook salmon are considered vulnerable to harvest in gillnets based on their size, but historical harvest estimates suggest they may be infrequently encountered in the CI EEZ relative to all other salmon species. The NMFS SAFE Team is not aware of any available genetic data to support stock of origin for Chinook salmon harvested in the CI EEZ, but historically such harvests were not included in the State's stock assessments for Chinook salmon stocks in Northern Cook Inlet (e.g., Susitna River stocks). There are few available length data for CI EEZ harvests with which the harvested Chinook salmon harvests could be attributed to the Kenai Late Run Large Chinook salmon stock, but, for 2024, available weight data (average delivered weight of 7.9 lbs) suggests that few if any of the Chinook salmon harvested in the CI EEZ were of sufficient size (greater than 75 cm mid-eye to tail fork length, MEFT) to attribute them to the Kenai Late Run Large indicator stock. Chinook salmon harvested in the CI EEZ during 2025 made up approximately 36% of the overall (State + Federal) commercial harvest of Chinook salmon in Upper Cook Inlet (46 of 128).

Tier 3 Aggregate coho salmon, Section 4.6: The NMFS SAFE Team recommends a buffer of 75%. This recommendation reflects the highest level of concern for any salmon stock harvested in the CI EEZ. Coho salmon are vulnerable to harvest based on their size and historical estimates of harvest in the CI EEZ. Coho salmon harvests throughout Upper Cook Inlet were at historically low levels during 2024-2025 and, while weir data was incomplete during 2025, it is unlikely that spawning escapement targets

were achieved for the indicator stocks. The 75% buffer recommendation is viewed by the NMFS SAFE Team as an attempt to ensure that this stock does not approach or enter an overfished condition. Coho salmon harvested in the CI EEZ during 2025 made up approximately 13% of the overall (State + Federal) commercial harvest of coho salmon in Upper Cook Inlet (15,444 of 116,351).

Tier 3 Aggregate chum salmon, Section 4.7: The NMFS SAFE Team recommends a buffer of 20%. This recommendation reflects that chum salmon are vulnerable to harvest in gillnets based on their size combined with State data suggesting there are few chum salmon spawning locations throughout Upper Cook Inlet relative to spawning locations for all other salmon species. Currently, no chum salmon stocks are listed as "Stocks of Concern" by the State of Alaska. Chum salmon harvested in the CI EEZ during 2025 made up 23% of the overall (State + Federal) commercial harvest of chum salmon in Upper Cook Inlet (27,236 of 116,501).

Tier 3 Aggregate pink salmon (even-year), Section 4.8: The NMFS SAFE Team recommends a buffer of 10%. This recommendation reflects the lowest level of concern for any salmon stock harvested in the CI EEZ. The NMFS SAFE Team recommends that the small size of pink salmon makes them less vulnerable to harvest using gillnets than other salmon species. State data indicates that there are many pink salmon streams throughout Upper Cook Inlet and pink salmon are thought to be in a relatively high state of abundance throughout the North Pacific. Pink salmon harvested in the CI EEZ during 2025 made up approximately 15% of the overall (State + Federal) commercial harvest of pink salmon in Upper Cook Inlet (6,080 of 40,358).

2025 Preliminary Postseason Summary of Stock Status in Relation to SDC and Catch relative to Harvest Specifications

Table 2 and Table 3 of this SAFE include the 2025 tiers, maximum fishing mortality threshold (MFMT), minimum stock size threshold (MSST), OFL_{PRE}, buffers, ABC, annual catch limits (ACLs), TACs, and the actual catch that occurred during the 2025 Federal salmon fishery in the CI EEZ.

For the 2025 salmon fishing season in the CI EEZ, preliminary catch data indicate that harvests for all stocks were less than the preseason values for TAC, ABC/ACL, and OFL_{PRE} set in the final 2025 harvest specifications (90 FR 25508). Also, for Tier 1 stocks, since the preliminary postseason estimates of fishing mortality rates in the CI EEZ for the most recent generation (F_{EEZ}) were lower than the MFMT, it is the NMFS SAFE Team recommendation that overfishing did not occur for those stocks during 2025. Similarly, for the Tier 1 stocks, since the preliminary postseason estimates of cumulative escapement for the most recent generation ('Cum. Esc.' in Table 2) were substantially greater than the MSSTs, it is the NMFS SAFE Team recommendation that these stocks are not in or approaching an overfished condition. For Tier 3 stocks, since postseason estimates of cumulative harvests across the most recent generation ('Cum. Harv.' in Table 2) are less than the postseason OFLs, it is the NMFS SAFE Team recommendation that overfishing did not occur during 2025.

Table 2. Preliminary stock status in relation to postseason status determination criteria following the 2025 CI EEZ salmon fishery. For bolded stocks, MFMT and cumulative escapements (Cum. Esc.) were calculated using preliminary 2025 run size and escapement values, derived using estimated 2025 sport and personal use harvest, and will be updated in future CI SAFE reports pending final harvest counts from ADF&G.

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

Table 3. 2025 preseason harvest specification in relation to catch for the 2025 CI EEZ salmon fishery. Stock level sockeye salmon catch was estimated from the total CI EEZ sockeye salmon catch using ADF&G 2025 genetic mixed stock analysis.

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, Kasilof, and Aggregate "Other" sockeye salmon

2026 Stock Assessment and Fishery Evaluation for the Cook Inlet EEZ Salmon Fishery: Overall Assessment Summary

The NMFS SAFE Team assesses that, based on SDC that are compliant with the MSA, National Standard Guidelines, and the approved Salmon FMP, there is available yield of Tier 1 sockeye salmon stocks that could reasonably be harvested in the Cook Inlet EEZ salmon fishery while still allowing harvests in all other (i.e., State) fisheries and achieving spawning escapement goals that have the highest probability of producing maximum sustainable yield (MSY) over the long term. The estimated amount of available yield that could be harvested in the CI EEZ is dependent upon estimates of the total run size and State harvests and applies conservative buffers recommended by the SSC. In addition, the estimated available yield also accounts for the deterministic value of a spawning escapement target ($S_{SMSY\text{-}POINT}$, SSC recommendations).

In order to prevent overfishing the Federal COHO stock complex, the NMFS SAFE Team recommends that for the 2026 fishing season, a 75% precautionary buffer is warranted to reduce the preseason OFL to the resulting ABC. The NMFS SAFE Team recommends research to estimate the total run size of the COHO stock complex in order to estimate harvest rates in the CI EEZ.

Within this 2026 SAFE, the NMFS SAFE Team has prioritized and implemented the vast majority of SSC recommendations following their review of the 2025 assessment, as well as feedback from the 2025 stock assessment modeling workshop, and intends to implement remaining SSC recommendations and make other improvements on the CI EEZ during future years.

2 2025 Recommendations from the SSC

2.1 SSC recommendations for the 2024 harvest specifications.

2.1.1 General:

'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 below:

  'A technical workshop was held in Juneau, AK., May 19-20, 2025 to address assessment related feedback from the SSC during the 2024 and 2025 Cook Inlet Salmon assessment cycles to assist the SAFE report authors to prepare for the 2026 assessment cycle. The workshop eAgenda (https://meetings.npfmc.org/Meeting/Details/3069) contains additional information on presentations given during the workshop and background materials including the 2024 and 2025 SAFE reports and the SSC report from February 2025. The primary assessment author Dr. Lukas DeFilippo provided an overview presentation which focused on the following: 1) Overview of Cook Inlet EEZ Assessment methods and pre/post season status determination criteria for Tier 1 stocks and 2025 SDC summary and Tier 3 stocks and 2025 SDC summary; 2) 2025 SSC recommendations and proposed or in-progress SAFE team responses and 3) Additional considerations for future stock assessment development. The primary SSC recommendations and proposed responses were focused on the proposed Bayesian Tier 1 approach for 2026 preseason forecast and OFL-ABC buffer determination, EEZ sampling and in-season information, Socioeconomic considerations, Default buffers for Tier 3 stocks, addressing missing data and consideration of risk tables. Participants provided feedback and discussion on the proposed approaches. Participants agreed that in lieu of a detailed workshop report, where comments received during the workshop provided guidance on approaches, they would be addressed as needed in the stock assessment produced for 2026.'

'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:** The SAFE Team appreciates the SSC's feedback and revised the risk table to better distinguish uncertainty inherent to Tier 3, stocks from indicators of elevated biological or fishery-related risk. In response, the assessment-related and population dynamics categories were revised to Level 1 (Normal), as uncertainty associated with limited escapement information and historical EEZ harvest estimates is explicitly addressed through the Tier 3 harvest control rule and precautionary buffers, and there is no evidence of anomalous population dynamics. The ecosystem category retained a Level 2 (Increased Concern) score based on multiple consistent adverse indicators related to marine survival conditions documented in recent Gulf of Alaska Ecosystem Status Reports. The fishery performance category was clarified and revised to Level 2 (Increased Concern) to reflect vulnerability of coho salmon to harvest in a mixed-stock drift gillnet fishery, while recognizing that realized EEZ coho harvests in recent years have remained below preseason ABC and postseason OFL values and that there is no evidence of chronic overages or fishery-driven population decline.

'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:** Appendix E of this SAFE contains social and economic considerations that are presented within the environmental assessment (EA) for the CI EEZ harvest specifications. Specifically, Appendix E contains an excerpt from a preliminary draft of Section 4 of the harvest specs EA. In the future, the NMFS SAFE Team may consider the format of existing State publications (e.g., Annual Management Reports and Commercial Fishery Entry Commission reports) to refine the social and economic data presented for the Federal fishery. The NMFS SAFE Team welcomes feedback on the format and content of the information presented in future SAFE reports.

2.1.2 For Tier 1 stocks:

'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.'

- **NMFS SAFE Team response:** The NMFS SAFE team initially responded to this recommendation for improvements to the Bayesian modeling approach, and presented updates at the May 2025 workshop. Analyses were presented evaluating the retrospective performance of the buffer method suggested in the above comment (buffer scaled relative to the cumulative probability of a preseason OFL<0) with respect to frequency of resulting in an overfishing or overfished designation. Feedback was provided by workshop attendees, including a request to produce a buffer that was based on the

probability of exceeding the OFL under a given ABC value rather than the probability that the OFL <0 as recommended in the above comment. It was further requested that, for consistency with existing assessment methodology, we also provide a default buffer based on retrospective forecast accuracy associated with the Bayesian approach (using a longer time-series as recommended above). For 2026, we have followed these recommendations and present autoregressive models for Tier-1 stocks estimated in a Bayesian approach (model structure is the same as the latest auto.arima selected models from 2025), and present buffers based on both (1) retrospective forecast skill (over 25 years as opposed to the 10 year window used in previous assessments), and (2) a specified level of overfishing risk (p(ABC>OFL)) based on the posterior distribution of preseason OFL.

2.1.3 For Tier 3 stocks:

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.

- *'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.

2.2 General Recommendations for all Assessments

This section is intentionally left blank and serves as a placeholder for general recommendations from the SSC or from a Salmon Plan Team, if such a group is formed in the future.

3 Background

This Stock Assessment and Fishery Evaluation (SAFE) report includes assessments of five *Oncorhynchus spp.* (Pacific salmon) harvested in the CI Exclusive Economic Zone (EEZ) Area. The following species and stocks are assessed in this SAFE:

- 1 Chinook salmon, *O. tshawytscha*, stocks (Aggregate Chinook salmon stock complex);
- 3 sockeye salmon, *O. nerka*, stocks (Kenai River Late-Run, Kasilof River, and Aggregate "Other" sockeye salmon stock complex);
- 1 coho salmon, *O. kisutch*, stock (Aggregate coho salmon stock complex);
- 1 chum salmon, *O. keta*, stock (Aggregate chum salmon stock complex); and
- 1 pink salmon, *O. gorbuscha*, stock (Aggregate pink salmon stock complex- divided into even- and odd-year broodlines).

This SAFE report is for the federally managed salmon fishery in the CI EEZ under the Fishery Management Plan for the Salmon Fisheries in the EEZ off Alaska (Salmon FMP), and a Federal requirement (50 CFR part 600). This SAFE provides the best current scientific information available on the biological condition of salmon stocks in CI and builds on previous SAFE documents and the information and analysis in the Environmental Assessment/Regulatory Impact Review (EA/RIR) prepared for amendment 16 and the implementing regulations. The EA/RIR also provides information on the social and economic condition of the sport, subsistence, personal use, and commercial fisheries, the fish processing industries, and communities in CI and is incorporated here by reference.

The SAFE report summarizes the current biological status of fisheries, reference points, and analytical information used for the Federal assessment. Additional information on CI Salmon fisheries is available on the National Marine Fisheries Service web page at: https://www.fisheries.noaa.gov/action/amendment-16-fmp-salmon-fisheries-alaska. Information pertaining to the adjacent Upper Cook Inlet (UCI) commercial and recreational salmon fisheries managed by the State of Alaska is available on the ADF&G website at: https://www.adfg.alaska.gov.

The Salmon FMP defines those salmon stocks with evidence of historical harvests in the CI EEZ and this SAFE recommends classifying these stocks as belonging to one of three "tiers" based on the information available for the stock. Under the terms provided in the Salmon FMP and as further detailed in this SAFE, the tier level for each stock determines the methods used to set Federal status determination criteria (SDC) and harvests specifications. Each year, the SAFE Report will recommend the salmon stocks that belong in each tier for consideration by the Science and Statistical Committee (SSC) of the North Pacific Fishery Management Council (Council).

Currently, there are 28 salmon stocks with spawning escapement goal that are defined by the State for its management of UCI salmon fisheries (McKinley et al. 2024; Munro and Gatt 2025). Broadly, the State has defined salmon stocks throughout Alaska, including UCI, based on the availability and specificity of spawning escapement, harvest, and other data and considerations; and manages for the achievement of long-term sustainable yields for each stock. When sufficient data are available to define stock recruitment characteristics, and it is practical and achievable to do so, the State's management approach also attempts to implement and manage for spawning escapement goals that have the greatest potential to result in maximum sustainable yield in future generations[1,2]. For the State's salmon management, escapement goal committees—consisting of fisheries scientists, biometricians, biologists, and other fisheries professionals from ADF&G—review data, model estimates, and associated escapement goal recommendations for all

[1] https://www.akleg.gov/basis/aac.asp#5.39.222

[2] https://www.akleg.gov/basis/aac.asp#5.39.223

defined stocks, every three years; a schedule that aligns with the State's Board of Fisheries (BOF) cycle for each State management area. In recommending SDC and harvest specifications for salmon stocks in the CI EEZ for management under the scope of the MSA, this SAFE also considered data, analyses, and determinations from other sources. After thorough review by the National Marine Fisheries Service (NMFS) SAFE Team and for the purposes of recommending status determination criteria and harvest specifications, this SAFE adopts (with some aggregation) the stock definitions used by the State for its management in UCI. In its review, the NMFS SAFE Team found the State's stock definitions and the data, estimates, and analyses used to conduct stock assessment analyses:

- to be accurate, thorough, and complete (including documenting when escapement estimates were partial or missing due to various circumstances);
- to be based upon the best scientific information available, including a rigorous scientific stock assessment and review process;
- that, given the stock assessment results, the resulting escapement targets represent ranges that were likely to result in sustainable returns for all stocks, and maximum yield (at the stock level) for the Tier 1 stocks;
- and, as used within equations to propose SDC and harvest specifications for this SAFE, that these escapement targets conform to the intent of applicable Federal National Standards.

The Federal stock definitions are based on several considerations, including the availability and specificity of preseason forecasts (DeCino 2022; Erickson and Lipka 2023; Gatt and Erickson 2025; Gatt and Erickson 2024); the practical limitations—including current genetics limitations—of monitoring and accounting for the harvest of specific stocks of the same species in a mixed-stock fishery; the relative quality of the historical harvest records estimated to have occurred in the CI EEZ during previous years; and other considerations. Assumptions of the analyses within this SAFE include: that Federal stock definitions align with the State's definitions for Kenai River Late Run sockeye salmon and Kasilof River sockeye salmon; that the Federal stock definitions are aggregations of the State stock definitions for Aggregate "Other" sockeye salmon, Aggregate Chinook salmon, and Aggregate coho salmon, with the Federal definitions including the harvest of salmon bound for many minor tributaries and drainages, for which the State may not have established escapement goals and does not monitor escapements. There is a single State chum salmon escapement goal in UCI and no State escapement goals for pink salmon; given that there are known to be many streams in UCI that contain chum and pink salmon (Giefer 2024), the Federal definitions for chum and pink salmon stocks also represent aggregations of many freshwater drainages and tributaries spread throughout the area. Annually, NMFS will review data and analyses available for each stock and, as determined by NMFS or as recommended by the SSC, propose new stocks, tier determinations, SDC, and harvest specifications for the SSC to consider.

The Salmon FMP and this SAFE describes the criteria and considerations used to propose assignments of the Federal salmon stocks to "tier" levels that determine the methods used to set SDC and harvest specifications. Some of the methods described to set these values propose the use of ADF&G's preseason forecasts for CI salmon stocks. However, due to the required time for ADF&G to collect and process samples for age composition and genetic stock composition estimates used to construct their preseason forecasts, at this time it is necessary for the SSC to recommend SDC and harvest specifications presented within this SAFE that rely on preliminary estimates and other forecast approaches in the absence of ADF&G's forecasts.

Based upon the assessment frequency described in Table 4, NMFS provides recommendations on the OFL, acceptable biological catch (ABC), annual catch limits (ACL), and stock status specifications for review by the SSC in February. Additional information on the OFL and ABC determination process are contained in this report. The justification and options associated with each tier are intended to provide the SSC with the best scientific information available to inform their recommendations of appropriate tier placement and the methods used for the values for OFL and ABC.

Table 4. The UCI EEZ salmon stocks within this SAFE and review dates. Included are the current schedule for review by NMFS and SSC and the assessment frequency. The schedule of future review dates will be adjusted as the Council's schedule is finalized. Recommendations for tier determination can be found within the Stock Status Summary for each stock.

Stock	***NMFS review and recommendations to SSC***	***SSC review and recommendations to Council***	***Assessment frequency***	***Year of the next Assessment****
Kenai River Late Run Sockeye Salmon (KNSOCK)	January	February	Annual	2027
Kasilof River Sockeye Salmon (KASOCK)	January	February	Annual	2027
Aggregate "Other" Sockeye Salmon (AOSOCK)	January	February	Annual	2027
Aggregate Chinook Salmon (ACHIN)	January	February	Annual	2027
Aggregate Coho Salmon (COHO)	January	February	Annual	2027
Aggregate Chum Salmon (CHUM)	January	February	Annual	2027
Aggregate Pink Salmon (PINK)	January	February	Annual	2027

*The 2026 Preliminary SAFE report will be provided to the SSC and Council at the 2027 February Council meeting.

3.1 Definitions for Status Determination Criteria and Harvest Specifications

ABC Control Rule is the specified approach in the three-tier system for setting the maximum permissible ABC for each stock as a function of the scientific uncertainty in the estimate of the preseason OFL (OFL_{PRE}) and any other specified scientific uncertainty.

Acceptable biological catch (ABC) is a level of catch of a stock that accounts for the scientific uncertainty in the estimate of the OFL_{PRE} and any other specified scientific uncertainty. The preseason ABC is set at or below the OFL and, similar to the OFL, represents potential yield in the EEZ for the current year.

Annual catch limit (ACL) is the level of annual catch of a stock that serves as the basis for invoking accountability measures. For all federally managed salmon stocks in the CI EEZ, the ACL will be set at or below the ABC.

Escapement goal (G) is the recommended spawning escapement goal for each stock of salmon.

F_{OFL} control rule is the method for making an overfishing determination (Tier 1 and 2 stocks). Should stock-specific actual harvest rate (F_{EEZ}) in the CI EEZ exceed the MFMT in any year, it will be determined that a stock is subject to overfishing (Figure 1).

F_{EEZ} is the realized fishing mortality rate in the EEZ for Tier 1 and 2 stocks, expressed as an exploitation rate, assessed over one generation [(sum of actual harvest for a generation)/ (sum of total run size for a generation)]. Preseason estimates of F_{EEZ} are based on actual harvests for the first T-1 years of the generation time plus maximum potential EEZ harvests for the coming fishing season; final, postseason estimates of F_{EEZ} are based on actual harvests for all years of the most recent generation.

Generation time (T) is the average total number of years in the life cycle of a salmon (from fertilized eggs until post-spawning morality) and is used in several equations to set SDC. The following average generation times are used in the SDC equations: sockeye salmon (5 yrs.), Chinook salmon (6 yrs.), coho salmon (4 yrs.), chum salmon (4 yrs.), pink salmon (2 yrs.).

Maximum Fishing Mortality Threshold (MFMT) is the maximum potential fishing mortality rate in the EEZ above which overfishing occurs for Tier 1 and 2 stocks, expressed as an exploitation rate, assessed over one generation [(sum of maximum potential harvest for a generation)/(sum of total run size for a generation)]. MFMT is the residual yield available to be harvested in the CI EEZ after accounting for non-EEZ harvests and the escapement target). MFMT is compared with the actual fishing mortality rate (F_{EEZ}) to assess whether overfishing has occurred (postseason estimates) or is approaching overfishing (preseason estimates).

Minimum stock size threshold (MSST) is defined for stocks with escapement goals as one half of the sum of the stock's spawning escapement target summed across a generation. MSST is compared with cumulative actual escapement summed across the most recent generation to assess whether a stock has been overfished (postseason estimates) or is approaching an overfished condition (preseason estimates). See "Overfished" definition.

OFL is the overfishing limit and the preseason basis for establishing ABC. For Tier 1 and 2 stocks, the preseason OFL (OFL_{PRE}) is based on the preseason total run size forecast and projected harvest in State waters (F_{STATE}) and is defined as the maximum stock-specific EEZ harvest (number of fish) that could occur during the coming fishing season while still achieving the spawning escapement target. For Tier 1 and 2 stocks, the OFL_{PRE} is not used to assess overfishing postseason (see "Overfishing" definition). For Tier 3 stocks, OFL_{PRE} is the basis for setting the preseason ABC while the OFL is the postseason basis for the assessment of overfishing. For Tier 3 stocks, the NMFS SAFE Team recommends that the OFL is the largest cumulative CI EEZ harvest (number of fish; rolling sum) across a generation in the timeseries under consideration and the OFL_{PRE} is the average harvest for the same years used to calculate the OFL. Overfished status is determined postseason by comparing annual spawning estimates

to the established MSST. For stocks where MSST (or proxies) are defined, should a stock's realized spawning escapement(s) summed across a generation fall below the MSST in any year, the stock would be declared overfished. Preseason projections of MSST are used to assess if a stock is approaching an overfished condition. For stocks or stock complexes without escapement goals or reliable estimates of escapement, it is not feasible to establish or assess the overfished status.

Overfishing is defined for Tiers 1 and 2 stocks as occurring when the final, postseason estimate of the actual fishing mortality rate (F_{EEZ}) exceeds the maximum fishing mortality rate (MFMT), with both F_{EEZ} and MFMT calculated across the most recent generation of the species being assessed (e.g., for sockeye salmon, the most recently completed five fishing seasons). For tier 3 salmon stocks, overfishing is defined as occurring when the sum of the stock's postseason EEZ harvests across a generation exceeds the Tier 3 OFL for that stock (See the *OFL* definition above), also calculated across a generation. Preseason projections are used to assess whether a stock is approaching a harvest rate (Tiers 1-2) or harvest level (number of fish; Tier 3) for which overfishing may occur.

Total allowable catch (TAC) is the annual catch target for the directed fishery for a stock, set to prevent exceeding the ACL(s) for a stock or stocks in accordance with the Salmon FMP.

3.2 Status Determination Criteria

The Salmon FMP defines the following SDC and the methods by which these are set.

SDC for salmon stocks are calculated using a three-tier system that accommodates varying levels of uncertainty and information. The three-tier system incorporates new scientific information and provides a mechanism to continually improve the SDC as new information becomes available. Under the three-tier system, overfishing and overfished criteria and ABC levels for stocks are annually formulated. As described below, the ACL for each stock is set at or below the ABC. Each salmon stock is annually assessed to determine its status and whether (1) the catch has exceeded the ABC/ACL, (2) overfishing is occurring or the rate or level of fishing mortality for the stock is approaching overfishing, and (3) the stock is overfished, or the stock is approaching an overfished condition.

For salmon stocks, the OFL_{PRE} provides a reference for managers to monitor overfishing in-season, while overfishing is officially assessed postseason in order to account for realized escapement and harvest in all fisheries. The OFL_{PRE} is derived through the annual assessment process, under the framework of the tier system. For Tiers 1 and 2, the OFL_{PRE} equals the stock-specific amount of maximum potential harvest available in the EEZ (number of fish) after accounting for the spawning escapement goal and likely harvests outside of the EEZ. For Tier 3 stocks, the OFL_{PRE} equals the largest average EEZ catch across a generation in the timeseries under consideration, unless an alternative catch value is recommended by the SSC on the basis of the best scientific information available. For all tiers, overfishing is officially assessed postseason when final harvest and escapement data are available to calculate stock level harvest, F_{EEZ}, and MFMT. For Tier 1, overfishing is assessed using F_{EEZ}, and MFMT for each stock, and for Tier 3 overfishing is assessed using the OFL (largest cumulative harvest for a stock across a generation time in the timeseries).

Overfished status for each stock is determined using the spawning escapement estimate, available following the end of each fishing year, and compares those with MSST. For stocks considered to have reliable estimates of escapements, MSST is defined. If the number of spawners drops below the MSST then the stock is considered to be overfished. For stocks without reliable estimates of escapement, MSST is not defined and overfished status cannot be assessed.

If overfishing has occurred or the stock is overfished, section 304(e)(3)(A) of the MSA requires the Council to immediately end overfishing and rebuild affected stocks.

The MSA requires that FMPs include accountability measures to prevent ACLs from being exceeded. TACs are the principal accountability measures to prevent ACLs from being exceeded for the management of the salmon fisheries in the CI EEZ. These are described in the Salmon FMP and below.

Annually, the Council, SSC, and NMFS will review (1) the stock assessment documents, (2) the OFLs, ABCs, ACLs, and TACs (3) NMFS's determination of whether overfishing occurred in the previous salmon fishing year, (4) NMFS's determination of whether any stocks are overfished and (5) NMFS's determination of whether catch exceeded any ACL or TAC in the previous salmon fishing year.

3.3 Three-Tier System

As described in the Salmon FMP and this SAFE, SDC, OFL_{PRE},and ABC, are set prior to each fishing season using the three-tier system, detailed in Table 5. A stock is assigned to one of the three tiers based on the availability of information for that stock and model selection choices are made. Tier assignments and model choices are recommended by the NMFS SAFE Team to the SSC. The SSC recommends tier assignments, the stock assessment and model structure, including whether the best scientific information available is used for calculating the proposed OFL_{PRE} and ABC/ACLs based on the three-tier system, the buffers used to reduce OFL_{PRE} to proposed values of ABC and, if applicable, buffers considered for proposed values of ACL.

The NMFS SAFE Team prepares the stock assessment and calculates the proposed preseason OFLs (OFL_{PRE}). For Tier 1 and 2 stocks, OFL_{PRE} is calculated from the preseason total run size forecast and projected harvest in State waters. For Tier 3 stocks, the OFL_{PRE} is calculated from estimated historical harvests in the EEZ. The ABCs are set by applying a buffer to the OFL_{PRE} to account for scientific uncertainty.

Stock assessment documents shall:

- specify how the OFL_{PRE} is calculated for each stock; and
- specify the factors influencing scientific uncertainty that are accounted for in calculation of the preseason ABC.

The NMFS SAFE Team will annually review stock assessment documents, the most recent abundance estimates, the proposed OFL_{PRE}, ABCs, ACLs, and compile the SAFE. The NMFS SAFE Team then makes recommendations to the SSC on the OFL_{PRE}, ABCs, ACLs, and any other issues related to the salmon stocks.

The SSC annually reviews the SAFE report, including the stock assessment documents, recommendations from the NMFS SAFE Team, and the methods to address scientific uncertainty. In reviewing the SAFE, NMFS and the SSC shall evaluate and make recommendations, as necessary, on:

- the assumptions made for stock assessment models and estimation of OFL_{PRE}; and,
- the methods to appropriately quantify scientific uncertainty in the OFL_{PRE} when setting the ABC and ACL.

The SSC will then set the final OFL_{PRE}, ABCs, and ACLs for the upcoming salmon fishing year.

3.3.1 Accountability Measures

Section 4.2.8 of the Salmon FMP describes accountability measures and provides preseason and postseason measures that could be implemented. If total harvest is determined to be above the postseason ACL, NMFS will report on the harvest overages in the SAFE report and make any recommendations on accountability measures to the SSC. If it is necessary to improve the science used in the assessment or methods used to manage TAC in the EEZ, such changes can be considered during the SSC and Council review process. Repeated overages of ACL will trigger NMFS to evaluate and address any systemic bias for the overages. Possible accountability measures could include increasing the buffer of the OFL_{PRE} (to result in a lower ABC and resulting ACL and TAC) to account for scientific or management uncertainty. If implementation error is important in causing the overages, a review and revision of in-season management procedures may also be warranted.

3.3.2 Tier 1

Tier 1 is applicable to salmon stocks that have reliable estimates of annual spawning escapements and stock-specific harvests. Stocks assigned to Tier 1 also have data that is of high quality and complete, with reliable estimates of the spawners and associated brood-year recruits to inform spawning escapement goals; age estimates for harvest and escapement components; and, preseason forecasts of total run size.

The Salmon FMP (summarized in Appendix C), Table 5, and the text below provide description and equations for the calculations of MSST, MFMT, F_{EEZ}, F_{OFL}, OFL, OFL_{PRE}, ABC, and ACL for Tier 1 stocks.

For Tier 1, whether a stock is approaching or in an overfished state is assessed by comparing realized spawning escapements with the MSST. The MSST reference point is calculated as half of the escapement target multiplied by the generation time. If a stock's total EEZ harvest summed across a generation time is less than the MSST, the stock will be determined to be overfished.

For Tier 1 stocks, overfishing is assessed by comparing the stock-specific fishing mortality rate in the EEZ (F_{EEZ}) with MFMT. The MFMT reference point is established based on stock-specific potential yield available in the CI EEZ after accounting for required spawning escapement and harvest of salmon from that stock in non-EEZ (State managed) fisheries. For this tier, overfishing is assessed with postseason estimates and deemed to occur if F_{EEZ} exceeds MFMT. As described in the Salmon FMP, SDC are established based on estimates of harvest and escapement across the most recent generation. For example, for sockeye salmon, the generation time is the most recent 5 years.

Preseason harvest estimates ($\hat{F}_{EEZ}$ and $\hat{F}_{STATE}$): The NMFS SAFE Team recommends to the SSC that the preseason estimate of likely harvests in State waters ($\hat{F}_{STATE}$) in the coming fishing season be based on the posterior predictive distribution of a Beta distribution conditioned on historical state harvest rates. The potential harvest rate in the EEZ (F_{EEZ}) in the upcoming season can then be estimated by subtracting expected State harvest from the forecasted run size (minus the escapement target) and dividing by the total forecasted run size. **OFL_{PRE}:** The preseason OFL (OFL_{PRE}) in the EEZ is the estimated maximum harvest that could occur in the EEZ during a single season while still meeting the spawning escapement target and allowing for harvests in other fisheries. The OFL_{PRE} is calculated from the preseason total run size forecast and accounts for likely harvests in other fisheries (*i.e.* those occurring in State waters) and the escapement target. OFL_{PRE} = (forecasted run size) - (escapement target) - (non-EEZ harvest estimate).

ABC_{PRE}: Similar to the OFL_{PRE}, the preseason ABC represents predicted potential yield in the EEZ for the coming fishing season after accounting for scientific uncertainty. The sources of uncertainty in the current model include the positive errors (over-forecasting) in one-year-ahead forecasts of run size and non-EEZ harvests. Additionally, we present an alternative approach for considering uncertainty based on the probability that the true OFL is below the forecasted estimate of OFL_{PRE} using the estimated posterior distribution of predicted preseason yield

Scientific buffers: In reducing OFL_{PRE} for the purpose of setting ABC, the buffer acknowledges the uncertainty in preseason values for SDC. In the case of Tier 1 stocks, the buffer takes into consideration the retrospective positive error (over-forecasting) in OFL_{PRE} (based on preseason run size forecasts and predicted State harvests) relative to realized postseason values. Specifically, the median symmetric accuracy (Morley et al. 2018) is calculated for preseason estimates of OFL/potential yield relative to postseason (realized) values over a 25-year window. The median symmetric accuracy is interpretable as a measure of percent error in preseason estimates relative to postseason values. Thus, in setting preseason management targets, OFL_{PRE} is reduced by the percentage indicated by the median symmetric accuracy to result in the ABC and ACL. Additionally, we present an alternative approach for the interpretation, and possible specification, of buffers based on the probability of exceeding the OFL under a given ABC value using the estimated posterior distribution of OFL_{PRE}.

The NMFS SAFE Team has presented the following options to calculate SDC and harvest specifications for Tier 1 stocks.

Tier 1, Option 1 (**T1**): The T1 approach assumes the availability of the ADF&G sibling model-based preseason total run size forecasts to be used in this SAFE with SDC and harvest specifications as described in the Salmon FMP and this SAFE. However, as ADF&G's preseason salmon forecasts were not available in time to be used in this SAFE, this option will not be considered for this SAFE.

Tier 1, Option 2 (**Bayesian AR**): This approach assumes that an ADF&G preseason total run size forecast will not be available in time to set SDC and harvest specifications. Thus, total run size for the coming fishing season is based on lag-1 autoregressive (AR-1) models fitted to available adult return data. AR forecasts are fit using *RStan* (Stan Development Team 2024), a Bayesian probabilistic programming language. Preseason forecasted state harvest (F_{STATE}) is estimated via the posterior predictive distribution of a Beta distribution conditioned on historical state harvest rates. Buffers are determined based on the median symmetric accuracy of OFL_{PRE} estimates relative to postseason values over a 25-year retrospective period. Additionally, a range of buffers is presented based on the posterior probability distribution of OFL_{PRE}. The benefit of this approach is that uncertainty associated with the preseason run size and State harvest forecasts are directly incorporated when calculating the OFL by using the posterior distributions of probable run sizes ($\hat{R}_y$) and state harvest rates ($\hat{F}_{state,y}$) in year y, where:

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

This process results in a distribution of OFL values with associated relative probabilities of occurring given the uncertainty associated with the aforementioned forecasts. We present a range of buffers that would result in ABC values that have a 1-49% chance of exceeding the true OFL based on the estimated posterior distribution of OFL_{PRE}. We present these values (1) as a tool to provide context and interpretation of the buffers generated based on retrospective forecast skill (*i.e.*, this allows one to determine the approximate probability of exceeding the OFL under the buffer value/ABC generated using the retrospective approach that has been used in previous assessments, and is recommended for 2026), and (2) to give the SSC and NPFMC the option to discuss setting buffers based on an acceptable risk tolerance.

3.3.3 Tier 2

Tier 2 is for salmon stocks managed as a complex, with specific tributaries or drainages as indicator stocks and stock-specific estimates of harvests. Indicator stocks are stocks for which sufficient data exists to allow for the development of measurable and objective SDC and can be used as a proxy to manage and evaluate data poor stocks within the stock complex.

For Tier 2 stock complexes, F_{EEZ}, MFMT, F_{OFL}, and MSST for indicator stocks will be set using the same equations as Tier 1 stocks with overfishing and overfished determinations also assessed in the same way as Tier 1 stocks.

For Tier 2 stocks, the OFL_{PRE}, ABC, ACL, and the buffer to reduce OFL_{PRE} and potential yield will be set for a stock complex in the same way as Tier 1 stocks.

ACL < or = ABC.

At present, the NMFS SAFE Team does not recommend designating any CI EEZ salmon stock as Tier 2. An additional consideration for setting SDC and harvest specifications for stock complexes is that, while there is assumed to be a relatively thorough accounting of all harvests for the stock, there may be many tributaries for which spawning escapements are not assessed or are assessed with methods for which the total numbers of spawners cannot be estimated with high precision. As such, the escapement goals and annual spawning escapement estimates for stock complexes may represent an index of spawners that is an unknown portion of the overall escapements. Because of this, compared to Tier 1 stocks, the calculated MFMT value for Tier 2 stocks may be inflated relative to F_{EEZ} and an overfishing

determination may be less likely to occur (vs. a Tier 1 stock) as a result, meaning, an overfishing designation may not be triggered for Tier 2 stock complexes, even if such a designation were warranted.

Explained in more detail at the equation level, the numerator of MFMT represents maximum potential yield after subtracting non-EEZ harvests and the lower bound of the escapement goal. However, since the escapement goals for Tier 2 stocks are only *indices* of abundance, and not *actual* numbers of fish, subtracting this index value (and non-EEZ harvests) from the total run size would result in potential yield that would necessarily be larger than the actual yield available. Therefore, applying Tier 1 methods for SDC and harvest specifications to Tier 2 stock complexes may be less precautionary with respect to overfishing than using these methods to assess Tier 1 stocks.

An alternative consideration for stock complexes, is that, if there is incomplete monitoring of indicator stocks, then an overfishing or overfished determination could be made when it is not warranted for the larger stock complex.

As was recommended previously, for the 2026 assessment, the NMFS SAFE Team again recommends that, because the estimates of overall total escapement and associated total run size estimates are not "reliable," these stocks be classified as Tier 3 for establishing SDC and harvest specifications until sufficient information is available to form consensus on the tradeoffs associated with a Tier 2 vs. Tier 3 determination.

Note that, compared with Tiers 1 and 2, the method for establishing ABC and ACL for Tier 3 stocks (below) also provides a larger range of buffers for the SSC to consider.

Recommendation: The NMFS SAFE Team recommends additional research to refine estimates of total run sizes and associated components (escapements and mortality) for CI salmon stocks; particularly for stocks where such estimates do not currently exist. These estimates will facilitate improved management.

3.3.4 Tier 3

Tier 3 is for salmon stocks without reliable estimates of escapement. Stocks in this tier may have at least one tributary monitored to assess spawning escapements, but, relative to Tier 1 and 2 stocks, any escapement goals or associated inseason assessment of escapement represent a coarse and/or unknown index of abundance rather than a true number of fish. For stocks in this tier, because there are no reliable estimates of the total number of spawners, total run size, F_{EEZ}, and MFMT for Tier 3 stocks cannot be verifiably estimable and the F_{OFL} control rule is not applicable. As described in the Salmon FMP, historical harvest data is used to set the OFL and OFL_{PRE} for this tier. To assess an overfished determination, MSST is only estimable if the stock or stock complex has at least one tributary with a spawning escapement goal, in which case an overfished determination would be the same as for Tier 1 stocks.

OFL: The OFL is the largest cumulative EEZ catch of the stock in the timeseries under consideration across a generation of the species (*T* years), unless an alternative catch value is recommended by the SSC on the basis of the best scientific information available. This definition of overfishing assumes that the maximum catch in the historical record is analogous to the Tier 1 definition of MSY for the stock. As such, any harvest greater than the maximum historical catch represents harvest in excess of maximum potential yield in the EEZ (harvest in excess of that necessary to achieve adequate spawning escapement and harvests in other fisheries). Similar to the Tier 1 definition, if harvest of a Tier 3 stock was in excess of maximum potential yield for an entire generation, then the stock would be subject to overfishing.

OFL_{PRE}: The OFL_{PRE} is the largest average harvest from the stock that occurred in the EEZ across a generation in the timeseries under consideration.

ABC: The preseason ABC is the OFL_{PRE} reduced by a buffer to account for uncertainty. ABC would be set each year during the annual stock status determination process based on the best available information.

Scientific buffer: Stocks assigned a Tier 3 designation lack sufficient data for a scientifically-informed buffer such as that used for Tier 1 stocks. As such, a range of naive buffers from 0.1 to 0.9 will be applied and the resulting management quantities under each buffer value will be presented and compared for SSC consideration. The range of buffers available for Tier 3 stocks provides additional flexibility for the SSC to consider, with recommendations by the NMFS SAFE Team based on comparisons of the buffered ABC values with past EEZ harvests and other stock attributes relative to status quo harvests under State management. For stocks that are considered to be a management, yield, or conservation concern by the SSC, a more conservative buffer could be recommended in order to reduce OFL_{PRE} by a larger amount.

ACL: The preseason ACL is equal to ABC for Tier 3 stocks. For Tier 3 stocks, because the OFL is based solely on historical harvests, there is limited data on which to base uncertainty estimates for a buffer. The NMFS SAFE Team recommends that no distinction be made between ABC and ACL.

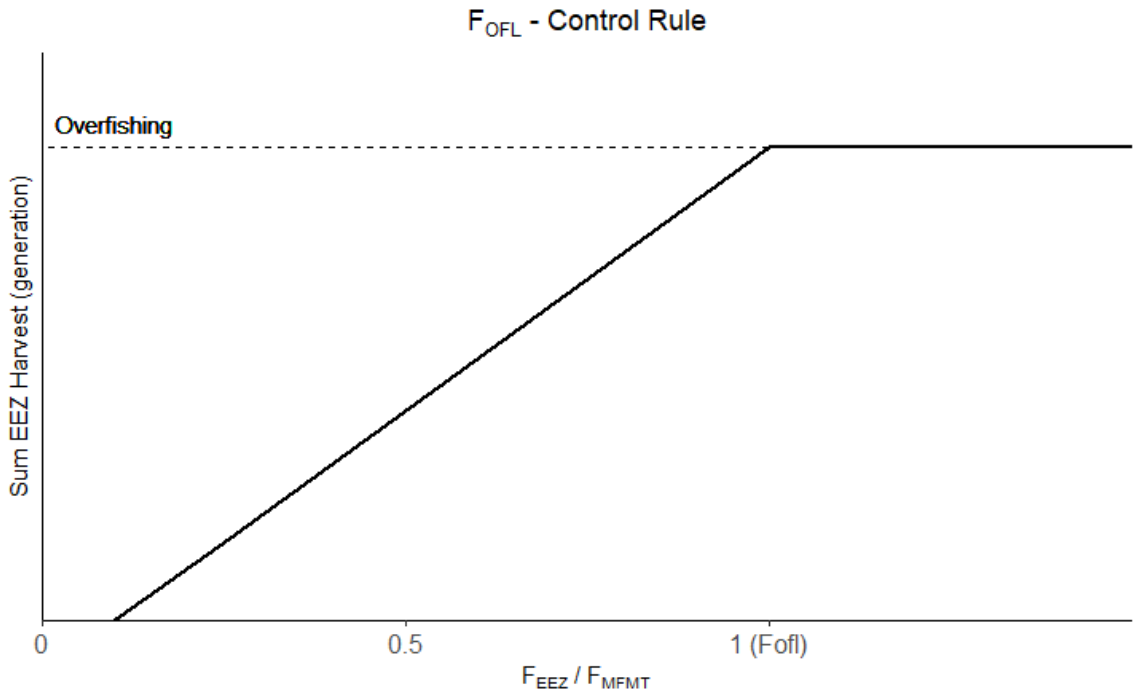

Figure 1. An illustration of the F_{OFL} control rule for Tier 1 and 2 salmon stocks. SDC will allow for acceptable biological catch of a stock in the EEZ until the actual fishing mortality rate (F_{EEZ}) reaches parity with the maximum fishing mortality threshold (MFMT), the largest amount of EEZ harvest that the stock can sustain over a generation while still achieving the spawning escapement target. At parity with MFMT, $F_{EEZ} = F_{OFL}$. Overfishing occurs when the actual fishing mortality rate exceeds the maximum fishing mortality rate (above a F_{EEZ}:F_{MFMT} ratio of 1), the spawning escapement goal is not being achieved across a generation. F_{EEZ} and MFMT are normalized to total run size and assessed over a generation using postseason (final) estimate

Table 5. Three-Tier System for setting OFLs, ABCs, and ACLs for salmon stocks. The tiers are listed in descending order of information availability.

Tier	Information Available	F_{OFL}	ABC control rule*	Buffers considered	ABC
1	**Escapement goal** Spawning escapement Stock-specific harvests across fisheries Total run size estimates	F_{OFL}: harvest rate such that F_{EEZ} = MFMT; where: $F_{EEZ,t} = \frac{\sum_{i=t-T+1}^{t} C_{EEZ,i}}{\sum_{i=t-T+1}^{t} R_i}$ $MFMT_t = \frac{\sum_{i=t-T+1}^{t} Y_{EEZ,i}}{\sum_{i=t-T+1}^{t} R_i}$;	$ABC \leq OFL_{PRE}$	Median Symmetric Accuracy buffer based on positive errors (over-forecasting of OFL_{PRE}) and based on a given probability of the ABC being below the true OFL based on the posterior distribution of OFL_{PRE}	$ABC_t = [(\widehat{R}_t - \hat{C}_{state,t} - G_t) * (1 - B_t)$
2	**Escapement goal for indicator stock(s)** Spawning escapements for indictor stock(s) Stock-specific harvests across fisheries Total run size estimates	F_{OFL}: harvest rate such that F_{EEZ} = MFMT; where: $F_{EEZ,t} = \frac{\sum_{i=t-T+1}^{t} C_{EEZ,i}}{\sum_{i=t-T+1}^{t} R_i}$ $MFMT_t = \frac{\sum_{i=t-T+1}^{t} Y_{EEZ,i}}{\sum_{i=t-T+1}^{t} R_i}$;	$ABC \leq OFL_{PRE}$	Median Symmetric Accuracy buffer based on positive errors (over-forecasting) of OFL_{PRE}	$ABC_t = [(\widehat{R}_t - \hat{C}_{state,t} - G_t) * (1 - B_t)$
3	**Harvests** Any escapement goals	Overfishing assessed with the OFL	$ABC \leq OFL_{PRE}$	(1) range of 0.1 0.9 considered (2) Additional buffer considerations for "weak" stocks	$ABC_t = OFL_{PRE,t} * (1 - B_t)$

The following descriptions are associated with the equations provided in Table 5:

- F_{EEZ}
  - T = generation time expressed as years
  - t = run year
  - R_t = annual run size
  - C_{EEZ} = annual EEZ catch of stock in year t
- MFMT
  - $Y_{EEZ,t} = max(0, R_t - G_t - C_{state,t})$
    - $Y_{EEZ,i}$ = potential yield in the EEZ
  - R_t = annual run size
  - $C_{state,t}$ = realized harvest in State waters in year t
  - G = escapement target for stock
- ABC
  - $\hat{R}_t$ = total run size
  - $\hat{C}_{state,t}$ = harvest in State waters
  - G = escapement target for stock
  - *Buffer (B)* = Tier 1&2: median symmetric accuracy/probabilistic approach, Tier 3: range of 0.1-0.9
- OFL
  - $OFL_{PRE} = \hat{R}_t - \hat{C}_{state,t} - G_t$ (Tier 1)
  - $\hat{R}_t$ = preseason total run size forecast
  - $\hat{C}_{state,t}$ = State harvest forecast
  - G_t = escapement target for stock

4 2025 Stock Assessments

4.1 Data and assessments for all stocks

Existing estimates of escapement and stock assessments used for this SAFE originate from the State of Alaska with data available through its website (www.adfg.alaska.gov) and associated publications (https://www.adfg.alaska.gov/sf/publications/); additional details are provided below in the assessments for each stock. 2024-2025 salmon harvests in the EEZ were obtained from eLandings/EEZ landed fish tickets. The most recent stock assessments and escapement goal recommendations for Kenai River late-run sockeye salmon (Hasbrouck et al. 2022), Kenai Late Run Large Chinook salmon (Fleischman and Reimer 2017), Susitna River Chinook salmon (Reimer and DeCovich 2020), and assessments for other stocks (Mckinley et al. 2024) can be found through the ADF&G publications page (ADF&G 2026a) and the State's Board of Fisheries website (ADF&G 2026b). Additional data, estimates, and other relevant information can be found within, or referenced in, annual management reports (Lipka and Stumpf 2025a; Lipka and Stumpf 2024), season summaries (Lipka and Stumpf 2025b; Lipka and Stumpf 2024), preseason forecasts (Gatt and Erickson 2025; Gatt and Erickson 2024), the Sport Fish harvest survey website (ADF&G 2026c), the statewide escapement goal reports (Munro and Gatt 2025; Munro 2023), the CI Area commercial salmon fishing regulations (ADF&G 2026d), and other publications.

Future SAFEs may incorporate some or all of the ADF&G's UCI preseason salmon forecasts; however, whether this occurs is largely determined by the extent to which such forecasts are available in time to be reviewed by NMFS and the SSC.

Methods used by the NMFS SAFE Team to estimate historical harvests within the CI EEZ are described in the EA/RIR prepared for amendment 16 and the implementing regulations (NOAA Fisheries 2024). Of note is that, while there is now a Federal salmon fishery in the CI EEZ, these historical estimates continue to be used in SDC for the stocks. In summary, these estimates were made by considering the geographical overlap between the Federal CI EEZ and the State statistical areas where salmon landings were reported by fishers to have occurred, combined with professional judgment of managers regarding the distribution of the drift fleet. Because there was not a wholly-Federal salmon fishery confined to the CI EEZ prior to 2024, the accuracy of the historical EEZ harvest proportion estimates are unknown and treated deterministically in this SAFE. At the discretion of the SSC, future analyses could incorporate some measure of agreed-upon uncertainty into the historical EEZ estimates from stock composition studies (Barclay 2020, 2024; Barclay and Chenowith 2021; Barclay et al. 2019) and other sources.

The analyses and data estimates used for the stock status summaries in this SAFE, including versions of model updates, are available through the following GitHub repository: https://github.com/afsc-assessments/Cook-Inlet-SAFE.

The NMFS SAFE Team welcomes feedback on the analyses, either through GitHub or by contacting the NMFS SAFE Team authors directly via e-mail or phone.

4.2 Kenai River Late Run Sockeye Salmon

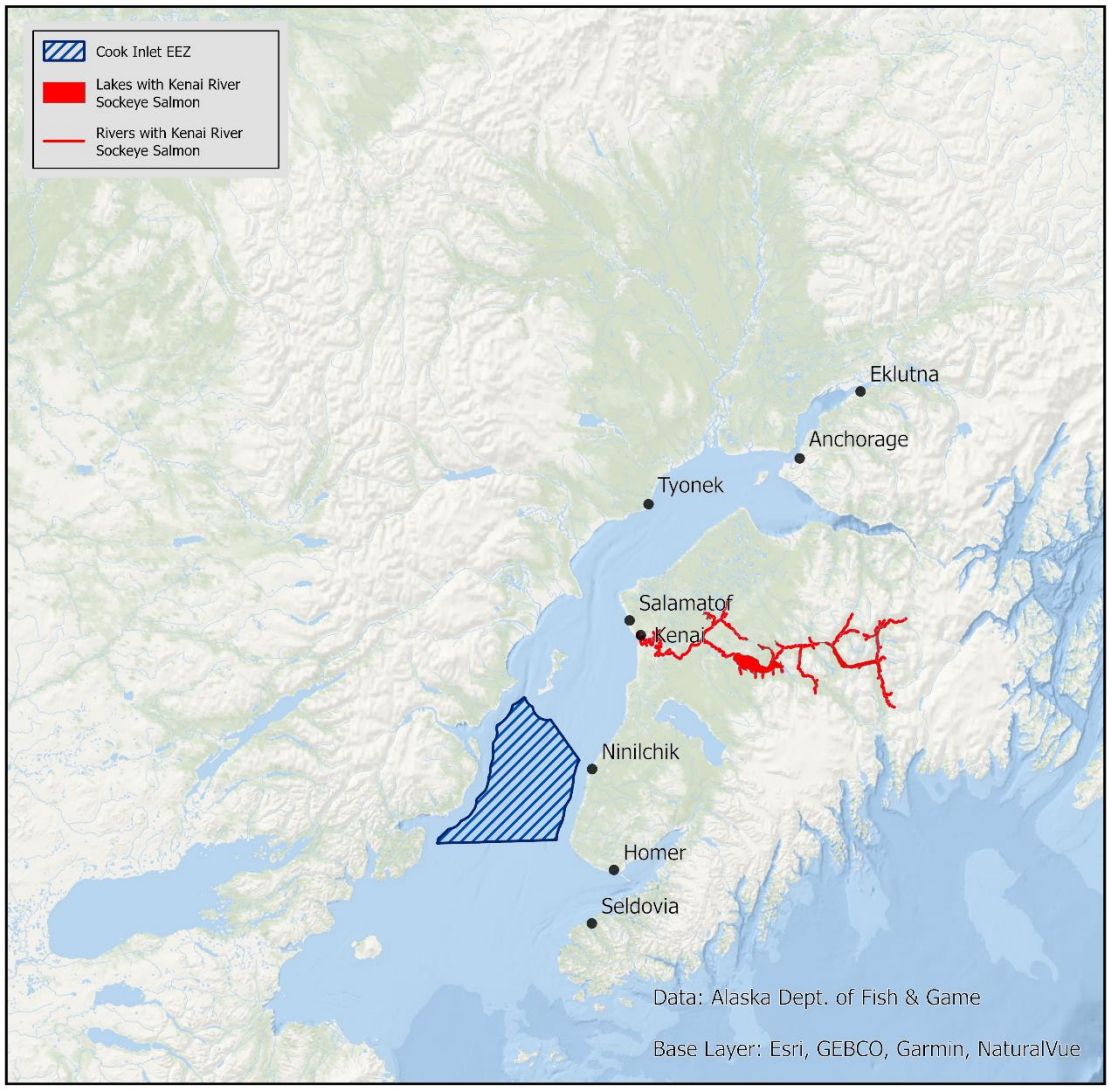

Figure 2. Map showing the CI EEZ and the Kenai River watershed located in Upper Cook Inlet.

Definition: As described in the Salmon FMP, the Kenai River Late Run sockeye salmon (KNSOCK) stock is defined as the Kenai Late Run sockeye salmon harvest in the CI EEZ. The Federal definition for this stock also includes spawning escapements and associated spawning escapement targets that are necessary to produce sustainable yields in future years.

4.2.1 Retrospective assessment of fishery information relative to status determination criteria, including overfishing and overfished designations

The 2025 estimated total harvests, spawning escapements, and total run size of the KNSOCK are still preliminary (Table 6 and Table 7). Based on ADF&G's genetic mixed stock analysis, approximately 68% of the sockeye salmon harvested in the overall drift gillnet fishery were from the KNSOCK stock. Using this mixed stock analysis, during 2025, an estimated 262K fish from this stock were harvested in the CI EEZ; which was less than the 2025 preseason OFL (515K), ABC/ACL (360K), and the KNSOCK proportion of TAC (360K; Table 3).

Because the estimated KNSOCK harvest rate in the EEZ over the most recent generation (F_{EEZ}) of 0.065 was substantially lower than the estimated MFMT of 0.263 and the cumulative escapement (10.50M) over the most recent generation was larger than MSST (3.03M) (Table 2), it is the recommendation of the NMFS SAFE Team that overfishing did not occur during 2025 and that the stock is not overfished.

4.2.2 Data and assessment methodology

4.2.2.1 Data input changes for 2026

The 2026 SAFE includes catch data from the 2024-2025 federally managed CI EEZ fishery. These data represent the first and second years during which the catch from the EEZ was known, as opposed to being estimated during previous years in the timeseries (Table 7).

Additionally, ADF&G provided the NMFS SAFE Team with estimates of the 2025 genetic mixed stock analysis proportions of KNSOCK sockeye salmon stock contributions to the UCI drift gillnet fishery. These data allow for more accurate estimates of the individual stock contributions to the harvest in the EEZ, compared to the 2024 SAFE that used a historical average genetic mixed stock analysis proportion.

4.2.2.2 Changes in assessment methodology for 2026

As described previously, the 2026 assessment relies on the same time-series-based approach for forecasting run sizes for tier-1 stocks as has been used in previous assessments (2024, 2025). These models are now estimated in Bayesian context to allow broader consideration of buffer approaches, and to respond to the SSC's request in both 2024 and 2025 that buffers be explicitly related to a given probability of overfishing (*i.e.*, exceeding the OFL). Preseason estimates of State harvest are now based on the posterior predictive distribution of a Beta distribution conditioned on historical State harvest data (Appendix B). This change is implemented to reflect (1) lack of temporal structure in State harvest rates, and (2) to propagate uncertainty in state harvest rates given the evolving nature of the joint State and Federal fisheries in Cook Inlet. For 2026, similar to the 2025 SAFE, OFL_{PRE} to ABC buffers are based on an estimate of retrospective forecast skill (positive errors/over-forecasting, as in 2025) of OFL_{PRE}. The historical period in which this performance is assessed has been expanded from 10 years to 25 years based on SSC recommendations. Additionally, we also provide a preliminary approach to evaluating and determining buffers based on the probability of exceeding the true OFL under a given value of ABC using the posterior distribution of OFL_{PRE} (Appendix B, Table B1).

4.2.2.3 Changes in assessment results for 2026

The 2026 SAFE calculates the Tier 1 buffer using positive errors (over-forecasting) over a 25 year time period (in contrast to the 10 year window used in 2024-2025), which resulted in a KNSOCK buffer of 0.539. Based on the percentile method presented in Table B1 of Appendix B, this buffer value is associated with an approximate risk of the true OFL being below the resulting ABC (i.e., exceeding the OFL if the ABC is harvested) of between 25-26%.

4.2.2.4 Existing data and assessment

The ADF&G data and stock assessment sources used for the Federal assessment of the KNSOCK are described in this section (Section 4.2), with the additional consideration that Appendix 14 of the A16 EA/RIR includes an examination of density-dependent effects for this stock.

The data used to assess KNSOCK are considered to be complete and of high quality with estimates of stock-specific harvests, spawning escapements, the resulting recruits from those spawners, and age estimates for harvests and escapements. Historical juvenile (freshwater) and smolt data also exists for this stock.

The complete spawner and recruitment data for this stock enabled the use of Ricker models and yield analyses to evaluate spawner-recruitment relationships and inform the bounds of the State spawning escapement goal range.

Sibling model relationships for the dominant age classes inform ADF&G's pre-season estimates of total run size, with forecasted returns of minor age classes based on recent average returns.

4.2.2.5 Federal data and assessments

After review by NMFS and unless otherwise stated, this SAFE incorporates ADF&G data and associated estimates of harvest (2024-2025 harvest in State waters and 1999 – 2023 harvest estimates from the EEZ), escapement, age, sex, and other data (Table 7). However, because of the timeline necessary to produce this SAFE and prosecute the Federal salmon fishery in the CI EEZ in 2026, this SAFE estimated inriver harvests (e.g., sportfish and personal use) for 2025.

To inform SDC and harvest specifications, the Federal stock assessment relied on the method described previously for Tier 1 stocks. In the absence of ADF&G's preseason run size forecast, the NMFS SAFE Team recommends using the Bayesian AR-1 approach to predict run size and State harvest levels, and the resulting buffers to account for scientific uncertainty in reducing the preseason OFL to the recommended ABC. The annual Federal assessment of stocks in the CI EEZ salmon fishery may, in the future, incorporate some or all of the ADF&G's UCI preseason salmon forecasts; however, whether this occurs is largely determined by whether they are available in time to be reviewed by NMFS and the SSC and be incorporated into the annual SAFE report.

4.2.3 Stock size and recruitment trends

Stock overview: Based on historical estimates, KNSOCK is the dominant stock of sockeye salmon harvested in the CI EEZ drift gillnet fishery and the largest stock of any salmon species harvested in the CI EEZ. During the most recent five-year period (2021 – 2025), an average of ~68% of the drift gillnet sockeye salmon harvested in the CI EEZ is estimated to have been from KNSOCK, with a range of drift gillnet EEZ harvests of ~234 – 362K during this period (Table 7). Total run size during the 2021 – 2025 period ranged from 2.93 –8.07M fish. As such, the recent CI EEZ harvest rate, F_{EEZ}, has been a minor portion of the overall run size (0.06–0.08) and well below the MFMT (0.15 – 0.26).

Escapement goals: The State of Alaska's KNSOCK spawning escapement goals (2012–2019: 700,000–1.2M; 2020–present: 750,000–1.3M) have been consistently achieved or exceeded during recent years. From 2021 – 2025, an average of approximately 2.1 million sockeye salmon were estimated to have spawned in the Kenai River system with a range of ~1.2 – 3.8M).

Spawner-recruitment and yield trends: When examining data from the 1979 – 2012 brood years, spawner-recruitment analyses conducted by ADF&G suggest that approximately 1.2M spawners would result in the point estimate of S_{MSY} ($S_{MSY\text{-}POINT}$) for this stock, with a range of 774,000 – 1.74M resulting in 90% of MSY. The ADF&G point estimate of S_{MSY} ($S_{MSY\text{-}POINT}$; 1.212M) was corroborated by an analysis in Appendix 14 of the EA/RIR. KNSOCK has poorly defined density dependent characteristics (Figure 3), which also result in estimates of S_{MSY} ($S_{MSY\text{-}POINT}$) that are imprecise and variable across modeling methods. Possible reasons for poorly defined density dependence and the large range of escapements to result in $S_{MSY\text{-}POINT}$ could include: (1) the paucity of large escapements during past years to parameterize spawner-recruitment models, combined with the dynamic nature of (2) harvests in other areas across years (Shedd et al. 2016); (3) the productive capacity for the Kenai River and ocean environment to spawn and rear sockeye salmon (i.e., time-varying productivity); and/or (4) the variability of inriver and marine survival trends across years.

4.2.4 Tier determination and resulting OFL and ABC determination for 2026

Consistent with the 2025 SAFE, the NMFS SAFE Team recommends a Tier 1 determination for KNSOCK during 2026. This recommendation is based on the availability of a long history of escapement data believed to represent actual numbers of spawners (rather than an index), spawner-recruitment model

estimates and yield analyses that inform the State's escapement goal range, stock-specific harvest data, age composition data for all stock components, complete brood tables, and a preseason forecast of total run size that is informed by sibling model relationships.

This SAFE uses the Bayesian AR-1 approach to predict the preseason OFL and the resulting ABC. An AR-1 model was fit to past (1979 – 2025) Kenai River total run sizes, and a Beta distribution of historical (2015-2025) state harvest rates was estimated, the posterior predictive distribution of which was used to predict the preseason State harvest rate. Unless stated otherwise, predictions represent median posterior values. The AR-1 model forecasts a 2026 Kenai River total run size of 4,767,278 sockeye salmon (Figure 4A), and predicts a State harvest rate of 0.468, meaning that approximately half of the total run is predicted to be harvested in State fisheries during 2026. The forecasted run size and State harvest rate are used to estimate preseason values of SDC and potential yield (which is the OFL_{PRE} for the coming fishing season). The NMFS SAFE Team recommendations for OFL_{PRE}, buffer (the median symmetric accuracy buffer described previously in Section 3.3.2) and the resulting ABC are in Table 8). The recommended ABC incorporates the achievement of the biologically-based spawning escapement target, is reduced from a level that represents maximum potential yield for a single year, and is buffered to account for scientific uncertainty.

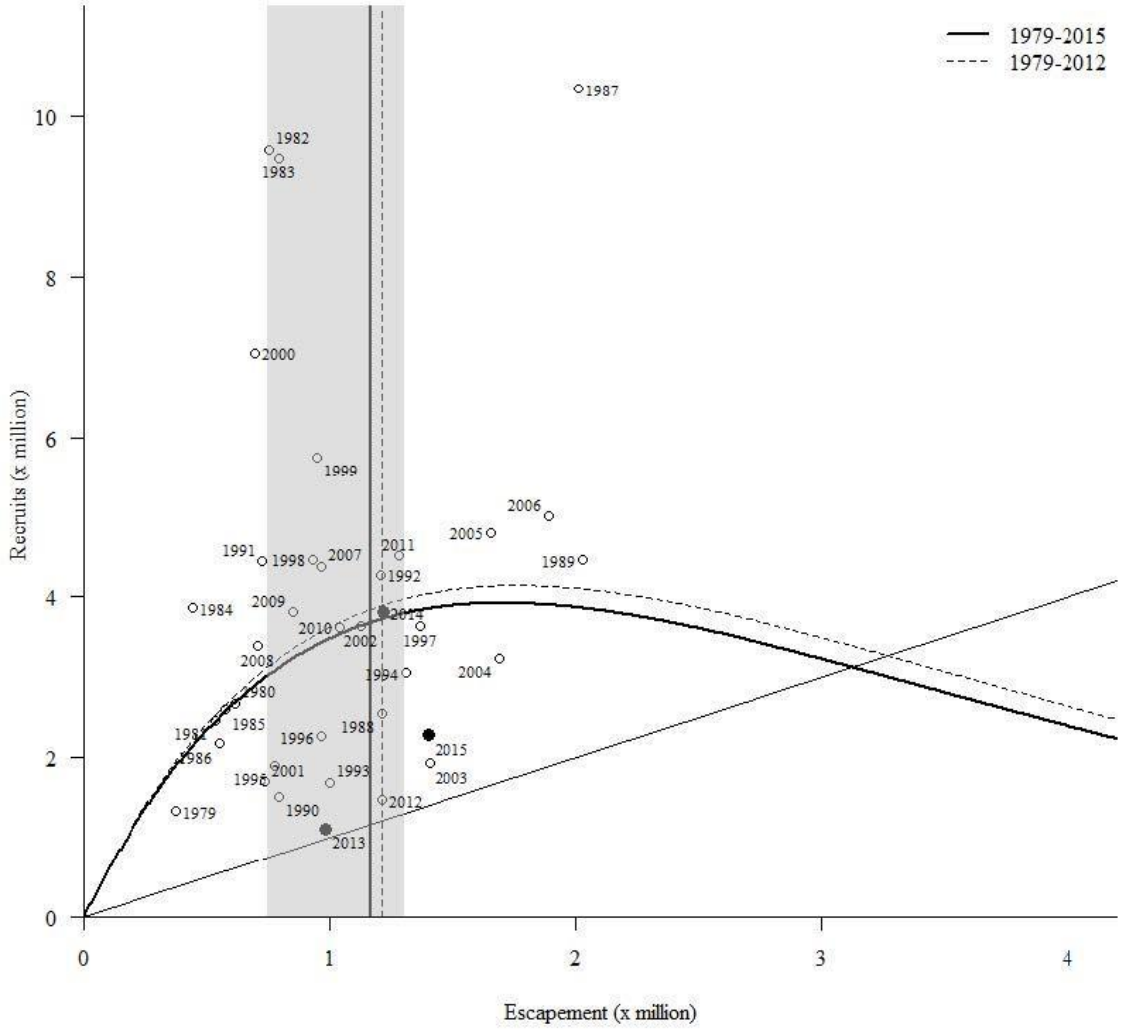

Figure 3. Ricker model fit to Kenai River late-run sockeye salmon. Spawner-recruit data from 1979–2015 (solid line) and 1979–2012 (dashed line). From Mckinley et al. (2024), the most recent ADF&G stock assessment for Kenai Late Run sockeye salmon. Vertical lines represent $S_{MSY\text{-}POINT}$ for each model. The shaded area is the current State escapement goal (750,000–1,300,000).

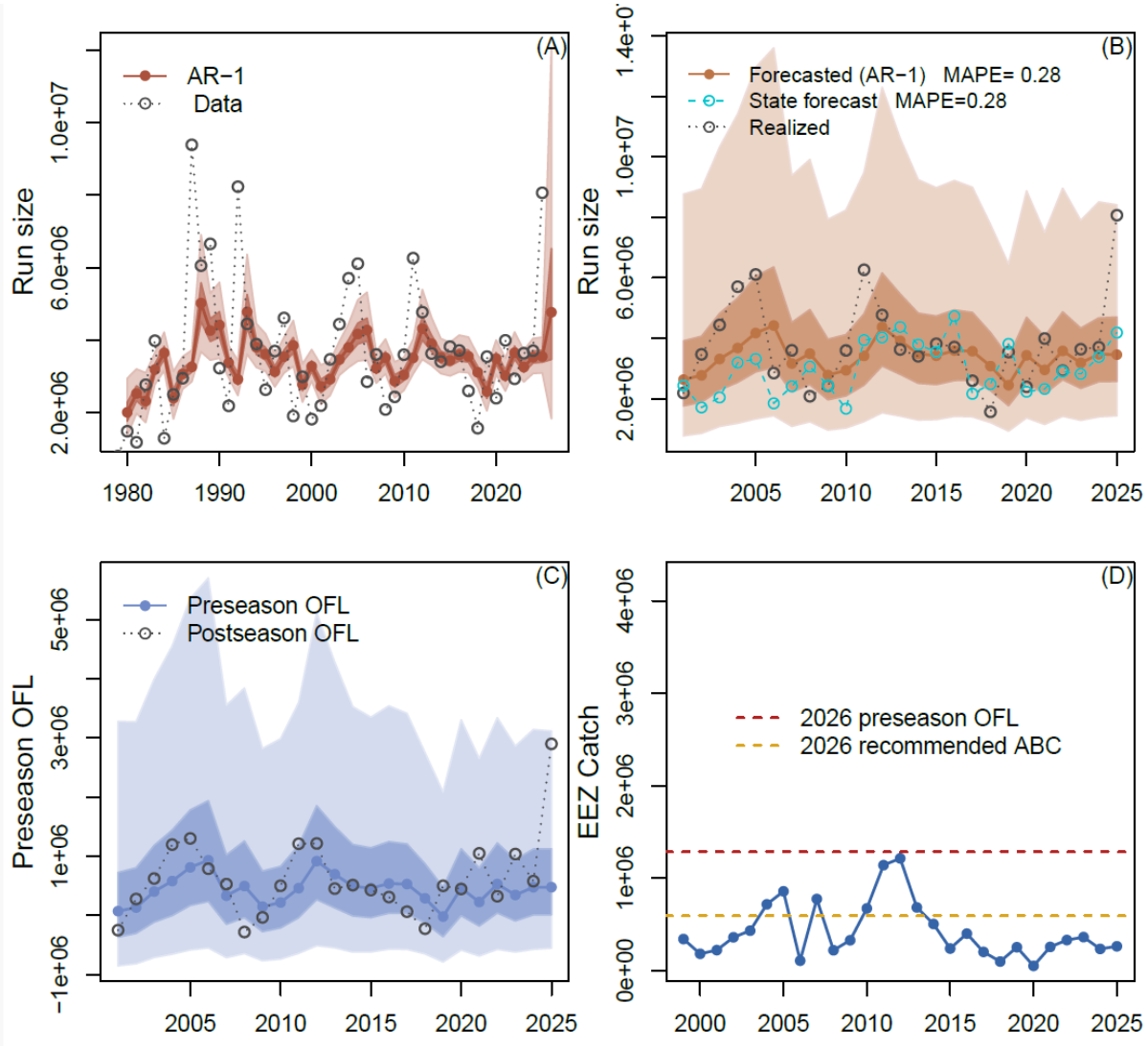

Figure 4. Kenai River Late Run sockeye salmon preseason Bayesian AR-1 model output. Panel A shows historical model fits (red) to Kenai River sockeye salmon run size data (black), with posterior median values indicated by the solid line, and 50% and 95% credible intervals indicated by dark and light shaded boundaries respectively. Panel B shows the retrospective forecast performance of the AR-1 model (orange), relative to the state's sibling model approach (teal), with realized run size levels shown in black. The mean absolute percentage error (MAPE) of both the AR-1 approach and the state's sibling approach is also presented. Panel C shows retrospective model-based forecasts of preseason OFL (blue) relative to true postseason values (black). Panel D shows the historical time-series of EEZ catch relative to the recommended OFL and ABC for 2026. EEZ harvest estimates prior to 2024 are based on methods and assumptions described in section 4.1 of this SAFE report. The Kenai River late run sockeye salmon stock catch is estimated from the total CI EEZ catch using genetic mixed stock analysis.

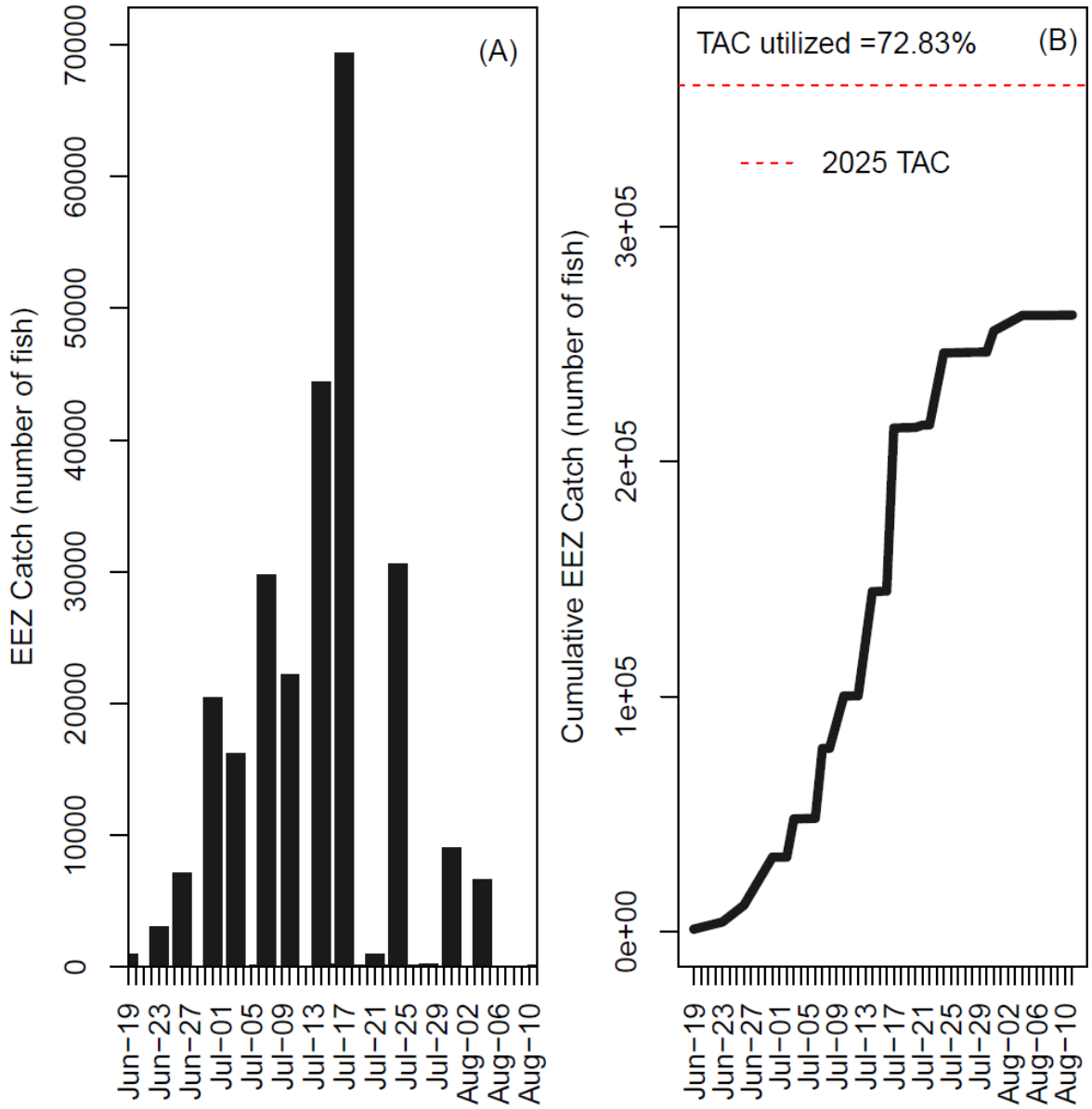

Figure 5. 2025 Kenai River Late Run sockeye salmon CI EEZ catch. Panel A depicts catch by day and panel B shows cumulative daily catch compared to the 2025 TAC. Note that the Kenai River Late Run sockeye salmon catch is estimated from the total CI EEZ sockeye salmon catch using genetic mixed stock analysis.

Table 6. Status and recommended catch specifications for Tier 1 Kenai River Late Run sockeye salmon. For 2026, the NMFS SAFE Team recommends a buffer of 0.539 be used to reduce the preseason OFL (potential yield in the CI EEZ) to the recommended ABC of 591,509 sockeye salmon. **Values for MSST, MFMT, OFL, and ABC have been presented to reflect the recommendation by the SSC to use $S_{MSY\text{-}POINT}$ (1,212,000 spawners) as the escapement target.** An overfished determination is assessed postseason by comparing the minimum stock size threshold (**MSST**), one half of the sum of the stock's spawning escapement target summed across a generation, with actual cumulative escapement summed across a generation (**Cum. Escap**.). For Tier 1 stocks, overfishing is assessed postseason by comparing the maximum fishing mortality threshold (**MFMT**), the largest potential harvest rate in the EEZ while still achieving the spawning escapement target and non-EEZ harvests, with the actual estimated harvest rate assessed over a generation ($\mathbf{F_{EEZ}}$). Rates are normalized to total run size. Shaded values are new estimates or projections based on the current assessment. Note that estimates for EEZ harvests prior to 2024 were calculated as described in section 4.1. Note that bolded values were calculated using preliminary estimates of run size and escapement which include the five-year average harvest above the river mile 19 sonar station, and will be updated in future CI SAFE reports when final estimates are available from ADF&G.

Esc. Target	Year	MSST	Cum. Escap.	MFMT	F_{EEZ}	Total Run	EEZ Harvest	OFL_{PRE}	ABC
$S_{MSY\text{-}PT}$									
	2021	3,030	7,024	0.145	0.061	3,992	256	NA	NA
	2022	3,030	7,156	0.160	0.068	2,929	330	NA	NA
	2023	3,030	8,155	0.203	0.076	3,638	362	NA	NA
	2024	3,030	8,252	0.206	0.074	3,705	234	901.9	431
	2025	3,030	10,495	0.263	0.065	8,068	262	514.8	360
	2026	3,030						**1284**	**592**

Table 7. Historical data for Tier 1 Kenai River Late Run sockeye salmon used to inform the SDC and harvest specifications. The table includes year of the salmon run, the estimate of total run size (000's), the spawning escapement (000's), the Federal spawning escapement target ($S_{MSY\text{-}POINT}$; 000's), the total catch across all fisheries (000's), the estimate State waters catch (000's), the fraction of the catch estimated to have occurred in State waters across a generation, the estimated EEZ catch (000's), the fraction of the total catch estimated to have occurred in the EEZ across a generation, the maximum fishing morality threshold, and the potential yield in the EEZ (000's), cumulative escapement (000's), and minimum stock size threshold (MSST; 000's). For this SAFE, MFMT and Potential Yield in the EEZ reflect the 2024 SSC recommendation that these be based on a point estimate of S_{MSY} ($S_{MSY\text{-}POINT}$) for this stock of 1,212,000 spawners. The lower bound of the State escapement goal is 750K sockeye salmon (2017 - 2025). For this table, MFMT and Potential Yield in the EEZ reflect the 2024 SSC recommendation that these be based on a point estimate of S_{MSY} ($S_{MSY\text{-}POINT}$) for this stock of 1.212 million spawners. Note that EEZ harvest prior to 2024 is estimated as described in section 4.1.

Year	Run size	Esc.	Esc. Target ($S_{MSY\text{-}POINT}$)	Total catch	State catch	F_{STATE}	EEZ Catch	F_{EEZ}	MFMT	Potential Yield EEZ	Cum. Esc.	MSST
1999	2985	949	1212	2055	1715	0.575	341	NA	NA	58	NA	NA
2000	1815	697	1212	1118	937	0.516	181	NA	NA	0	NA	NA
2001	2190	738	1212	1451	1230	0.562	221	NA	NA	0	NA	NA
2002	3467	1127	1212	2340	1980	0.571	360	NA	NA	274	NA	NA
2003	4440	1402	1212	3037	2606	0.587	431	0.103	0.064	622	4893	3030
2004	5705	1691	1212	4015	3298	0.578	716	0.108	0.119	1195	5655	3030
2005	6109	1654	1212	4455	3598	0.589	857	0.118	0.155	1299	6612	3030
2006	2849	1892	1212	957	850	0.298	107	0.109	0.185	787	7766	3030
2007	3602	964	1212	2638	1863	0.517	774	0.127	0.195	526	7603	3030
2008	2082	709	1212	1374	1154	0.554	220	0.131	0.187	0	6910	3030
2009	2430	848	1212	1582	1255	0.516	328	0.134	0.153	0	6067	3030
2010	3596	1038	1212	2558	1886	0.524	672	0.144	0.124	499	5451	3030

Year	Run size	Esc.	Esc. Target ($S_{MSY-POINT}$)	Total catch	State catch	F_{STATE}	EEZ Catch	F_{EEZ}	MFMT	Potential Yield EEZ	Cum. Esc.	MSST
2011	6263	1281	1212	4982	3842	0.613	1140	0.174	0.124	1209	4840	3030
2012	4770	1213	1212	3557	2343	0.491	1214	0.187	0.153	1214	5088	3030
2013	3628	980	1212	2648	1965	0.542	683	0.195	0.163	451	5360	3030
2014	3404	1218	1212	2186	1682	0.494	504	0.194	0.179	510	5730	3030
2015	3819	1400	1212	2419	2181	0.571	238	0.173	0.174	426	6092	3030
2016	3712	1120	1212	2592	2192	0.591	400	0.157	0.15	308	5931	3030
2017	2596	1071	1212	1525	13237	0.51	202	0.118	0.102	61	5790	3030
2018	1566	887	1212	679	582	0.372	97	0.095	0.086	0	5696	3030
2019	3542	1457	1212	2085	1833	0.517	252	0.078	0.085	497	5935	3030
2020	2394	1606	1212	788	738	0.308	50	0.073	0.095	444	6140	3030
2021	3992	2003	1212	1989	1733	0.434	256	0.061	0.145	1047	7024	3030
2022	2929	1203	1212	1726	1396	0.477	330	0.068	0.160	321	7156	3030
2023	3638	1885	1212	1752	1391	0.382	362	0.076	0.203	1035	8155	3030
2024*	3705	1555	1212	2150	1916	0.517	234	0.074	0.206	576	8252	3030
2025*	8068	3849	1212	4219	3957	0.49	262	0.065	0.263	2899	10495	3030

*Note that run size, escapement (Esc.), total catch, F_{STATE}, MFMT, potential yield EEZ, and cumulative escapement (Cum. Esc.) calculations include preliminary estimates of total run size, escapement, and State harvest, which were calculated using the five-year historical average harvest occurring above RM19 sonar station. Final values will be presented in future CI SAFE reports pending finalized estimates from ADF&G.

Table 8. Tier 1 Kenai River Late Run sockeye salmon preseason SDC. Includes the 2026 AR-1 model forecasted run size, State harvest proportion ($\hat{F}_{STATE}$), and resulting OFL, buffer, ABC, forecasted F_{EEZ}, and MFMT. Note that OFL_{PRE} and Potential yield are calculated using the full posterior distributions of run size ($\hat{R}$) and state harvest ($\hat{F}_{STATE}$) rather than the point estimates (posterior medians) of these quantities presented here.

Run Size ($\hat{R}$)	$\hat{F}_{STATE}$	Potential yield EEZ	Buffer	OFL_{PRE}	ABC	Forecasted F_{EEZ}	MFMT
4,767,278	0.468	1,284,478	0.539	1,284,478	591,509	0.107	0.265

*Note that values presented in this table were calculated using preliminary 2024-2025 run size and escapement estimates, which include estimated in-river harvest occurring above the river mile 19 sonar station using the five-year historical average.

Table 9. Kenai River late-run sockeye salmon observed escapements and current escapement targets.

Year	Federal escapement target ($S_{MSY\text{-}POINT}$) (thousands)	Escapement (thousands)
2014		1,218
2015		1,400
2016		1,120
2017		1,071
2018		887
2019		1,457
2020		1,606
2021		2,003
2022		1,203
2023		1,885
2024	1,212	1,555
2025	1,212	3,849*

*Estimated using five-year average of in-river harvests occurring above Kenai River RM19 sonar station.

4.3 Kasilof River Sockeye Salmon

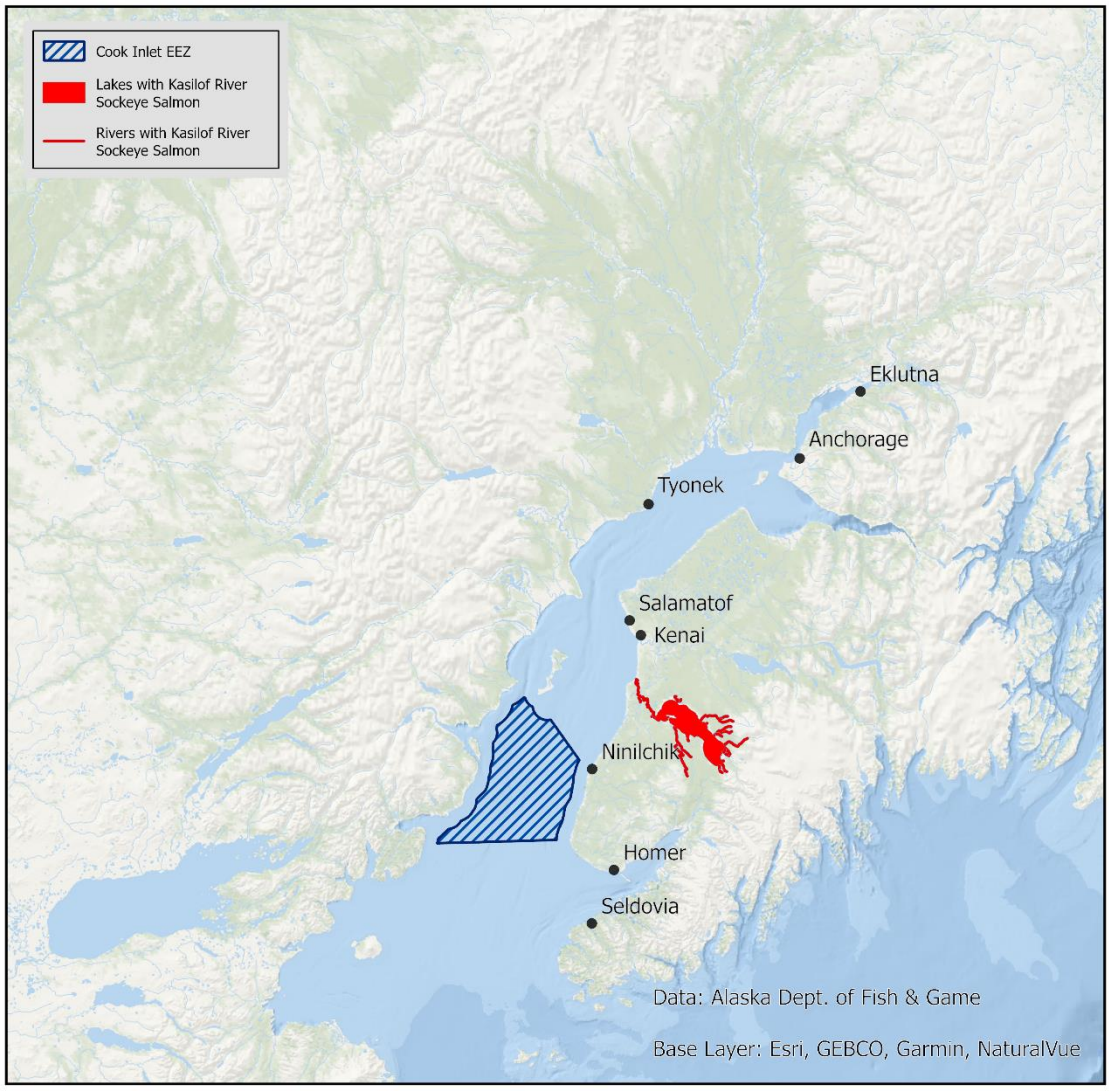

Figure 6. Map showing the CI EEZ and the Kasilof River watershed located in Upper Cook Inlet.

Definition: As described in the Salmon FMP, the Kasilof River sockeye salmon stock (KASOCK) is defined as the Kasilof River sockeye salmon harvest in the CI EEZ. The Federal definition for this stock also includes spawning escapements and associated spawning escapement targets that are necessary to produce sustainable yields in future years.

4.3.1 Retrospective assessment of fishery information relative to status determination criteria, including overfishing and overfished designations

The 2025 estimated total harvests, spawning escapements, and total run size of the KASOCK are still preliminary (Table 10 and Table 11). Based on preliminary data provided by ADF&G for the 2025 fishery, approximately 8% of the drift gillnet harvest was composed of sockeye salmon from the Kasilof stock, resulting in an EEZ harvest estimate of 30,872 fish from this stock; which was less than the 2025 preseason OFL (664K), ABC/ACL (286K), and the KASOCK proportion of the TAC (286K; Table 3).

Because the estimated harvest rate in the EEZ over the most recent generation (F_{EEZ}) of 0.027 was substantially lower than the estimated MFMT of 0.531 and the cumulative escapement over the most recent generation (4.7M) was larger than MSST (555K), it is the recommendation of the NMFS SAFE Team that overfishing did not occur during 2025 and that the stock is not in or approaching an overfished condition.

4.3.2 Data and assessment methodology

4.3.2.1 Data input changes for 2026

The 2026 SAFE includes catch data from the 2024-2025 federally managed UCI fishery. These data represent the first and second years during which the catch occurring in the EEZ are known, as opposed to the estimated to have occurred for years prior to 2024 (Table 11).

Additionally, ADF&G provided the NMFS SAFE Team with preliminary 2025 estimates of proportions of KASOCK salmon stock contributions to the UCI drift gillnet fishery based on genetic mixed stock analysis. These data allow for more accurate estimates of the individual stock contributions to the harvest in the EEZ compared to the 2024 SAFE that used a historical average genetic mixed stock analysis proportion.

4.3.2.2 Changes in assessment methodology for 2026

As described previously, the 2026 assessment relies on the same time-series-based approach for forecasting run sizes for tier-1 stocks as has been used in previous assessments. These models are now estimated in Bayesian context to allow broader consideration of buffer approaches, and to respond to the SSC's request in both 2024 and 2025 that buffers be explicitly related to a given probability of overfishing (*i.e.*, exceeding the OFL). Preseason estimates of State harvest are now based on the posterior predictive distribution of a Beta distribution conditioned on historical State harvest data. This change is implemented to reflect (1) lack of temporal structure in State harvest rates, and (2) to propagate uncertainty in State harvest rates given the evolving nature of the joint State and Federal fisheries in Cook Inlet. For 2026, similar to the 2025 SAFE, OFL_{PRE} to ABC buffers are based on an estimate of retrospective forecast skill (positive errors/over-forecasting, as in 2025) of OFL_{PRE}. The historical period in which this performance is assessed has been expanded from 10 years to 25 years based on SSC recommendations. Additionally, we also provide a preliminary approach to evaluating and determining buffers based on the probability of exceeding the true OFL under a given value of ABC using the posterior distribution of OFL_{PRE} (Appendix B, Table B2).

4.3.2.3 Changes in assessment results for 2026

The 2026 SAFE calculates the Tier 1 buffer using positive errors (over-forecasting) over a 25-year time period, which resulted in a KASOCK buffer of 0.412. Based on the percentile method presented in Table B2 of Appendix B, this buffer value is associated with an approximate risk of the true OFL being below the resulting ABC (i.e., exceeding the OFL if the ABC is harvested) of between 17-18%.

4.3.2.4 Existing data and assessment

The ADF&G data and stock assessment sources used for the Federal assessment of the KASOCK are described in this section (Section 4.3), with the additional consideration that the amendment 16 EA/RIR includes an examination of density-dependent effects for this stock.

The data used to assess KASOCK is considered to be complete and of high quality with estimates of stock-specific harvests, spawning escapements, the resulting recruits from those spawners, and age estimates for harvests and escapements. Smolt data also exists for the Kasilof River system.

The complete spawner and recruitment data for this stock enabled the use of Ricker models and yield analyses to inform the bounds of the State spawning escapement goal.

Historically, sibling model and smolt-to-adult survival relationships for the dominant age classes inform ADF&G's pre-season estimates of total run size, with forecasted returns of minor age classes based on recent average returns.

4.3.2.5 Federal data and assessments

After review by NMFS and unless otherwise stated, this SAFE incorporates ADF&G data and associated estimates of harvest (2024 harvest in State waters and 1999 – 2023 harvest), escapement, age, sex, and other data (Table 11).

To inform SDC and harvest specifications, the Federal stock assessment relied on the method described previously for Tier 1 stocks. In the absence of ADF&G's preseason run size forecast, the NMFS SAFE Team recommends using the Bayesian AR-1 approach to predict run size and State harvest levels, and the resulting buffers to account for scientific uncertainty in reducing the preseason OFL to the recommended ABC. The annual Federal assessment of stocks in the CI EEZ salmon fishery may, in the future, incorporate some or all of ADF&G's UCI preseason salmon forecasts; however, whether this occurs is largely determined by whether they are available in time to be reviewed by NMFS and the SSC and be incorporated into the annual SAFE report.

4.3.3 Stock size and recruitment trends

Stock overview: During the most recent five-year period (2021 – 2025), an average of 8% of the EEZ drift gillnet sockeye salmon harvest is estimated to have been from KASOCK with a range of harvests of harvests of this stock in the EEZ of 16 – 71K fish during this period. Total run size during the 2021 – 2025 period ranged from 925K – 1.91M.

Escapement goals: The State's Kasilof River sockeye salmon spawning escapement goals (2012–2019: 160,000–340,000; 2020–present: 140,000–320,000) have been consistently achieved or exceeded during recent years (Munro and Gatt 2025). From 2021 – 2025, an average of approximately 933K sockeye salmon were estimated to have spawned in the Kasilof River system (range of 517K – 1.197M). The current upper bound of the escapement goal has been exceeded several times during recent years.

Spawner-Recruitment and yield trends: When examining data from the 1968–2012 brood years, the best fit model from the spawner-recruitment analyses (AR-1 Ricker model) conducted by ADF&G suggests that approximately 222,000 spawners would result in the point estimate of maximum sustainable yield for this stock ($S_{MSY\text{-}POINT}$), with a range of 140,000–320,000 resulting in 90% of MSY (Figure 7). Similar to many sockeye salmon stocks with relatively high historical harvest rates, this stock has poorly defined density dependent spawner-recruitment characteristics at larger escapements, with only a single brood year (1985) having returns that were below replacement and no strong evidence for density dependent effects (Figure 7; EA/RIR Appendix 14). Returns from recent large escapements will provide additional information to better define density dependent effects and $S_{MSY\text{-}POINT}$.

4.3.4 Tier determination and resulting OFL and ABC determination for 2025

Consistent with the 2024-2025 SAFE, the NMFS SAFE Team recommends a Tier 1 determination for KASOCK during 2026. This recommendation is based on the availability of a long history of escapement data believed to represent actual numbers of spawners (rather than an index), spawner-recruitment model estimates and yield analyses that inform the State's escapement goal range, stock-specific harvest data, age composition data for all stock components, complete brood tables, and a preseason forecast of total run size that is informed by sibling model relationships.

This SAFE uses the Bayesian AR-1 approach to predict the preseason OFL and the resulting ABC. An AR-1 model was fit to past (1979 – 2025) Kasilof River total run sizes, and a Beta distribution of historical (2015-2025) state harvest rates was estimated, the posterior predictive distribution of which was used to predict the preseason state harvest rate. Unless stated otherwise, predictions represent median posterior values. The AR-1 model forecasts a 2026 Kasilof River total run size of 1,391,412 sockeye salmon (Figure 8A), and predicts a State harvest rate of 0.388. The forecasted run size and State harvest rate are used to estimate preseason values of SDC and potential yield (which is the OFL_{PRE} for

the coming fishing season). The NMFS SAFE Team recommendations for OFL_{PRE}, buffer (the median symmetric accuracy buffer described previously in Section 3.3.2) and the resulting ABC are in Table 12). The recommended ABC incorporates the achievement of the biologically-based spawning escapement target, is reduced from a level that represents maximum potential yield for a single year, and is buffered to account for scientific uncertainty.

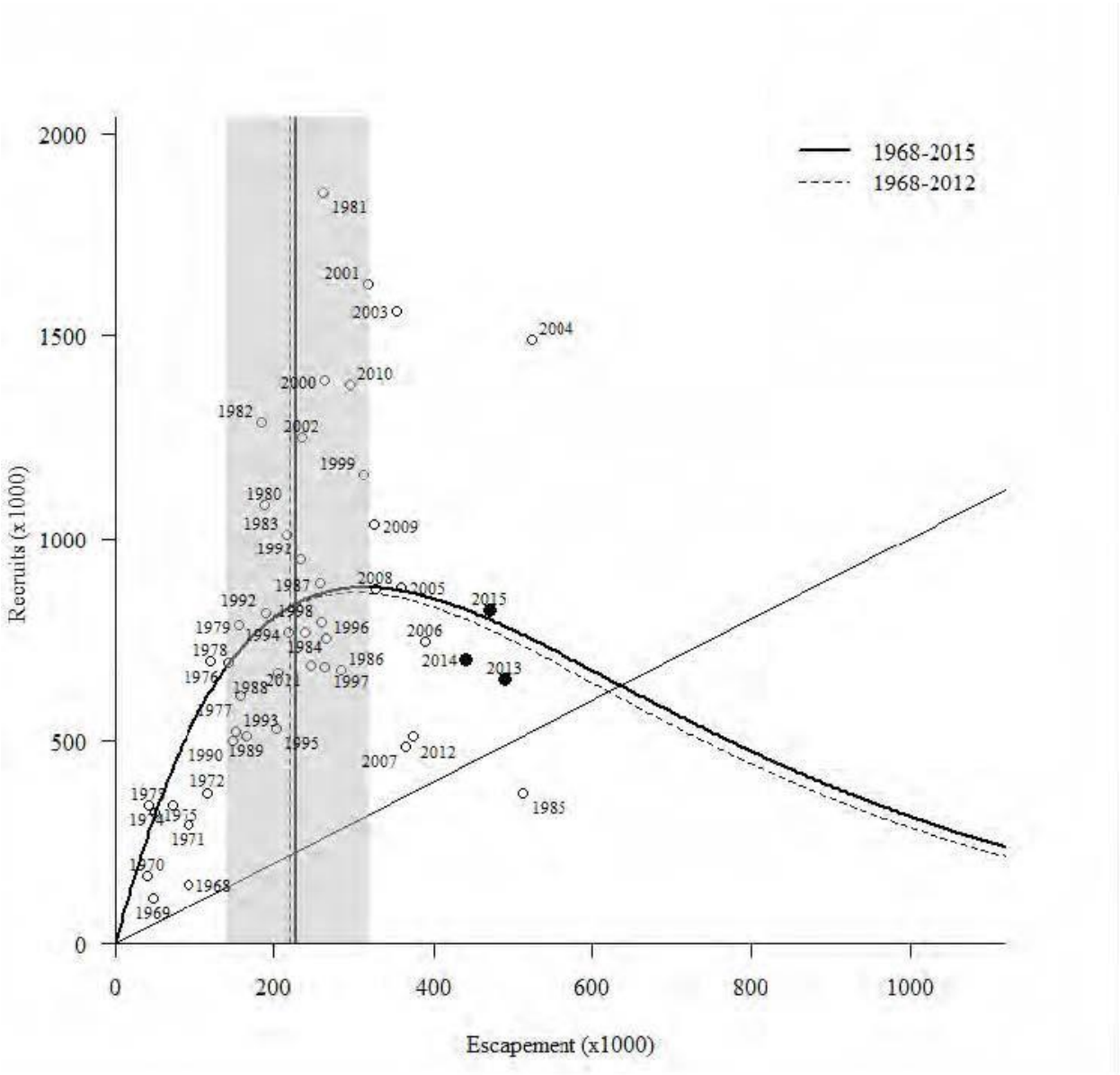

Figure 7. Ricker Spawner-recruit curve for Kasilof River sockeye salmon. From Mckinley et al. (2024), the most recent ADF&G stock assessment for Kasilof River sockeye salmon. Autoregressive lag-1 (AR1) Ricker model of spawning escapements (x-axis) and recruits (y-axis) from brood years 1968–2012 (dashed line) and 1968 – 2015 (solid line). The line represents the modeled recruits and the shaded area is the State's current biological escapement goal (BEG) range of 140–320K spawners

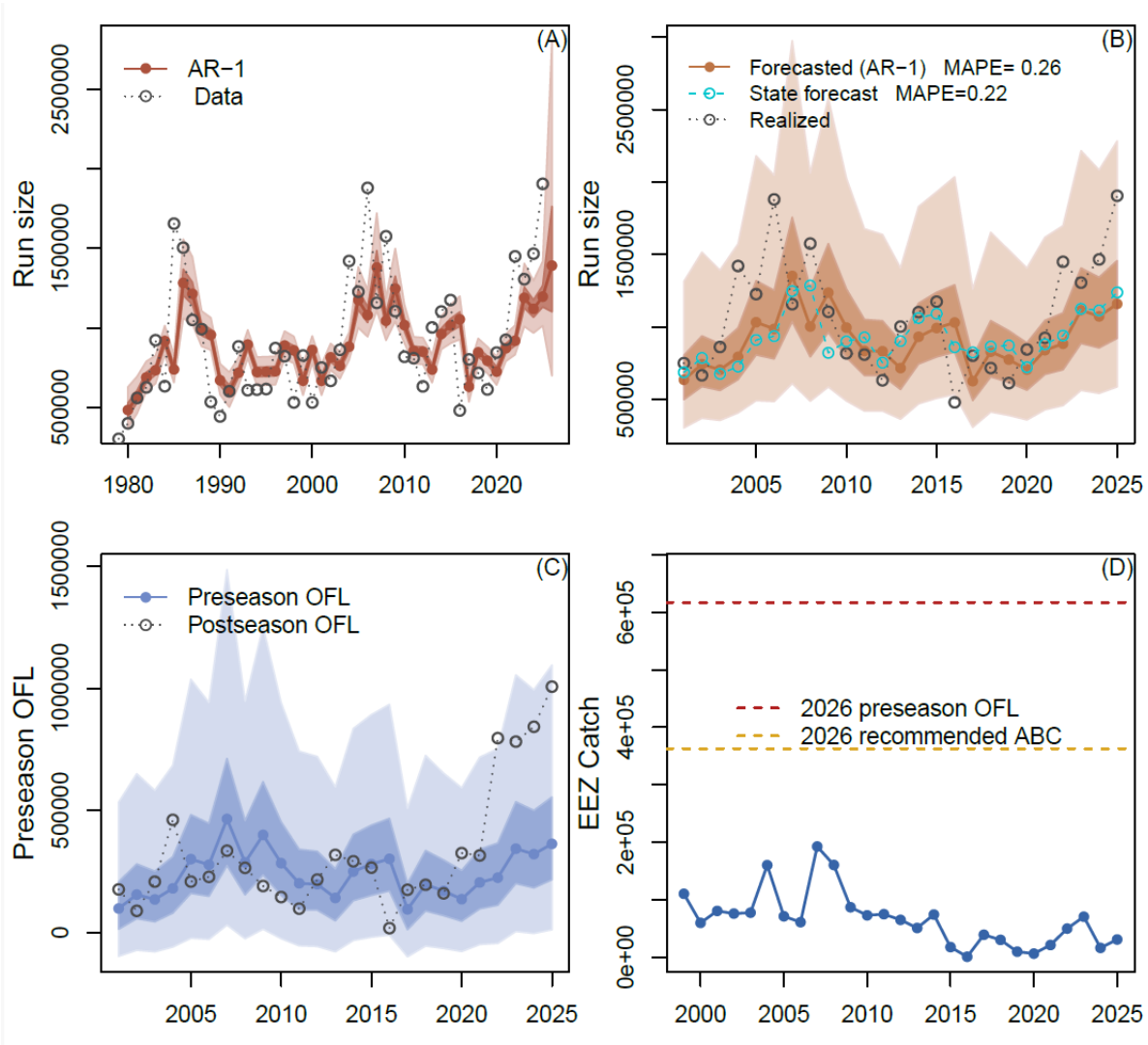

Figure 8. Kasilof River Late Run sockeye salmon preseason Bayesian AR-1 model output. Panel A shows historical model fits (red) to Kasilof River sockeye salmon run size data (black), with posterior median values indicated by the solid line, and 50% and 95% credible intervals indicated by dark and light shaded boundaries respectively. Panel B shows the retrospective forecast performance of the AR-1 model (orange), relative to the state's sibling model approach (teal), with realized run size levels shown in black. The mean absolute percentage error (MAPE) of both the AR-1 approach and the state's sibling approach is also presented. Panel C shows retrospective model-based forecasts of preseason OFL (blue) relative to true postseason values (black). Panel D shows the historical time-series of EEZ catch relative to the recommended OFL and ABC for 2026. EEZ harvest estimates prior to 2024 are based on methods and assumptions are described in section 4.1 of this SAFE report. The Kasilof River late run sockeye salmon stock catch is estimated from the total CI EEZ catch using genetic mixed stock analysis.

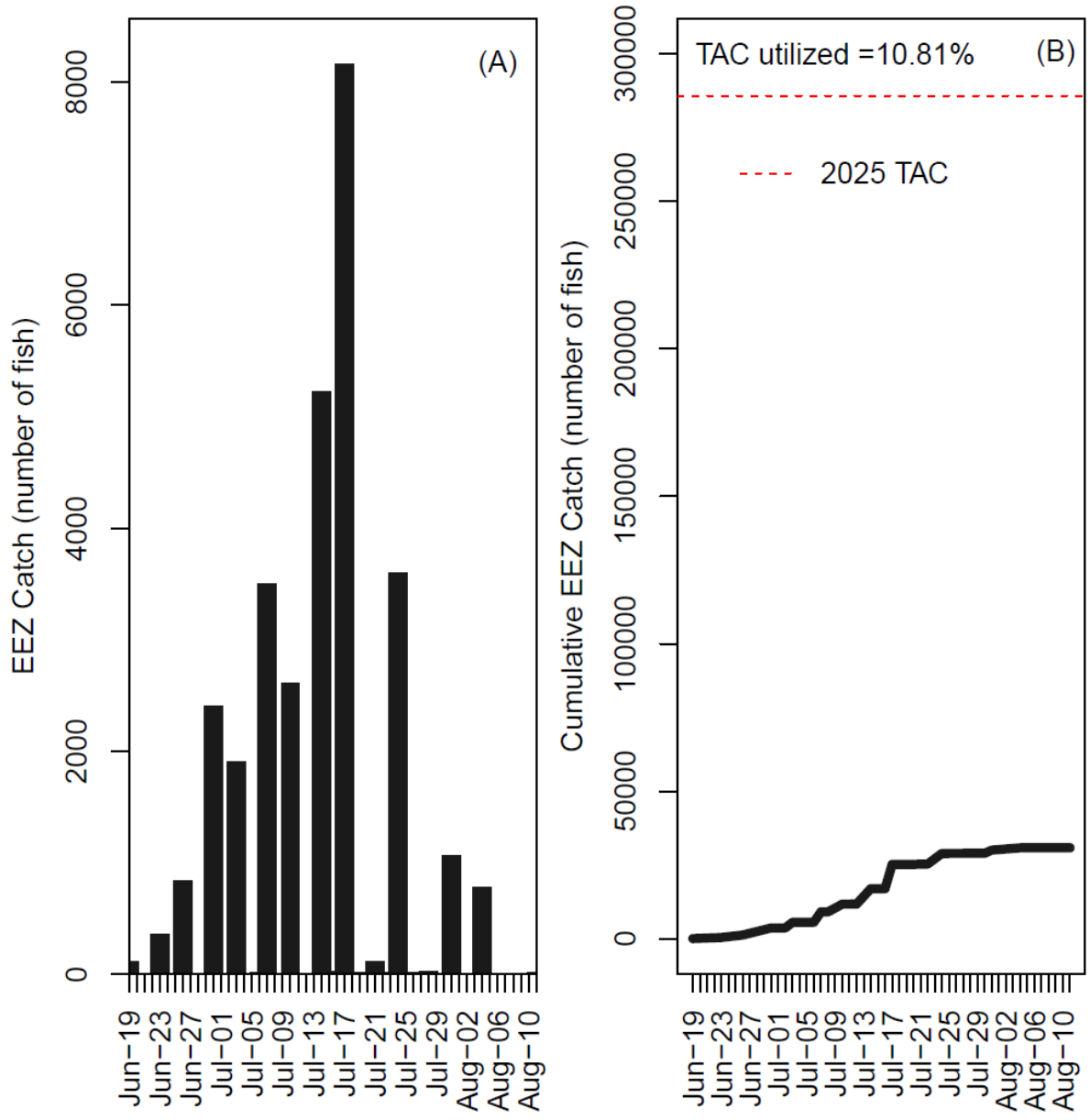

Figure 9. 2025 Kasilof River sockeye salmon CI EEZ catch. Panel A depicts catch by day and panel B shows cumulative daily catch compared to the 2025 TAC. Note that the Kasilof River sockeye salmon catch is estimated from the total CI EEZ sockeye salmon catch using genetic mixed stock analysis

Table 10. Status and catch specifications for Tier 1 Kasilof River sockeye salmon. For 2026, the NMFS SAFE Team recommends a buffer of 0.412 be used to reduce the preseason potential yield ("preseason OFL") to the recommended single-year ABC of **363K** sockeye salmon. **Values for MSST, MFMT, OFL, and ABC have been presented to reflect the recommendation by the SSC to use $S_{MSY\text{-}POINT}$ (222,000 spawners) as the escapement target.** An ovverfished determination is assessed postseason by comparing the minimum stock size threshold (**MSST**), one half of the sum of the stock's spawning escapement target summed across a generation, with actual cumulative escapement summed across a generation (**Cum. Escap**.). For Tier 1 stocks, overfishing is assessed postseason by comparing the maximum fishing mortality threshold (**MFMT**), the largest potential harvest rate in the EEZ while still achieving the spawning escapement target and non-EEZ harvests, with the actual estimated harvest rate assessed over a generation (**F_{EEZ}**). Rates are normalized to total run size. Shaded values are new estimates or projections based on the current assessment. Note that EEZ harvest estimates prior to 2024 are estimated as described in section 4.1. Note that bold values were calculated using preliminary estimates of run size and escapement, which incorporate 2024 sport and personal use harvest, and will be updated in future CI SAFE reports when final estimates are available from ADF&G.

Target	Year	MSST	Cum. Escap.	MFMT	F_{EEZ}	Total Run	EEZ Harvest	OFL_{PRE}	ABC
$S_{MSY\text{-}POINT}$	2020	555	1,902	0.254	0.025	845	6	NA	NA
	2021	555	2,179	0.301	0.027	925	21	NA	NA
	2022	555	2,788	0.395	0.026	1,450	50	NA	NA
	2023	555	3,333	0.463	0.031	1,306	71	NA	NA
	2024	555	4,008	0.511	0.027	**1,466**	16	541	375.5
	2025	555	**4,664**	**0.531**	0.027	**1,905**	31	664	286
	2026	555						**617**	**363**

Table 11. Historical data for Tier 1 Kasilof River sockeye salmon used to inform the SDC and harvest specifications. The table includes year of the salmon run, the estimates of total run size (000's), the spawning escapement (000's), the Federal spawning escapement target ($S_{MSY\text{-}POINT}$; 000's), the total catch across all fisheries (000's), the estimate State waters catch (000's), the fraction of the catch estimated to have occurred in State waters, the estimated EEZ catch (000's), the fraction of the total catch estimated to have occurred in the EEZ, the maximum fishing morality threshold, and the potential yield in the EEZ (000's), cumulative escapement (000's), and minimum stock size threshold (MSST; 000's). For this SAFE, MFMT and Potential Yield in the EEZ reflect the 2024 SSC recommendation that these be based on a point estimate of $S_{MSY\text{-}POINT}$ for this stock of 222,000 spawners. The lower bound of the State's escapement goal is 140K sockeye salmon (2020 – 2024). Note that EEZ harvest prior to 2024 is estimated as described in section 4.1.

Year	Run size	Escap.	Escap. target	Total catch	State catch	F_{STATE}	EEZ Catch	F_{EEZ}	MFMT	Potential Yield EEZ	Cumulative Esc.	MSST
1999	826	312	222	514	404	0.489	110	NA	NA	201	NA	NA
2000	531	264	222	267	207	0.39	60	NA	NA	101	NA	NA
2001	751	319	222	432	351	0.467	81	NA	NA	177	NA	NA
2002	667	236	222	432	356	0.534	76	NA	NA	90	NA	NA
2003	862	354	222	509	431	0.5	78	0.111	0.214	209	1484	555
2004	1421	524	222	897	737	0.519	160	0.107	0.246	462	1695	555
2005	1227	360	222	867	796	0.649	71	0.094	0.233	209	1792	555
2006	1880	390	222	1490	1429	0.76	61	0.074	0.198	229	1863	555
2007	1157	365	222	792	599	0.518	193	0.086	0.221	336	1992	555
2008	1575	327	222	1248	1088	0.691	160	0.089	0.207	265	1966	555
2009	1105	326	222	779	692	0.626	87	0.082	0.177	191	1768	555
2010	819	295	222	523	450	0.549	73	0.088	0.179	147	1703	555
2011	810	246	222	564	489	0.604	75	0.108	0.19	99	1559	555
2012	632	375	222	258	193	0.305	65	0.093	0.186	218	1569	555
2013	1003	490	222	513	462	0.461	51	0.08	0.223	319	1731	555
2014	1103	440	222	663	589	0.534	74	0.077	0.246	292	1845	555
2015	1175	471	222	704	686	0.584	18	0.06	0.253	266	2021	555
2016	481	240	222	241	240	0.499	1	0.047	0.253	19	2015	555

Year	Run size	Escap.	Escap. target	Total catch	State catch	F_{STATE}	EEZ Catch	F_{EEZ}	MFMT	Potential Yield EEZ	Cumulative Esc.	MSST
2017	802	359	222	443	404	0.504	39	0.04	0.235	176	1999	555
2018	717	388	222	329	299	0.417	30	0.038	0.222	196	1898	555
2019	613	373	222	240	230	0.375	10	0.026	0.216	161	1831	555
2020	845	542	222	303	297	0.352	6	0.025	0.254	326	1902	555
2021	925	517	222	409	387	0.419	21	0.027	0.301	316	2179	555
2022	1450	968	222	482	432	0.298	50	0.026	0.395	796	2788	555
2023	1306	933	222	373	302	0.231	71	0.031	0.463	782	3333	555
2024	1466	1048	222	418	402	0.274	16	0.027	0.511	842	4008	555
2025	1905	1197	222	708	677	0.355	31	0.027	0.531	1006	4664	555

*Note that run size, escapement (Esc.), total catch, F_{STATE}, MFMT, potential yield EEZ, and cumulative escapement (Cum. Esc.) calculations include preliminary estimates of total run size, escapement, and State harvest, derived using estimates of 2025 sport and personal use harvest. Final values will be presented in future CI SAFE reports pending finalized estimates from ADF&G.

Table 12. Tier-1 Kasilof River sockeye salmon preseason SDC. Includes the 2026 AR-1 model forecasted run size, State harvest proportion ($\hat{F}_{STATE}$), and resulting OFL, buffer, ABC, forecasted F_{EEZ}, and MFMT. Note that OFL_{PRE} and Potential yield are calculated using the full posterior distributions of run size ($\hat{R}$) and state harvest ($\hat{F}_{STATE}$) rather than the point estimates (posterior medians) of these quantities presented here.

Run Size ($\hat{R}$)	$\hat{F}_{STATE}$	Potential yield EEZ	Buffer	OFL_{PRE}	ABC	Forecasted F_{EEZ}	MFMT
1,391,412	0.388	617,006	0.412	617,006	362,866	0.104	0.538

*Note that values presented in this table were calculated using preliminary 2024 run size and escapement estimates, which include estimated 2024 personal use and sport harvest.

Table 13. Kasilof River sockeye salmon observed escapements and current escapement targets

Year	Federal escapement target ($S_{MSY\text{-}POINT}$) (thousands)	Escapement (thousands)
2014		440
2015		471
2016		240
2017		359
2018		388
2019		373
2020		542
2021		517
2022		968
2023	222	933
2024	222	1,048
2025	222	1197*

*Calculated using estimates of 2024-2025 sport and personal use harvests.

4.4 Aggregate "Other" Sockeye Salmon, stock complex

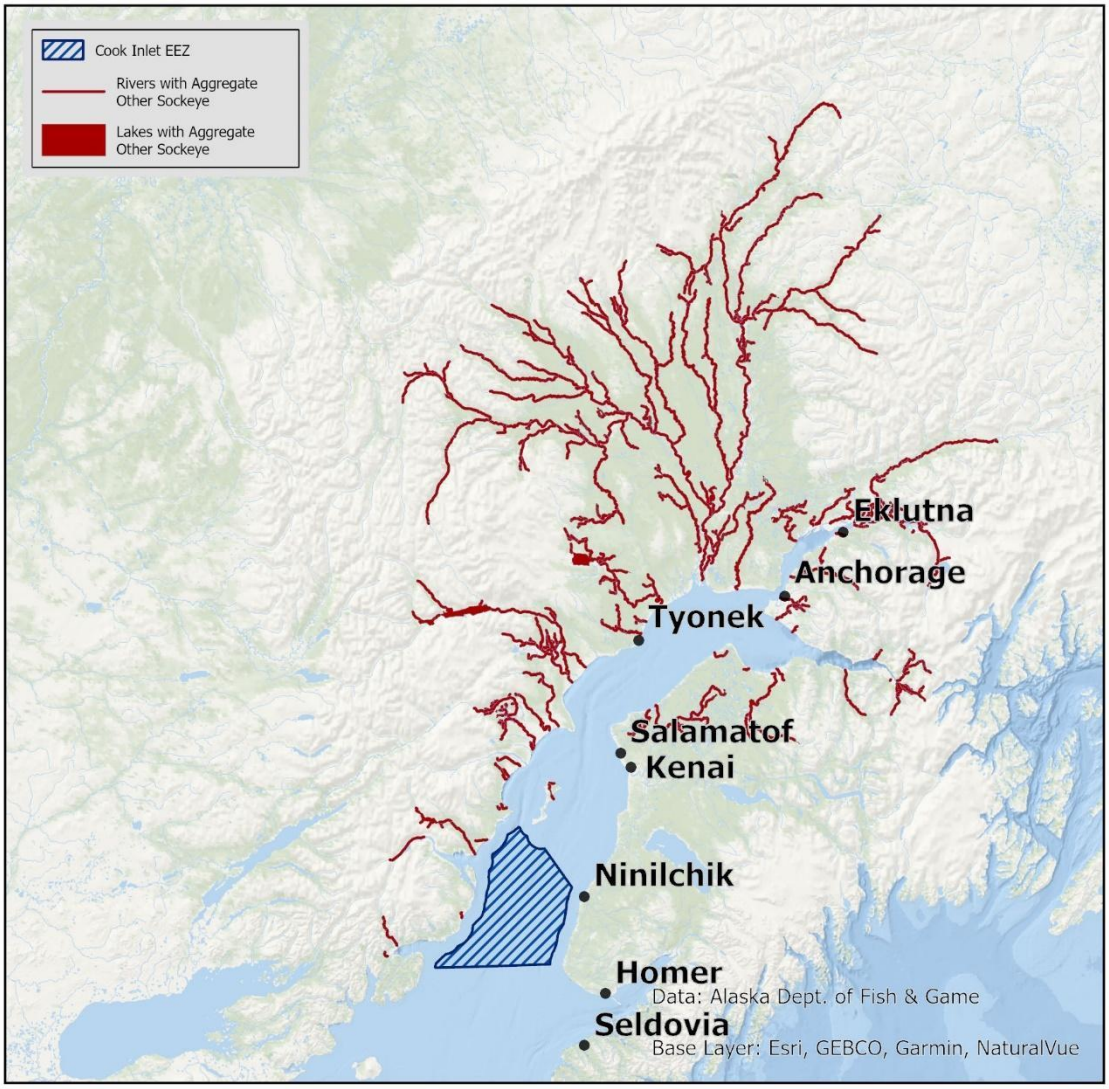

Figure 10. Map showing the CI EEZ and AOSOCK watersheds located in Upper Cook Inlet.

Definition: As described in the Salmon FMP, the Aggregate "Other" sockeye salmon stock complex (AOSOCK) is defined as all sockeye salmon harvested in the CI EEZ except for Kenai Late Run and Kasilof River sockeye salmon, with Fish Creek, Chelatna Lake, Judd Lake, and Larson Lake as indicator stocks that may be used to assess applicable SDC. The Federal definition for this stock also includes spawning escapements of sockeye salmon throughout UCI necessary to produce sustainable yield in future years.

4.4.1 Retrospective assessment of fishery information relative to status determination criteria, including overfishing and overfished designations

The 2025 estimated harvests and spawning escapements of AOSOCK are still preliminary (Table 14 and Table 15). Based on data provided by ADF&G, approximately 24% of the sockeye salmon harvested in the CI EEZ were from AOSOCK. Using this mixed stock analysis, during 2025, an estimated 93K

AOSOCK were harvested from the CI EEZ; which was less than the 2025 preseason OFL (181K), ABC/ACL (154K), and the AOSOCK proportion of the TAC (154K; Table 3). Because the estimated cumulative harvest for this stock across the most recent generation (537K; Table 15) is below the 2025 OFL of 907K sockeye salmon and the combined cumulative spawning escapements (557K) for the most recent generation (five years) is larger than the MSST (100K), it is the recommendation of the NMFS SAFE Team that overfishing did not occur during 2025 and that the stock is not in or approaching an overfished condition (Table 15).

4.4.2 Data and assessment methodology

4.4.2.1 Data input changes for 2026

The 2025 SAFE includes Federal catch data from the 2024-2025 federally managed CI EEZ salmon fishery. These data represent the second year of known catch occurring in the EEZ, as opposed to the catch estimates presented for years prior to 2024.

4.4.2.2 Changes in assessment methodology for 2026

Following the 2024 SSC recommendations, to calculate the OFL, the 2025-2026 assessments use the largest total EEZ harvest over a generation (five years for sockeye salmon); and, to calculate the preseason OFL (OFL_{PRE}), the average harvest over that same period. Additionally, per the SSC's guidance in 2025, the escapement goal for indicator stocks with missing weir counts for a given year is not counted towards the combined escapement target or MSST for those years.

4.4.2.3 Changes in assessment results for 2026

Given the new 2025-2026 methodology outlined above and in previous sections, relative to the 2024 SAFE report, OFL_{PRE} values in this 2026 SAFE are smaller and considered to be more representative of amounts that could reasonably be harvested in the EEZ during a single season (changed from the multi-year methodology used in the 2024 SAFE). Additionally, using the largest sum of EEZ harvest across a generation (as opposed to the largest observed EEZ harvest multiplied by the generation time used in the 2024 SAFE) results in a smaller OFL, which is used postseason to assess overfishing for Tier 3 stocks. Moreover, the change in how aggregate escapement targets are determined with respect to missing data from indicator stocks have changed the MSST values for this stock.

4.4.2.4 Existing data and assessment

The ADF&G data and stock assessment sources used for the Federal assessment of the AOSOCK are described in this section (Section 4.4), with the Mckinley et al. (2024) containing the most recent ADF&G stock assessment and escapement goal review. Recent escapement goals, estimates, and many additional references pertaining to assessments of this stock can be found in Munro and Gatt (2025).

EEZ harvest estimates for AOSOCK are considered to be relatively complete, with the Federal definition for harvest of this stock in the EEZ generally meaning those sockeye salmon not attributable to either KNSOCK or KASOCK

Spawning escapement data for stocks in the stock complex exists for several tributaries and drainages (described below).

Age data and genetics data and associated stock composition estimates exist for commercial harvests (Barclay 2020; Barclay and Chenowith 2021). Age estimates also exist for several tributaries and drainages within the stock complex.

Historically, the total run size for the Susitna River drainage portion of AOSOCK has been forecasted using mean values of productivity (recruit per spawner) and estimates of spawner abundance-based mark-recapture studies (DeCino 2022). However, beginning with ADF&G's 2023 preseason forecast of total run size, the Susitna River and Fish Creek forecasts relied on the recent 5-year average estimated total run sizes to these systems rather than forecasts that incorporated productivity and spawner abundance (Donnellan and Munro 2023).

4.4.2.5 Federal data and assessments

After review by NMFS and unless otherwise stated, this SAFE incorporates ADF&G data and associated estimates of harvest (1999 – 2025) and escapement data (Table 14 and Table 15). However, because of the timeline necessary to produce this SAFE and implement the Federal salmon management in the CI EEZ in 2026, this SAFE estimated: sportfish harvests in 2022-2023 and 2025; personal use harvests during 2025; subsistence harvests during 2025; and, education harvests in 2022-2025. Estimates for these values were made using 5-year averages and will be updated in future years as data become available.

This SAFE relies on Federal estimates of harvest in the CI EEZ from 2024-2025.

To inform SDC and harvest specifications, the Federal stock assessment relied on the method described previously for Tier 3 stocks.

The Tier 3 OFL was calculated as the largest cumulative EEZ harvest in the timeseries (1999 - 2025) across the generation time (five years), while the OFL_{PRE} was calculated as the largest average harvest across the same five years used to calculate the OFL. A range of buffers from 0.10 to 0.90 were considered to account for scientific uncertainty in reducing the OFL_{PRE} to the resulting ABC.

4.4.3 Stock size and recruitment trends

Stock overview: During the most recent five-year period (2021-2025), an average of 24% of the drift gillnet sockeye salmon harvest is estimated to have been from AOSOCK, with a range of harvests from 54-183K from the EEZ during this period. The estimated total run size (escapements from indicator stocks plus any sockeye salmon harvest not attributed to the Kenai or Kasilof sockeye salmon stocks) during the 2021 – 2025 period ranged from 348K – 1.135M, with the caveat, described below, that these estimates are likely missing substantial numbers of spawners due to unmonitored tributaries and drainages and incomplete escapement monitoring during some years. For example, based on 2025 estimates provided in ADF&G's UCI commercial salmon season summary report, the total run size of AOSOCK is estimated at approximately 1.519 million fish, which is slightly larger than the total run size of the KASOCK stock 1.24 million fish, (Lipka and Stumpf 2025b). Previously published reports by ADF&G also suggest that the federally defined AOSOCK stock complex is of similar or larger size than the KASOCK stock

Escapement goals: The Federal definition of this stock complex includes four indicator stocks for which the State has spawning escapement goals (2026 goal ranges in parentheses):

Fish Creek (15,000–45,000); Chelatna Lake (20,000–45,000); Judd Lake (15,000–40,000); and Larson Lake (15,000–35,000).

Based on recommendations from the SSC in 2025, this SAFE only considers the goals of indicator stocks for which escapement monitoring is considered complete (Table 14). Escapement monitoring (via weirs) did not occur on the Chelatna River 2020-2024, or on Judd Lake from 2023-2025 (Munro and Gatt 2025, Lipka and Stumpf 2025b, Lipka and Stumpf 2024). As such, the sum of the lower bound of monitored indicator stocks was 30,000 in 2024 and 50,000 in 2025 and realized escapements were greater than these amounts during both years (Table 14).

Escapement goals for some of the four indicator stocks in the stock complex have not been achieved during recent years (e.g., Larson Lake 2019-2020; Munro and Gatt 2025); however, none of these stocks are classified as "Stocks of Concern" by the State. As all escapement goals in the stock complex were developed based on the "Percentile Approach" (Clark et al. 2014); not achieving the lower bound of an escapement goal during some years is an expected product of that approach. For example, if the lower bound of an escapement goal is set at the 15th percentile of historical escapements, then escapements less than that level fall below the lower bound of the goal during approximately 15% of the years.

There are many other tributaries and drainages in UCI where sockeye salmon are known to spawn, but which lack escapement goals and active monitoring. Notably, there was a State escapement goal on the Crescent River (west side of CI), but this goal no longer exists and the escapement monitoring no longer

occurs. Other unmonitored systems where sockeye salmon are known to spawn in UCI include (Gatt and Erickson 2024): Big River, McArthur River, Chilligan River, Coal Creek, Cottonwood Creek, Wasilla Creek, and Eagle River.

Spawner-Recruitment and yield trends: Spawner-recruitment trends for the four index systems in the stock complex were not presented in the most recent ADF&G stock assessment and escapement goal review (Mckinley et al. 2024). The NMFS SAFE Team did not further investigate historical records of spawner-recruitment relationships for the index systems and a full accounting of such relationships is likely to be hampered by the number of systems that are unmonitored and the inability to attribute harvests to specific streams. Thus, while genetic analyses are being used by ADF&G to actively monitor the stock contributions of commercial harvests, the lack of escapement data makes it difficult to attribute these harvests to a given number of spawners in order to estimate the productivity (recruit per spawner) of the stock complex with a level of precision that can be used to inform spawning escapement goals or preseason forecasts. However, the Clark et al. (2014) description of the Percentile Approach for informing the bounds of spawning escapement goals provides a variety of model results that justify the choice of percentiles based on the likelihood of maximizing future yield (proxy for S_{MSY}-based goal range). As such, considerations for maximizing yield are inherent with the approach.

4.4.4 Tier determination and resulting OFL and ABC determination for 2025

For tier determination and the resulting method used to calculate SDC and harvest specifications, the NMFS SAFE Team considered the extent to which the stock complex has an estimate of escapement that it deems to be "reliable" and the extent to which the assigned tier level is precautionary with respect to protecting the stock from overfishing. The NMFS SAFE Team concluded that the indicator systems only estimated a small but unknown fraction of the overall spawning escapements, resulting in estimates of total run size that are not considered to be a reliable index of the actual total run size. As such, only a Tier 3 determination was considered for this 2026 assessment. However, as mentioned previously, there are State estimates which could be used to establish an approximate total run size, making the AOSOCK the most likely to be considered for a Tier 2 designation in the future if additional escapement estimates were available for unmonitored systems for the larger stock complex.

Based on the considerations provided above and consistent with the 2024-2025 SSC recommendations, the NMFS SAFE Team recommends to the SSC a Tier 3 determination for AOSOCK.

Status and catch specifications for AOSOCK based on a Tier 3 determination are provided in Table 15 with a range of buffers from 0.1 to 0.9 to reduce the OFL_{PRE} to ABC (Table 16). The 2025 OFL_{PRE} is calculated as the largest average harvest over a generation time (five years; 2007 - 2011) in the timeseries (Table 15).

For Tier 3 AOSOCK, the NMFS SAFE Team recommends that the 2026 OFL_{PRE} (181,351) be reduced by a 15% buffer to the resulting ABC of 154.1K. A buffer range of 10 – 30% was considered, where a 10% buffer would result in an ABC (163K) that is in the 75th percentile of past EEZ harvest and a 30% buffer would result in an ABC that is approximately equal to the mean historical EEZ harvest (128K) and slightly less than the median (130K) historic EEZ harvest. A relatively small 15% buffer compared the considered AOSOCK buffer range and to COHO 75%; Section 4.6.5) and ACHIN (30%; Section 4.5.4) is recommended because:

1. The AOSOCK monitored indicator stocks escapement goals have been met in recent years (Table 14).
2. As discussed above (section 4.4.3), the approximate AOSOCK total run size is likely comparable in magnitude or larger than the KASOCK, suggesting that the overall harvest rate on this stock in the CI EEZ would be similar to the harvest rates for the Tier 1 stocks.
3. There are no AOSOCK stocks that are listed as "Stocks of Concern" by the State of Alaska and the NMFS SAFE Team considers the AOSOCK stock to be healthy.

4. However, as with other Tier 3 stocks, the total run size cannot be precisely determined and the NMFS SAFE Team recommends that a 15% buffer (as opposed to a 10%) accounts for uncertainty to ensure that the OFL is not exceeded.

Given the above considerations, the NMFS SAFE Team recommends that a 15% buffer is sufficiently precautionary to ensure that the OFL is not exceeded, while still allowing for a level of harvest (ABC/ACL = 154.1K) that has only been exceeded eight times in the timeseries under consideration (1999 – 2025; Figure 11).

While this stock can be declared overfished if cumulative spawning escapements of the indicator stocks are determined to be below MSST (similar to Tier 1 and 2), as total run size is not estimable in this tier, MFMT and F_{EEZ} are not calculable and therefore overfishing will be assessed based on a comparison of the OFL with the cumulative harvest across the most recent generation (five years).

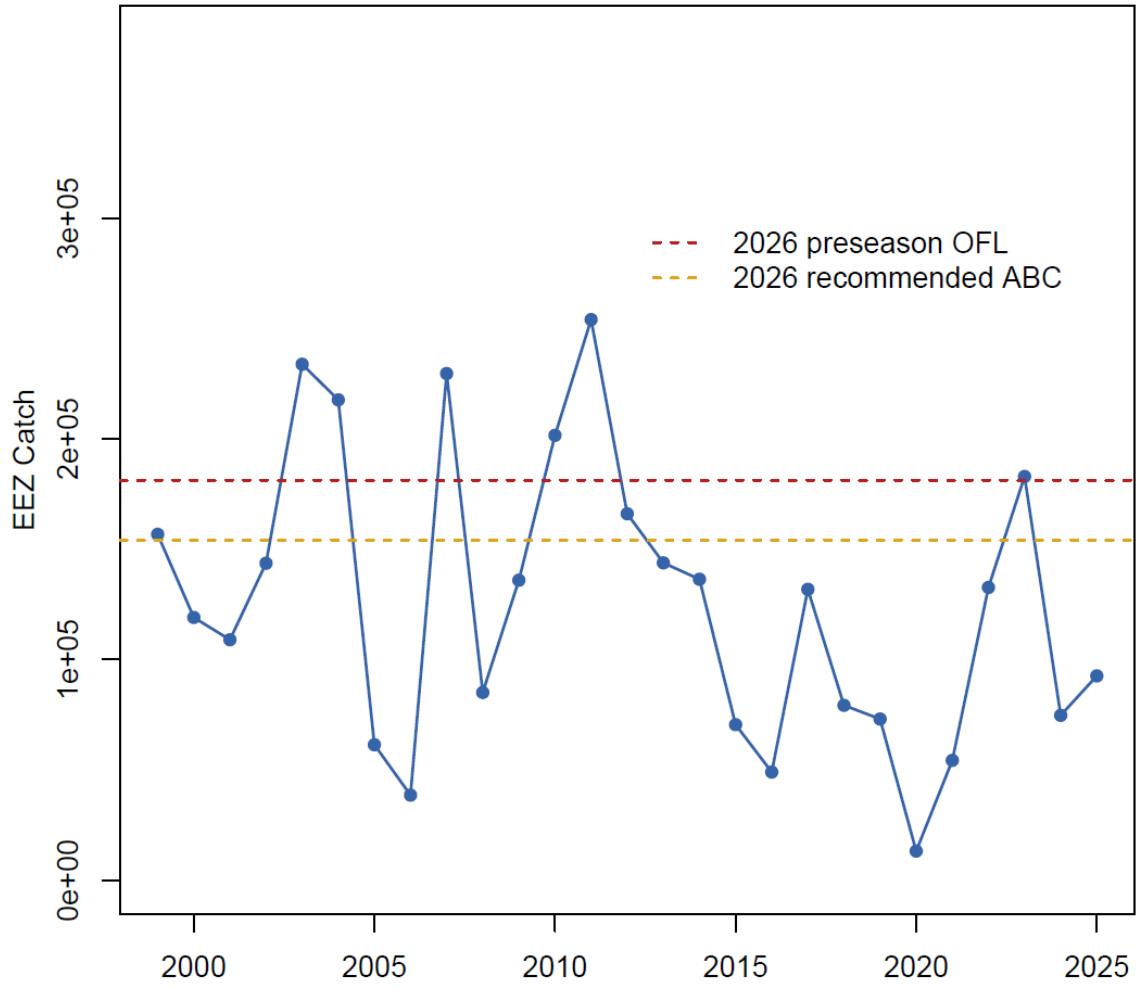

Figure 11. Time-series of aggregate "other" sockeye salmon stock complex harvests in the CI EEZ *for years 1999 – 2025 relative to proposed 2026 OFL and ABC. EEZ harvest estimates prior to 2024 are based on methods and assumptions described in section 4.1 of this SAFE report. Aggregate "Other" sockeye salmon stock complex catch is estimated from the total CI EEZ catch using genetic mixed stock analysis.*

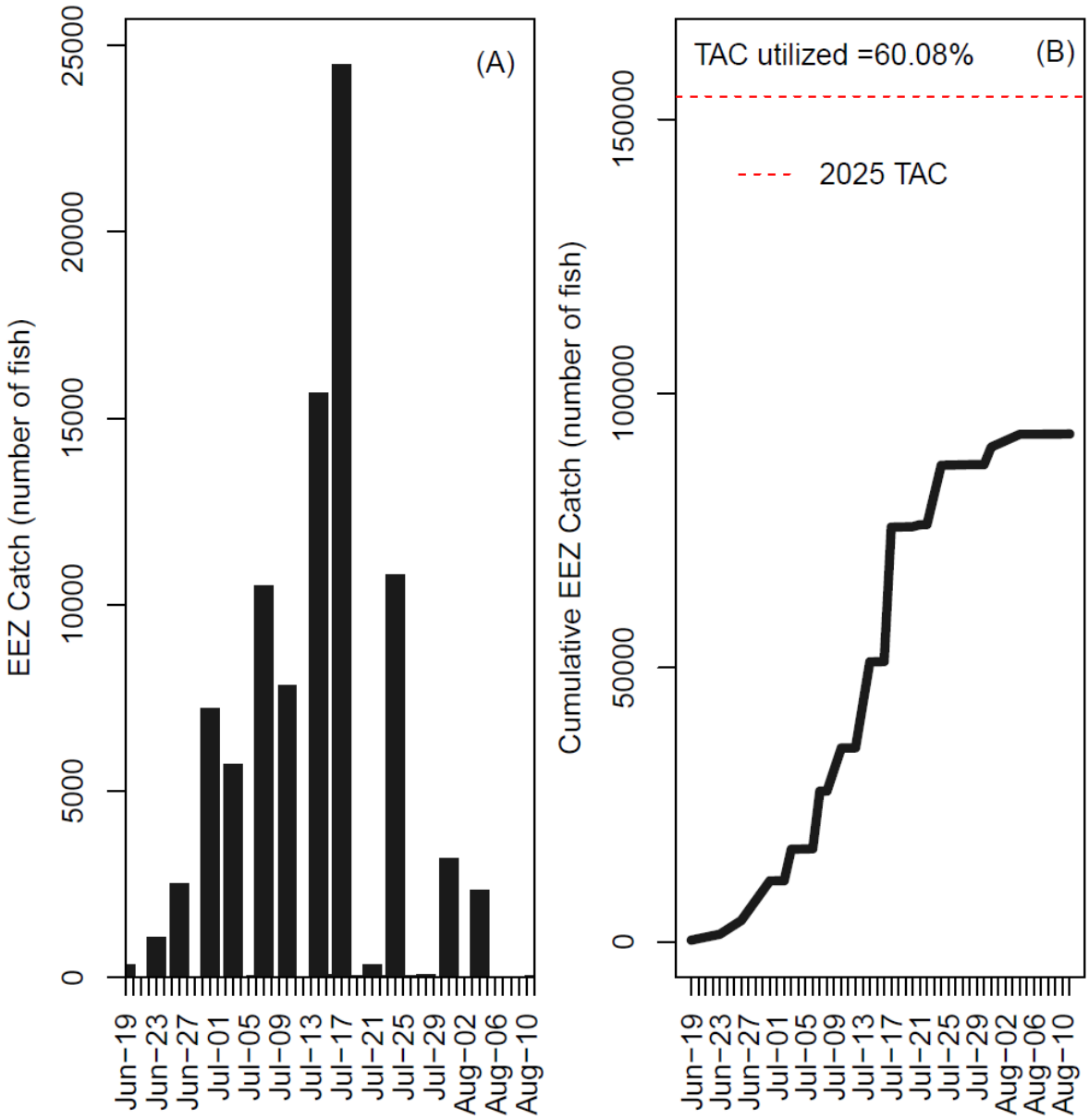

Figure 12. 2025 aggregate "other" sockeye salmon CI EEZ catch. Panel A depicts catch by day and panel B shows cumulative daily catch compared to the 2025 TAC. Note that the catch of Aggregate "Other" sockeye salmon is estimated by subtracting the estimated Kenai Late Run and Kasilof sockeye salmon catch from the total sockeye salmon catch

Table 14. Aggregate "Other" sockeye salmon indicator stocks escapement information. Includes the sum of observed escapements for indicator stocks and the and sum of the lower bound (L.B.) of current escapement index goals for years 2014 - 2024 in thousands of fish. Bolded values are escapements that did not meet the lower bound of the goal. Data from Munro 2023, Munro and Gatt, 2025 (ADF&G).

	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.
2014	20	26	25	22	15	**12**	20	44	80	105
2015	20	70	25	48	15	23	20	102	80	243
2016	20	61	25	NA	15	**14**	20	46	55	121
2017	20	27	15	36	15	32	15	61	65	156
2018	20	20	15	31	15	24	15	71	65	146
2019	20	26	15	44	15	**10**	15	75	65	156
2020	20	NS	15	31	15	**12**	15	64	45	108[a]
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

Table 15. Status and catch specifications for Tier 3 Aggregate "Other" sockeye salmon stock complex. An overfished determination is assessed postseason by comparing the minimum stock size threshold (MSST; one half of the sum of the indicator stock's spawning escapement goal summed across a generation, with actual cumulative escapement of the indicator stocks summed across a generation (Cum. Escap.). Overfishing is assessed postseason by comparing the actual harvest summed across a generation (EEZ Cum. Harvest) with the postseason overfishing limit (OFL). Unless otherwise noted, values are in the thousands of fish. Shaded values are new estimates or projections based on the current assessment, the projected EEZ Cum. Estimated cumulative harvest for the coming fishing season only includes the first four years (T-1) of the current generation. Bolded EEZ Harvest values are used to calculate OFL and OFL_{PRE}. *Note that EEZ harvest prior to 2024 is estimated as described in section 4.1.*

Year	MSST[a]	Cum. Esc.[a]	Total Harvest	EEZ Harvest	EEZ Cum. Harvest	OFL	OFL_{PRE}
1999	NA	NA	649	157	NA	NA	NA
2000	NA	NA	435	119	NA	NA	NA
2001	NA	NA	456	109	NA	NA	NA
2002	NA	NA	634	144	NA	NA	NA
2003	50	273	620	234	763	NA	NA
2004	50	268	759	218	824	NA	NA
2005	50	263	676	61	766	NA	NA
2006	50	252	256	39	695	NA	NA
2007	50	189	651	**230**	781	NA	NA
2008	50	116	424	**85**	633	NA	NA
2009	80	281	540	**136**	551	NA	NA
2010	110	470	637	**202**	691	NA	NA
2011	140	627	835	**254**	907	NA	NA
2012	170	689	473	166	843	NA	NA
2013	200	795	507	144	902	NA	NA
2014	200	714	469	136	902	NA	NA
2015	200	754	505	70	771	NA	NA
2016	187.5	686	308	49	566	NA	NA
2017	180	751	656	132	532	NA	NA

Year	MSST[a]	Cum. Esc.[a]	Total Harvest	EEZ Harvest	EEZ Cum. Harvest	OFL	OFL_{PRE}
2018	172.5	772	362	79	467	NA	NA
2019	165	822	449	73	404	NA	NA
2020	147.5	687	231	13	346	NA	NA
2021	142.5	736	367	54	352	NA	NA
2022	132.5	694	234	133	353	NA	NA
2023	115	631	547	183	456	NA	NA
2024	97.5	530	1081	75	458	1,271[b]	888[b]
2025	100	557	393	93	537	907	181
2026						907	181

[a]Calculated based on escapements and escapement targets for indicator stocks (Fish Creek, Chelatna Lake, Judd Lake, and Larson Lake)

[b]For the 2024 SAFE, a different method was used to calculate the Tier 3 OFL and OFL_{PRE}. See the Final 2024 CI EEZ SAFE for additional details.

Table 16. 2026 recommended Tier 3 SDC for the aggregate "Other" sockeye salmon stock complex and a range of buffers to reduce the preseason OFL to ABC.

Buffer	OFL_{PRE}	ABC	OFL
10%	181,351	163,216	906,757
20%	181,351	145,081	906,757
30%	181,351	126,946	906,757
40%	181,351	108,811	906,757
50%	181,351	90,676	906,757
60%	181,351	72,541	906,757
70%	181,351	54,405	906,757
80%	181,351	36,270	906,757
90%	181,351	18,135	906,757

4.5 Aggregate Chinook Salmon, stock complex

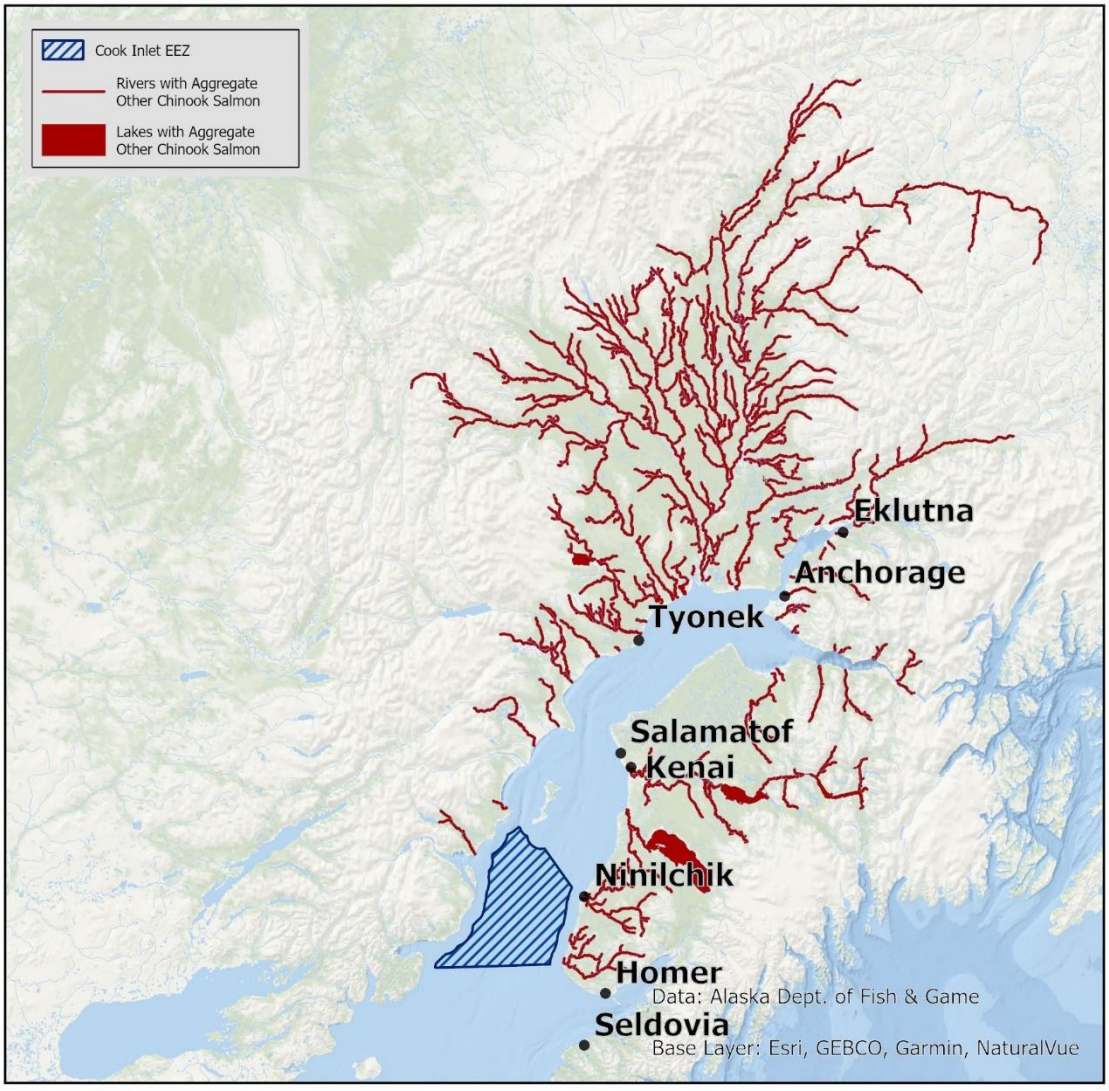

Figure 13. Map showing the CI EEZ and watersheds with Chinook salmon in Upper Cook Inlet.

Definition: As described in the Salmon FMP, the Aggregate Chinook salmon stock complex (ACHIN) is defined as all Chinook salmon harvested in the CI EEZ with Kenai Late Run Large Chinook salmon as an indicator stock that may be used to assess applicable SDC. The Federal definition for this stock also includes spawning escapements of Chinook salmon throughout UCI necessary to produce sustainable yield in future years.

4.5.1 Retrospective assessment of fishery information relative to status determination criteria, including overfishing and overfished designations

During the 2025 fishery, 46 Chinook salmon from ACHIN were harvested in the CI EEZ; which was less than the 2025 preseason OFL (373), ABC/ACL (261) and TAC (261; Table 3). Because the estimated postseason cumulative harvest across a generation (371) was less than the 2025 OFL (2,237) for this stock, and the indicator stock's (Kenai River late run Chinook salmon) cumulative escapement

(75K) was greater than the MSST (45K), it is the recommendation of the NMFS SAFE Team that overfishing did not occur during 2025 and that the stock is not in an overfished condition.

4.5.2 Data and assessment methodology

4.5.2.1 Data input changes for 2026

The 2026 SAFE includes Federal catch data from the 2024-2025 federally managed CI EEZ salmon fishery. These data represent known catch occurring in the EEZ, as opposed to the catch estimates presented for years prior to 2024.

4.5.2.2 Changes in assessment methodology for 2026

Following the 2024 SSC recommendations to the NMFS SAFE Team, the 2025-2026 assessments use the largest total EEZ harvest over a generation (six years for Chinook salmon) to calculate the OFL, and the average harvest over that same period to calculate the preseason OFL (OFL_{PRE}).

4.5.2.3 Changes in assessment results for 2026

Given the new 2025-2026 methodology outlined above and in previous sections, relative to the 2024 SAFE report, preseason OFL values in the 2025-2026 SAFE reports are smaller and considered to be more representative of amounts that could reasonably be harvested in the EEZ during a single season (changed from the multi-year methodology used in the 2024 SAFE). Additionally, using the largest sum of EEZ harvest across a generation, as opposed to the largest observed EEZ harvest multiplied by the generation time used in the 2024 SAFE, results in a smaller OFL value used postseason to assess overfishing for Tier 3 stocks.

4.5.2.4 Existing data and assessments

The ADF&G data and stock assessment sources used for the Federal assessment of the ACHIN are described in this section (Section 4.5).

Harvest in the CI EEZ occurring in 2024-2025 (the first federally managed fishery in UCI EEZ) is considered to be known and complete (rather than estimated as for pre-2024).

The data used to assess the Chinook salmon stocks in this section include estimates of harvests in the CI drift gillnet fishery attributed to Kenai Late Run Chinook salmon and all other Chinook salmon, annual spawning escapements and associated escapement goals for 13 stocks that represent drainages and tributaries–as well as differential run timing for some tributaries (Munro 2023), and spawner-recruitment data for Kenai River, Deshka River, Eastside Susitna River, Talkeetna River, and Yentna River stocks.

Spawner-recruitment (Ricker) models were used to inform the bounds of the State spawning escapement goals for the stocks with available spawner, recruitment, and age data. The Percentile Approach was used for escapement goal development for nine stocks and a Risk analysis was used for escapement goal development for a single stock. Additional details of these analyses are provided in Mckinley et al. (2024), Reimer and DeCovich (2020), and Fleischman and Reimer (2017).

ADF&G produces preseason forecasts of total run size for Kenai River Early and Late Runs, and Deshka River Chinook salmon stocks. Sibling model relationships for the dominant age classes inform ADF&G's pre-season estimates of total run size, with forecasted returns of minor age classes based on recent average returns.

For UCI, there are five Chinook salmon "Stocks of Management Concern" listed by the State, four of which are in the far northern portion of CI, Chuitna River, Theodore River, Alexander Creek, and Eastside Susitna River (Munro 2023), as well as the Kenai River Late Large Chinook salmon stock (Munro and Gatt 2025, Miller 2024).

4.5.2.5 Federal data and assessments

After review by NMFS and unless otherwise stated, this SAFE incorporates ADF&G data and associated estimates of harvest (2024-2025 harvest in State waters and 1999 – 2023 harvest), escapement, age, sex, and other data.

This SAFE relies on Federal estimates of harvest in the CI EEZ from 2024-2025.

To inform SDC and harvest specifications, the Federal stock assessment relied on the method described previously for Tier 3 stocks.

4.5.3 Stock size and recruitment trends

Stock overview: During the most recent five-year period (2021–2025) a range of 31–87 Chinook salmon were harvested in the EEZ (Table 17); however, there is not good information on which stocks of Chinook are harvested in the Federal fishery. Genetic sampling of Chinook salmon caught in UCI saltwater sport fisheries from June – September during 2014 – 2018 suggests that 77 – 92% of sampled Chinook salmon originated from outside the CI area (Schuster et al. 2021).

Additionally, available data suggests that few of the Chinook salmon harvested in the CI EEZ can be attributed to the Kenai Late Run Large Chinook salmon stock, for which Chinook must be greater than 75 cm mid-eye to tail fork length in order to be classified as "large." For the 2024 CI EEZ fishery, of the 31 Chinook salmon reported harvested, 21 were weighed, the average weight was 7.9 pounds, and only 2 fish were estimated to be larger than 75 cm using a length-weight relationship from Jasper and Evenson (2006); though, whether these two fish were from the Kenai River Chinook salmon stock is unknown.

Despite historically low overall Chinook salmon harvest rates across all fisheries during recent years (including the EEZ), spawning escapement and total run sizes have been at some of the lowest levels in the available timeseries. Total run size during the 2021 – 2025 period ranged from 7 – 15.7K Kenai River Late Run Large Chinook salmon.

Escapement goals: Escapement goals pertinent to the ACHIN stock complex could include all UCI Chinook salmon spawning escapement goals. However, as Susitna River stocks of Chinook salmon are not thought to be harvested in significant quantities in the EEZ drift gillnet fishery (Reimer and DeCovich 2020), the only remaining substantial spawning escapement goal that might be pertinent to this ACHIN stock complex is the Kenai River Late Run Large Chinook salmon stock.

The State's Kenai River Late Run Chinook salmon large fish (>75 cm mid-eye to tail fork length) spawning escapement goals (2017–2019: 13,500–27,000; 2020–present: 15,000–30,000) was not achieved in 2019, 2020, 2021 and 2024 (Munro and Gatt 2025, Munro 2023). However, the stock appears to have met its escapement goal in 2025 (escapement of 15,641).

As first implemented during 2017, the large fish goal was primarily justified in order to match the component of Chinook enumerated via sonar and, secondarily, to ensure that sufficient numbers of female Chinook salmon spawn (which tend to be larger) to maintain baseline levels of egg deposition and potential recruitment (Fleischman and Reimer 2017).

For the ACHIN stock complex, despite uncertainty in whether Kenai Late Run Large Chinook are harvested in the EEZ, consistent with the 2024-2025 SSC recommendations, the NMFS SAFE Team recommends including the Kenai River Late Run Large Chinook salmon escapement goal (and associated escapements, as described in the previous section) to assess against MSST (overfished determination) using the Tier 3 approach; with reevaluation for future SAFE reports based on updated information.

Spawner-Recruitment and yield trends: It is the recommendation of the NMFS SAFE Team that, since there is not currently a good basis for knowing which stocks of Chinook salmon are harvested in the CI EEZ, there are no applicable stocks to consider for spawner-recruitment and yield trends for the

ACHIN stock complex. The spawner-recruitment and yield estimates for Kenai Late Run Large Chinook salmon stock might be applicable to the CI EEZ fishery, but this is unknown without genetic stock contribution information for the EEZ fishery.

All UCI Chinook salmon stocks for which recruitment data are available are in a period of low productivity, recruitment, and abundance that began in the 2000s, with some of the lowest adult abundances observed since the 1970s. The extent of historical harvests of specific UCI Chinook salmon stocks in the EEZ is unknown.

As an aggregate stock complex, several of the 14 State Chinook salmon spawning escapement goals in UCI are monitored and enumerated with a single aerial, foot survey, and other methods each year that may represent indices of escapements rather than actual numbers of spawners. As such, it is the recommendation of the NMFS SAFE Team that there is not a reliable estimate of spawners for the Federal ACHIN stock complexes as a whole and, as a result, that the overall run size (harvest + escapement) of the stock complexes is not known. However, spawning escapement estimates and indices, and available aggregate harvest data, all indicate that the stock complexes have declined substantially in size concomitant with the stocks defined by the State for which spawner-recruitment estimates are available.

Kenai River Late Large Chinook salmon spawner-recruitment and yield trends: When examining data from 1985-2015 years, results from the state-space spawner-recruitment (Ricker) analyses (Fleischman and Reimer 2017) conducted by ADF&G suggest that approximately 18,477 spawners would result in maximum sustainable yield for the Kenai River Late Run Large Chinook salmon stock, with a range of 11,731–31,832 equating to the 0.05–0.95 percentiles of the posterior distribution. After controlling for density dependent effects, the ADF&G analyses showed evidence for time-varying productivity, with declining stock productivity after 1999, perhaps due to declining marine survival.

4.5.4 Tier determination and resulting OFL and ABC determination for 2026

Consistent with the 2024-2025 SSC recommendations, the NMFS SAFE Team recommends to the SSC that ACHIN be given a Tier 3 determination. As a stock complex with many different drainages and tributaries for which escapement estimates are likely indices of spawners rather than an actual number of fish, these estimates are unlikely to represent "reliable" estimate of spawners or a total run size that can be used to calculate MFMT and F_{EEZ} for the overall stock complex.

The precision of the Chinook salmon harvest rate estimates on component stocks in the CI EEZ is unknown as the drift gillnet fishery is not thought to have been sampled to obtain genetic stock composition estimates. In addition to the issues raised in the previous section regarding EEZ harvest estimates of Kenai River late run large Chinook salmon, as discussed by Reimer and DeCovich (2020) in their assessment of Chinook salmon stocks of the Susitna River drainage, there is also an absence of data to support EEZ harvest estimates of other major UCI Chinook salmon stocks: "A drift gillnet fishery targeting sockeye salmon (*O. nerka*) in CI also harvests some Chinook salmon (1966–2016) annual average was 954 Chinook salmon; (Shields and Frothingham 2018); however, no stock composition information is available for Chinook salmon harvested in this fishery. We assume it is not significant for the purpose of this study because the fishery largely takes place after Susitna River Chinook salmon have migrated through the area."

Status and catch specifications for ACHIN based on a Tier 3 determination are provided in Table 17 and Table 18 with a range of buffers from 0.1 to 0.9 to reduce the OFL_{PRE} to ABC (Table 19). The 2025 OFL_{PRE} is calculated as the largest average harvest over a generation time (six years; 2004 - 2009) in the timeseries (Table 17).

For Tier 3 ACHIN, the NMFS SAFE Team recommends that the preseason OFL (373 fish) be reduced by a 30% buffer to result in the ABC of 261 fish. A range of buffers from 10 – 50% were considered given the following information:

1. The ACHIN indicator stock, Kenai Late Run Large Chinook salmon, is not in or approaching an overfished state (Table 17).

2. The 2025-2026 Tier 3 method for calculating the OFL_{PRE} is more representative of a reasonable single season harvest amount compared to the 2024 OFL_{PRE} (2024 buffer = 90%), thus resulting in a smaller, but still relatively conservative buffer.
3. While susceptible to the drift gillnet fishery because of their size, historically, Chinook salmon have primarily been harvested in State waters, particularly in the East Side Set Net/Dip Net fishery. From 1999 – 2024 Chinook salmon harvested in the CI EEZ accounted for an average of 7.8% of the total commercial catch (minimum of 0.7% in 2000, and a maximum of 47% in 2022; 18% in 2024). ADF&G closed the East Side Set Net fishery in 2024 as part of the Kenai River Late Large Chinook salmon recovery plan, recognizing that the vast majority of Chinook salmon appear to migrate closer to the shore in UCI (Lipka and Stumpf 2024b). The East Side Set Net fishery was largely closed during 2025 (Lipka and Stumpf 2025b).
4. Chinook salmon are not thought to be targeted in the CI EEZ fishery, and are caught incidentally.
5. Genetic sampling of Chinook salmon harvested in saltwater sport fisheries of the State's Central District of UCI in years 2014 – 2018 indicates that 77 – 92% of sampled Chinook salmon originated from outside the CI area (Schuster et al. 2021), and that Kenai River Chinook salmon made up 0.3 – 12.7% of the total sampled sportfish harvest.
6. The average Chinook salmon weight caught in the Central District Driftnet fishery from 2018 – 2022 (8.2, 9, 10.8, 7.8, 7.7 lbs. respectively) was much lower than the weight of Chinook salmon caught in the Central District Setnet fishery (15.2, 17, 14.1, 13.6, 13.7 lbs.) where Chinook salmon have historically been harvested in larger numbers and have been attributed to returning migrations of Chinook salmon to CI watersheds (Lipka and Stumpf 2024; Marston and Frothingham 2019, 2021, 2022a, 2022b). The smaller average Chinook salmon size in the Central Driftnet fishery indicates that very few of the fish caught in the CI EEZ are from the Kenai Late Run Large Chinook salmon stock.
7. ADF&G has five UCI Chinook salmon stocks listed as "Stocks of Management Concern".
8. Considering the timeseries of estimated Chinook salmon catch in the CI EEZ, an ABC of 261 Chinook salmon would not have been exceeded since 2009, and has only been exceeded in six (2003-2007, 2009) of the 27 years in the timeseries under consideration (1999 – 2025; Figure 14).

Considering the above points, the NMFS SAFE Team recommends that a 30% buffer properly balances the need for precautionary measures to conserve UCI Chinook salmon stocks (e.g., Kenai River late run large Chinook salmon and others listed as Stocks of Management Concern by the State) with indications that such stocks might not be present in the CI EEZ fishery in appreciable numbers.

While this stock can be declared overfished if cumulative spawning escapements are determined to be below MSST (similar to Tier 1 and 2) for the Kenai River Late Run Large Chinook salmon indicator stock, as total run size is not estimable in this tier, MFMT and F_{EEZ} are not calculable; overfishing would be assessed based on the OFL.

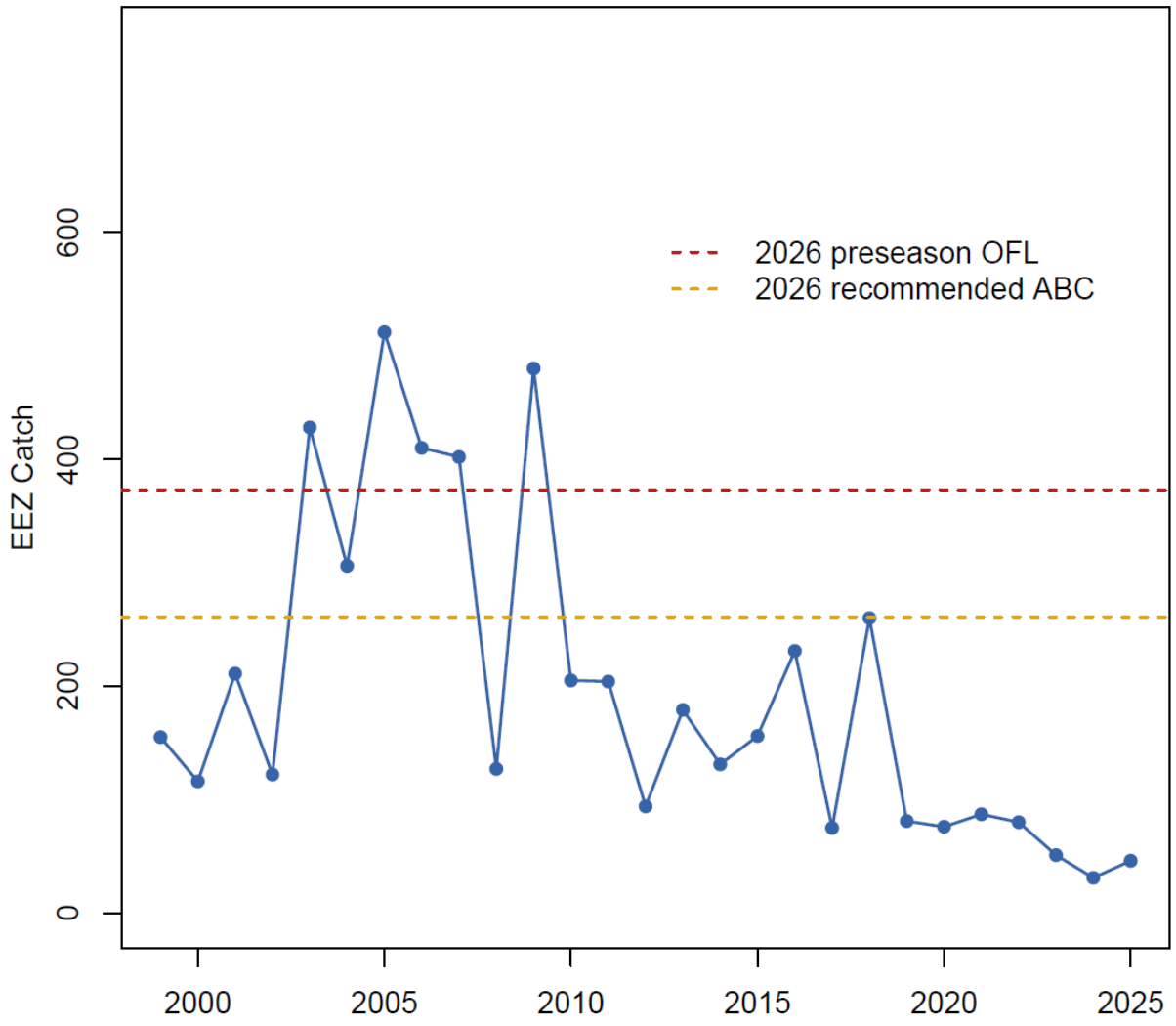

Figure 14. Time-series of aggregate Chinook salmon harvest in the EEZ for years 1999 - 2025 relative to proposed 2026 OFL and ABC. CI EEZ harvest estimates prior to 2024 are based on methods and assumptions are described in section 4.1 of this SAFE report.

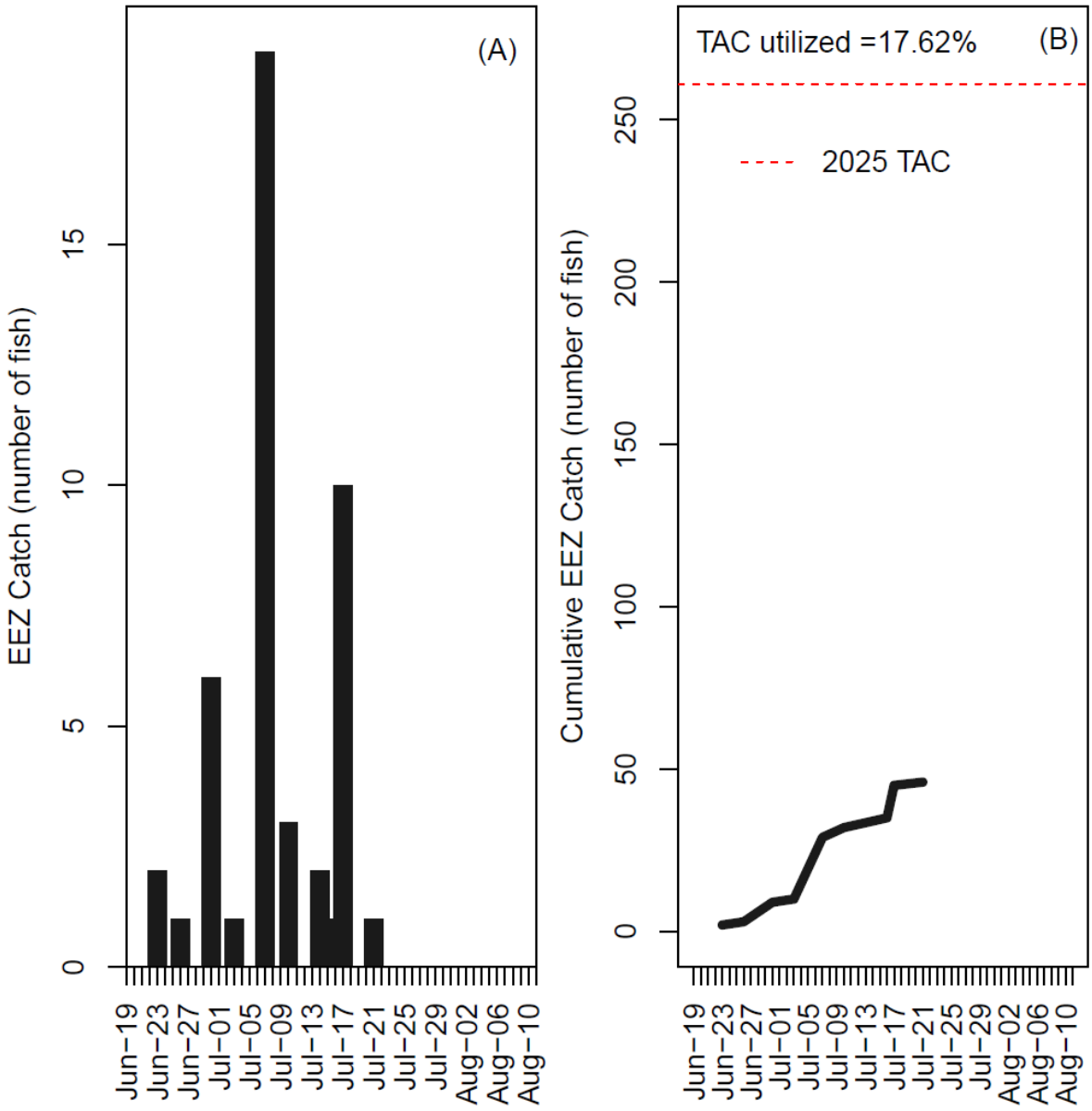

Figure 15. 2025 aggregate Chinook salmon stock complex CI EEZ catch. Panel A depicts catch by day and panel B shows daily cumulative catch compared to the 2025 TAC.

Table 17. Status and catch specifications for Tier 3 Aggregate Chinook salmon stock complex (ACHIN). An overfished determination is assessed postseason by comparing the minimum stock size threshold (MSST; one half of the sum of the indicator stock's spawning escapement goal summed across a generation), with actual cumulative escapement of the indicator stock (Kenai River Late Run Large Chinook salmon) summed across a generation (Cum. Escap.). Overfishing is assessed postseason by comparing the actual harvest of all Chinook salmon summed across a generation (EEZ Cum. Harvest) with the postseason overfishing limit (OFL). Shaded values are new estimates or projections based on the current assessment. Bolded EEZ Harvest values are used to calculate OFL and OFL_{PRE}. Note that EEZ harvest prior to 2024 is estimated as described in section 4.1.

Year	MSST[a]	Cum. Esc.[a]	Total Run[a] (000's)	Total Kenai Late Harvest[a]	State Drift Gillnet Harvest (all Chinook)	EEZ Harvest (all Chinook)	EEZ Cum. Harvest (all Chinook)	OFL	OFL_{PRE}
1999	NA	NA	45.7	16557	420	155	NA	NA	NA
2000	NA	NA	41.7	16217	155	116	NA	NA	NA
2001	NA	NA	45.8	16223	409	211	NA	NA	NA
2002	NA	NA	55.9	15396	294	122	NA	NA	NA
2003	NA	NA	68.0	19523	812	428	NA	NA	NA
2004	53400	238220	91.3	26200	799	**306**	1338	NA	NA
2005	53400	264808	84.2	28501	1447	**512**	1695	NA	NA
2006	53400	278611	57.1	17817	2372	**410**	1989	NA	NA
2007	53400	278744	44.4	14757	511	**402**	2180	NA	NA
2008	53400	266324	42.7	14586	5264	**127**	2185	NA	NA
2009	53400	236114	28.0	9793	379	**480**	2237	NA	NA
2010	53400	184039	22.2	9143	333	205	2136	NA	NA
2011	53400	144082	26.4	10650	389	204	1828	NA	NA
2012	53400	127230	23.2	753	124	94	1512	NA	NA
2013	52000	109871	14.4	2077	314	179	1289	NA	NA
2014	50600	93757	13.4	1423	251	131	1293	NA	NA
2015	49200	92331	22.8	5971	400	156	969	NA	NA
2016	47800	93970	25.1	10453	375	231	995	NA	NA

Year	MSST[a]	Cum. Esc.[a]	Total Run[a] (000's)	Total Kenai Late Harvest[a]	State Drift Gillnet Harvest (all Chinook)	EEZ Harvest (all Chinook)	EEZ Cum. Harvest (all Chinook)	OFL	OFL_{PRE}
2017	45650	98822	31.3	10679	190	75	866	NA	NA
2018	43500	93774	18.5	1106	243	260	1032	NA	NA
2019	42750	93178	13.3	1562	98	81	934	NA	NA
2020	42750	93052	12.2	365	106	76	879	NA	NA
2021	42750	88465	12.7	427	130	87	810	NA	NA
2022	42750	87700	14.1	202	89	80	659	NA	NA
2023	43500	81619	14.7	240	57	51	635	NA	NA
2024	44250	71120	6.9	24	49	31	406	3,072[b]	2,697[b]
2025	45000	75052	15.7	38	65	46	371	2,237	373
2026								2,237	373

[a] Calculated based on escapements, escapement targets, and estimated harvests for the indicator stock (Kenai River Late-Run Large Chinook Salmon).

[b]For the 2024 SAFE, a different method was used to calculate the Tier 3 OFL and OFL_{PRE}. See the Final 2024 CI EEZ SAFE for additional details.

*Table 18.*Kenai River late-run large Chinook salmon observed escapements and escapement goals.

Year	Lower Bound of Escapement Goal	Escapement
2014	15,000	11,980
2015	15,000	16,825
2016	15,000	14,676
2017	13,500	20,583
2018	13,500	17,405
2019	13,500	11,709
2020	15,000	11,854
2021	15,000	12,238
2022	15,000	13,911
2023	15,000	14,502
2024	15,000	6,906
2025	15,000	15,641*

*Preliminary estimated escapement.

Table 19. 2026 recommended Tier 3 SDC for the aggregate Chinook salmon stock complex and a range of buffers to reduce the preseason OFL to ABC.

Buffer	OFL_{PRE}	ABC	OFL
10%	373	336	2,237
20%	373	298	2,237
30%	373	261	2,237
40%	373	224	2,237
50%	373	186	2,237
60%	373	149	2,237
70%	373	112	2,237
80%	373	75	2,237
90%	373	37	2,237

4.6 Aggregate Coho Salmon, stock complex

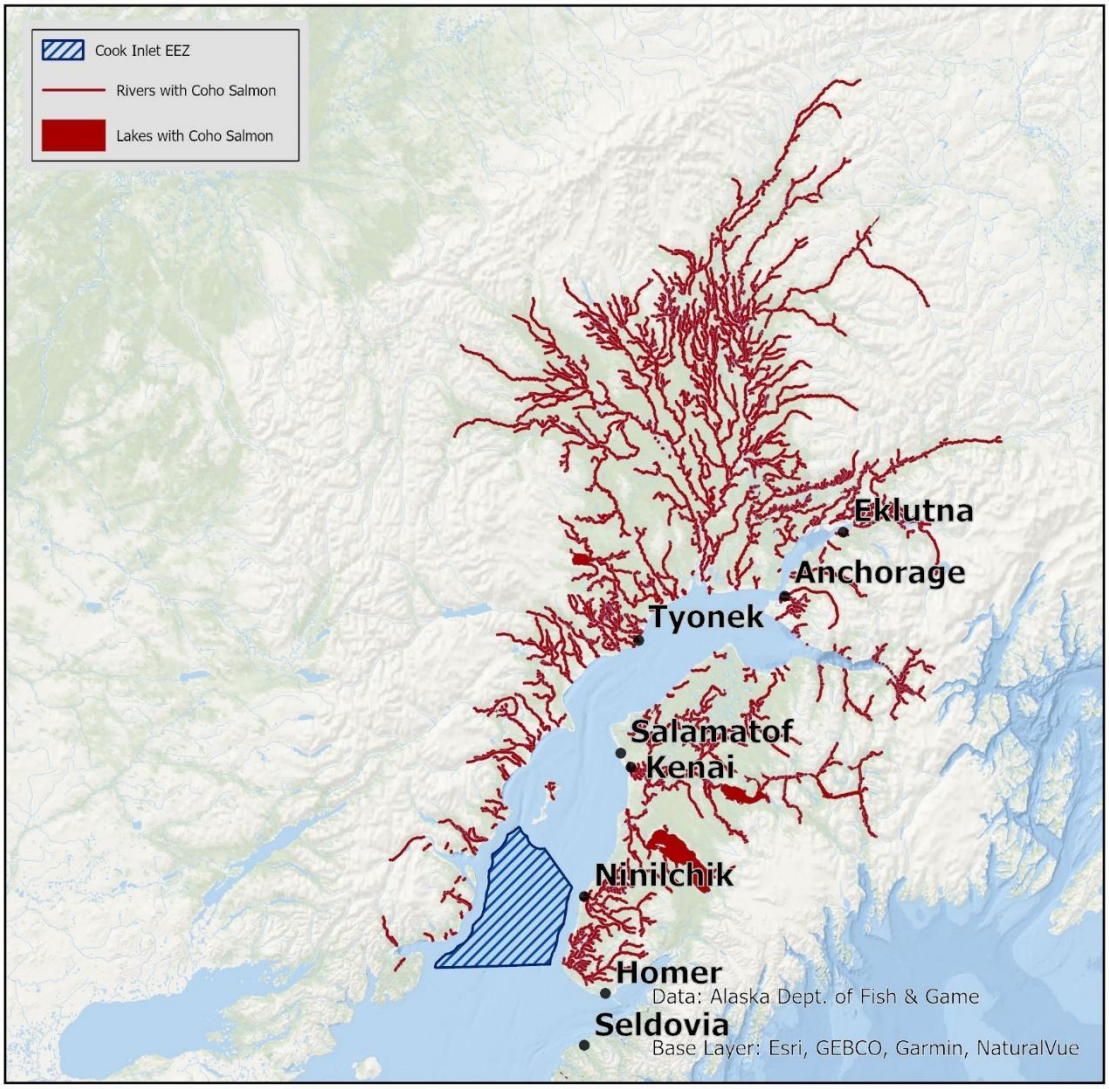

Figure 16. Map showing the CI EEZ and the watersheds with coho salmon located in Upper Cook Inlet.

Definition: As described in the Salmon FMP, the aggregate coho salmon stock complex (COHO) is defined as all coho salmon harvested in the CI EEZ with Deshka and Little Susitna rivers as indicator stocks that may be used to assess applicable SDC. The Federal definition for this stock also includes spawning escapements of coho salmon throughout UCI necessary to produce sustainable yield in future years.

4.6.1 Retrospective assessment of fishery information relative to status determination criteria, including overfishing and overfished designations

During the 2025 fishery, 15,444 coho salmon were harvested in the CI EEZ; which was less than the 2025 Preseason OFL (67K), ABC/ACL (16.75K) and TAC (16.75K; Table 3). Because the estimated postseason cumulative harvest across a generation time (68K) was less than the 2025 OFL (268K) for

this stock, it is the recommendation of the NMFS SAFE Team that overfishing did not occur during 2025 (Table 20).

Incomplete estimates of spawning escapements to the Deshka and Little Susitna River indicator stocks during recent years make it challenging to assess the overfished status of COHO. It is the recommendation of the NMFS SAFE Team to the SSC that 2025 postseason spawning escapements for the most recent generation do not represent a complete and reliable index of abundance for COHO and thus an overfished status cannot be assessed.

4.6.2 Data and assessment methodology

4.6.2.1 Data input changes for 2026

The 2026 SAFE includes Federal catch data from the 2024-2025 federally managed CI EEZ salmon fishery. These data represent the first year of known catch occurring in the CI EEZ, as opposed to the catch estimates presented for years prior to 2024.

4.6.2.2 Changes in assessment methodology for 2026

Following the 2024 SSC recommendations to the NMFS SAFE Team, the 2025-2026 assessments use the largest total EEZ harvest over a generation (four years for coho salmon) to calculate the OFL, and the average harvest over that same period to calculate the preseason OFL (OFL_{PRE}). Additionally, per the SSC's guidance in 2025, the escapement goal for indicator stocks with missing weir counts for a given year is not counted towards the combined escapement target or MSST for those years.

4.6.2.3 Changes in assessment results for 2026

Given the new 2025-2026 methodology outlined above and in previous sections, relative to the 2024 SAFE report, preseason OFL values in this 2026 SAFE are smaller and considered to be more representative of amounts that could reasonably be harvested in the EEZ during a single season (changed from the multi-year methodology used in the 2024 SAFE). Additionally, using the largest sum of EEZ harvest across a generation, as opposed to the largest observed EEZ harvest multiplied by the generation time used in the 2024 SAFE, results in a smaller OFL value used postseason to assess overfishing for Tier 3 stocks. Moreover, the change in how aggregate escapement targets are determined with respect to missing data from indicator stocks have changed the MSST values for this stock.

4.6.2.4 Existing data and assessment

The ADF&G data and stock assessment sources used for the Federal assessment of COHO are described in Section (4.6) with the most recent ADF&G stock assessment escapement goal review in Mckinley et al. (2024). Recent escapement goals, estimates, and many additional references pertaining to assessments of this stock can be found in Munro and Gatt (2025).

Historical CI EEZ harvest estimates for COHO are considered to be complete, with the Federal definition of this stock in the EEZ generally meaning all coho salmon estimated to be harvested in the CI EEZ. Harvest in the CI EEZ occurring since 2024 (the first federally managed fishery in UCI EEZ) is considered to be known and complete (rather than estimated as for pre-2024).

Genetics data and associated stock composition estimates exist for commercial harvests during the years 2013 – 2016 (Barclay et al. 2019)

ADF&G's preseason commercial harvest estimates for UCI-wide coho salmon based on recent average harvests.

4.6.3 Federal data and assessments

After review by NMFS and unless otherwise stated, this SAFE incorporates ADF&G data and associated estimates of harvest (2024-2025 harvest in State waters and 1999 – 2023 EEZ and State harvest), escapement, age, sex, and other data. However, because of the timeline necessary to produce this SAFE

and implement the Federal salmon management in the CI EEZ in 2026, this SAFE estimated: personal use harvests (2025); and sportfish harvests for saltwater and freshwater fisheries (2022-2023 and 2025). Estimates were made using five-year averages and will be updated in future years as data become available.

This SAFE relies on Federal estimates of harvest in the CI EEZ from 2024-2025.

To inform SDC and harvest specifications, the Federal stock assessment relied on the method described previously for Tier 3 stocks.

4.6.4 Stock size and recruitment trends

Stock overview: During the most recent five-year period (2021 – 2025), EEZ harvests ranged from 4.4 –33K coho salmon (Table 20 and Figure 17). Since spawning escapement indices for this stock represent an unknown proportion of overall spawning escapement and such estimates are incomplete/missing during recent years, the NMFS SAFE Team did not estimate a total run size for this stock in this 2026 SAFE.

Escapement goals: The Federal definition of this stock complex includes 2 indicator stocks for which the State has spawning escapement goals (goal ranges in parentheses):

Deshka River (10,200–24,100), and Little Susitna River (9,200–17,700).

The current sum of the lower bounds of these escapement goals for the stock complex is 19,400; which, overall, has not been consistently achieved during recent years (Table 21) (Munro and Gatt 2025; Munro 2023) due to incomplete weir data.

Individual escapement goals for the two indicator stocks in the stock complex have not been achieved during recent years (Table 21; (Munro 2023); however, none of these stocks are classified as "Stocks of Concern" by the State (Munro and Gatt 2025; Munro 2023) and, as all escapement goals in the stock complex were developed based on the "Percentile Approach" (Clark et al. 2014); not achieving the lower bound of an escapement goal during some years is an expected product of this approach.

In addition to the two indicator stocks, there are many other drainages and tributaries in UCI where coho salmon are known to spawn, but which lack escapement goals and escapement monitoring.

Spawner-Recruitment and yield trends: The NMFS SAFE Team did not further investigate historical records of spawner-recruitment relationships for the index systems and a full accounting of such relationships is likely to be hampered by the large number of systems that are unmonitored and other data gaps. For example, while genetic analyses have been used by ADF&G to estimate the stock contributions of commercial harvests during some past years, the NMFS SAFE Team determined that the lack of annual estimates, combined by incomplete escapement data, makes it difficult to attribute these harvests to a given number of spawners in order to estimate the productivity (recruits per spawner) of the overall stock complex.

4.6.5 Tier determination and resulting OFL and ABC determination for 2026

Consistent with the 2024-2025 SAFE and 2024-2025 recommendations from the SSC, the NMFS SAFE Team recommends to the SSC a Tier 3 determination for COHO during 2026 due to the inability to verify estimates of total run size that are necessary for obtaining valid SDC estimates under Tier 2.

In further consideration of the level of precaution that is warranted for COHO in this 2026 SAFE report, at the time of this publication, neither of the indicator stocks for the stock complex are listed as "Stocks of Concern" by the State of Alaska (Payton and Rabung 2023). The State of Alaska's definition of a "Stock of Concern" as "escapements [that] chronically (4–5 years) fail to meet expectations for harvestable yield or spawning escapements" (Munro and Gatt 2025; Munro 2023). Under both State and Federal systems, a status designation of "overfished" (Federal) or a "Stock of Concern" (State) could result in accountability measures and a rebuilding plan. In the Federal system under the MSA, accountability measures and a rebuilding plan would be at the recommendation of the SSC and approved

by the Council; under the State of Alaska, such measures would be reviewed and approved by the State of Alaska Board of Fisheries.

The retrospective analysis in the amendment 16 EA/RIR did indicate coho salmon were subject to overfishing in 2013. As noted by ADF&G, reductions in drift gillnet fishing effort in the last several years may have contributed to improved coho salmon escapement and catches in Northern District fisheries (Marston and Frothingham 2019, 2021)

Status and catch specifications for COHO based on a Tier 3 determination are provided with a range of buffers from 0.1 to 0.9 to reduce the preseason OFL to ABC (Table 22). The Tier 3 OFL for this stock (268,053) is equal to the largest cumulative EEZ harvest for a generation (4 years) in the 1999 – 2025 timeseries, which occurred during 2004-2007 (Table 20). The 2026 preseason OFL (67,013) was calculated as the average harvest across the same years used to calculate the OFL.

The NMFS SAFE Team recommends a buffer to reduce the preseason OFL for setting harvest specifications while exercising the necessary precaution to prevent overfishing.

The 2025 Tier 3 COHO buffer was 75% and reduced the preseason OFL (67K) to an ABC of 16.75K fish. For 2026, the NMFS SAFE Team again recommends a precautionary buffer to reduce the OFL_{PRE} to the resulting ABC given the following considerations:

1. Indicator stocks have not consistently achieved spawning escapement goals during recent years (Munro and Gatt 2025; Munro 2023) (Table 21).
2. From the State's 2025 UCI commercial salmon fisheries season summary (Lipka and Stumpf 2025b; omitted are the table numbers from that ADF&G report): "The Little Susitna weir was moved from its original location at river mile 32.5 to river mile 39.5 and began operating on July 23. Low water conditions slowed the coho salmon passage through August. High water prevented counting from August 30 until September due to safety concerns, the last day of counts was on September 9. The weir count of 4,506 fish did not achieve the SEG of 9,200–17,700 fish…..". "The Deshka River weir began operation on June 13, the first coho salmon was counted on July 26. Low water conditions slowed the coho salmon passage into August. Flooding prevented counting fish at the Deshka River weir beginning August 29 ending the weir project. Visual assessments by department staff did not identify many fish in stream before or after the flood occurred. The count 4 of 3,869 coho salmon is considered a minimum count and incomplete, but it is unlikely the SEG of 10,200–24,100 fish was achieved….."
3. Based on their size, coho salmon are likely vulnerable to harvest in drift gillnets used target sockeye salmon during much of the fishing season and directly target coho salmon during some portion of the fishing season.
4. Genetic evidence showing that significant proportions of the drift gillnet coho salmon harvested are likely bound for Northern CI drainages where the indicator stocks are located (note that the State's commercial fishery management plan for UCI specifically calls for prioritization of coho salmon passing through Central and Northern Districts).
5. Concerns about the prey available to endangered CI beluga whales that occupy Northern CI, including the far reaches of the Inlet when coho salmon are present (McHuron et al. 2023). Coho salmon are listed as one of the preferred prey items of CI belugas (Hobbs and Shelden 2008; Huntington 2000; Quakenbush et al. 2015).

Given the considerations above, the NMFS SAFE Team considered a range of precautionary buffers and recommends that a buffer of 75% be applied to the preseason OFL, resulting in a recommended

2026 preseason ABC of 16,753 fish. The NMFS SAFE Team may recommend smaller buffers in future years if spawning escapement objectives are achieved for the indicator stocks.

The NMFS SAFE Team recommends prioritizing future research to better characterize the abundance, timing, spatial distribution, and genetic stock composition of the coho salmon harvested in the CI EEZ Area (Willette et al. 2003).

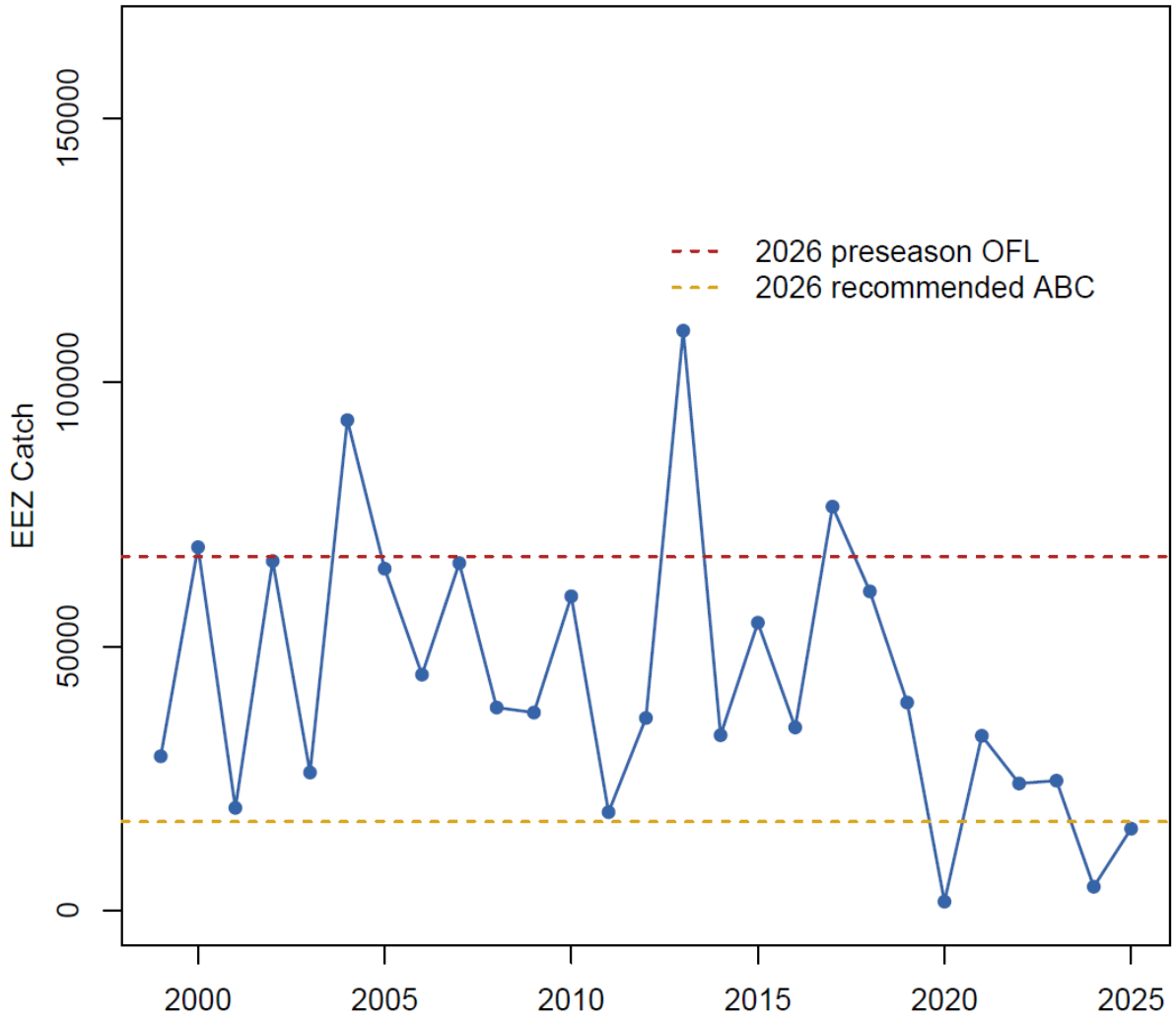

Figure 17. Time-series of aggregate coho salmon stock complex harvest in the CI EEZ for years 1999 - 2025 relative to the proposed 2026 OFL and ABC. CI EEZ harvest estimates prior to 2024 are based on methods and assumptions described in section 4.1 of this SAFE report.

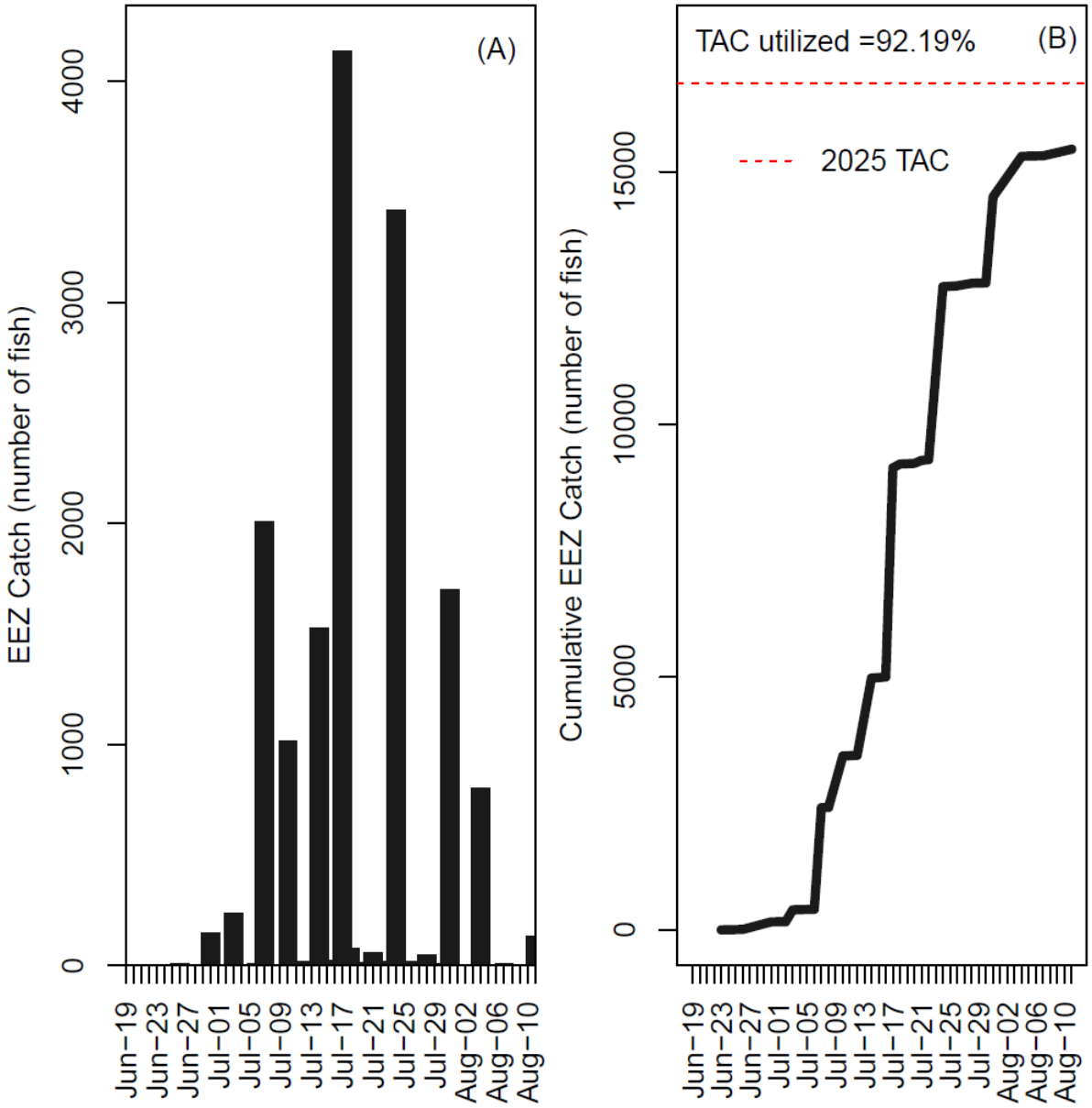

Figure 18. 2025 aggregate coho salmon CI EEZ catch. Panel A depicts catch by day and panel B shows cumulative daily catch compared to the 2025 TAC.

Table 20. Status and catch specifications for Tier 3 Aggregate coho salmon stock complex. An overfished determination is assessed postseason by comparing the minimum stock size threshold (MSST; one half of the sum of the indicator stock's spawning escapement goal summed across a generation, with actual cumulative escapement of the indicator stocks summed across a generation (Cum. Escap.). Overfishing is assessed postseason by comparing the actual harvest summed across a generation (EEZ Cum. Harvest) with the postseason overfishing limit (OFL). Unless otherwise noted, values are in the thousands of fish. Shaded values are new estimates or projections based on the current assessment. Bolded EEZ Harvest values are used to calculate OFL and OFL_{PRE}. Note that EEZ harvest prior to 2024 is estimated as described in section 4.1.

Year	MSST[a,c]	Cum. Escap.[a]	Total. Harvest	State Drift Gillnet Harvest	EEZ Harvest	EEZ Cum. Harvest	OFL	OFL_{PRE}
1999	NA	NA	258	36	29	NA	NA	NA
2000	NA	NA	444	63	69	NA	NA	NA
2001	NA	NA	321	20	19	NA	NA	NA
2002	40.6	182.5	465	60	66	184	NA	NA
2003	40.6	203.1	262	26	26	180	NA	NA
2004	40.6	264.4	510	107	**93**	205	NA	NA
2005	40.6	268.6	392	80	**65**	250	NA	NA
2006	40.6	264.3	360	54	**45**	228	NA	NA
2007	40.6	264.2	317	43	**66**	268	NA	NA
2008	40.6	192.3	357	51	38	214	NA	NA
2009	40.6	164.4	316	45	37	186	NA	NA
2010	40.6	115.8	354	51	59	201	NA	NA
2011	40.6	99.8	204	22	19	154	NA	NA
2012	40.6	82.2	198	38	36	152	NA	NA
2013	40.6	81.1	383	75	110	224	NA	NA
2014	40.6	97.3	280	44	33	198	NA	NA
2015	40.6	108.6	378	76	54	234	NA	NA
2016	40.6	111.9	231	56	35	232	NA	NA
2017	40.6	130.8	416	115	76	199	NA	NA
2018	35.55[a]	108.1[a]	363	48	60	226	NA	NA
2019	30.50[a]	95.0[a]	273	49	39	211	NA	NA
2020	24.95[a]	88.9[a]	227	47	2	178	NA	NA

2021	19.4[a]	45.2[a]	277	48	33	134	NA	NA
2022	NA[e]	NA[e]	215	27	24	98	NA	NA
2023	NA[e]	NA[e]	167	25	25	83	NA	NA
2024	NA[e]	NA[e]	97	7	4	86	439[b]	358[b]
2025	NA[e]	NA[e]	213	70	15	68	268	67
2026							268	67

[a] Calculated based on escapements and escapement targets for indicator stocks (Deshka and Little Susitna rivers). Note that in years where an escapement index was missing or incomplete, it is not counted towards total/cumulative escapement and the escapement target for that stock is not counted towards MSST

[b] For the 2024 SAFE, a different method was used to calculate the Tier 3 OFL and OFL_{PRE}. See the Final 2024 CI EEZ SAFE for additional details.

[c] No escapement goal for the Deshka River prior to 2017.

[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

Table 21. Coho salmon escapement goals and observed escapements in the Deshka and Little Susitna rivers. These rivers are indicator stocks for the UCI Aggregate coho salmon stock complex. The lower bound of the escapement goal (L.B.) and escapement (Esc.) are presented for both indicator stocks. The total escapement is the sum of escapements for both rivers in each year. The minimum stock size threshold (MSST) is the sum of escapement targets for both rivers over the previous generation time (4 years) and the cumulative escapement (Cum. Esc) is the sum of total escapement over the previous four years. When cumulative escapement is less than MSST, the stock may be considered overfished. Total catch is the sum of all coho harvest in UCI and total run is the sum of total catch and total escapement (Total Esc.). Escapement estimates from the ADF&G "Fish Counts" website (https://www.adfg.alaska.gov/sf/FishCounts/index.cfm?ADFG=main.home)

	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

Table 22. 2026 Tier 3 SDC for aggregate Coho salmon stock complex with a range of buffers to reduce the preseason OFL to ABC.

Buffer	OFL_{PRE}	ABC	OFL
10%	67,013	60,312	268,053
20%	67,013	53,611	268,053
30%	67,013	46,909	268,053
40%	67,013	40,208	268,053
50%	67,013	33,507	268,053
60%	67,013	26,805	268,053
70%	67,013	20,104	268,053
80%	67,013	13,403	268,053
90%	67,013	6,701	268,053

4.7 Aggregate Chum Salmon, stock complex

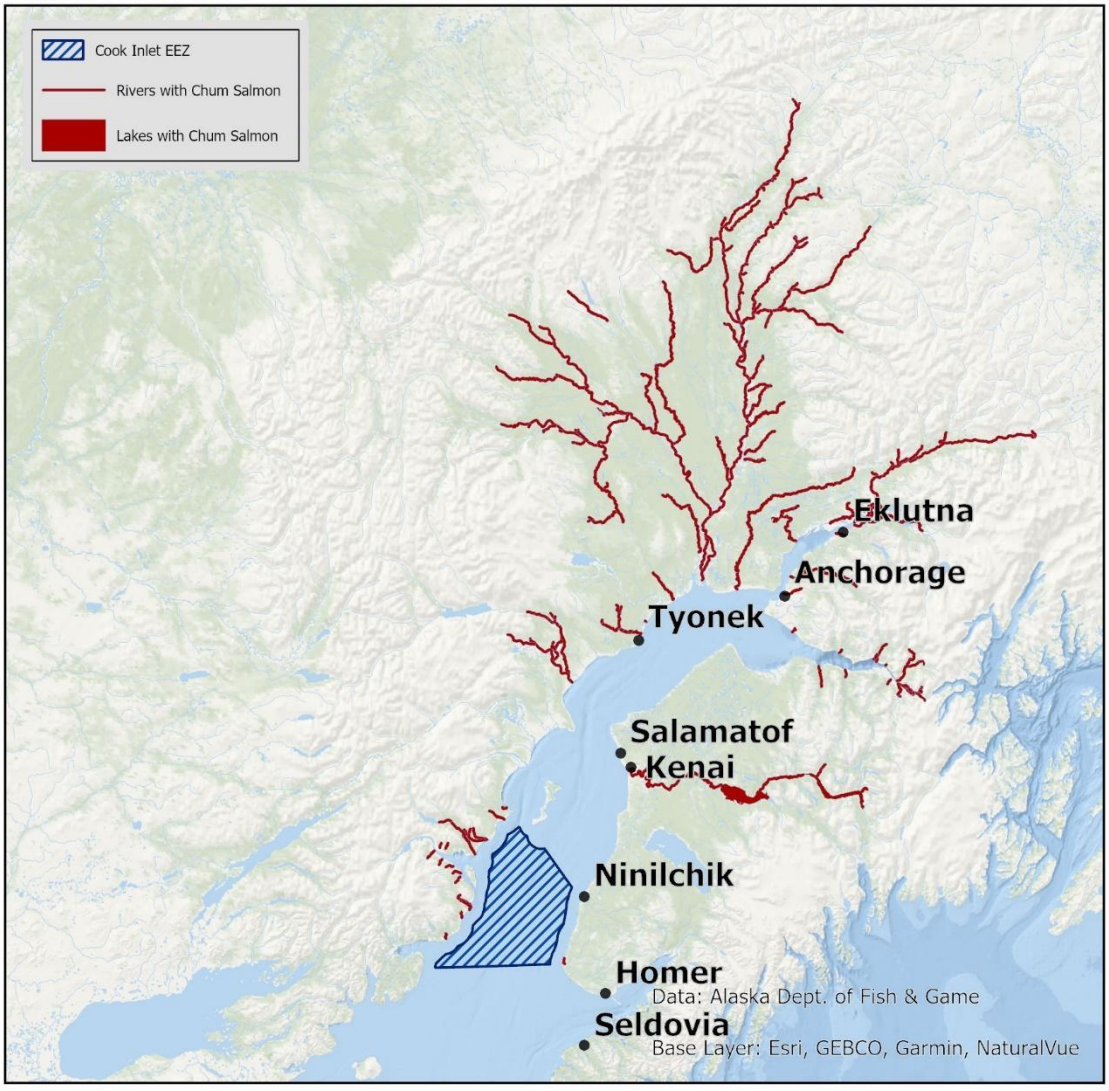

Figure 19. Map showing the CI EEZ and the watersheds with chum salmon located in Upper Cook Inlet.

Definition: As described in the Salmon FMP, the Aggregate chum salmon stock complex (CHUM) is defined as all chum salmon harvested in the CI EEZ. The Federal definition for this stock also includes spawning escapements of chum salmon throughout UCI necessary to produce sustainable yield in future years.

4.7.1 Retrospective assessment of fishery information relative to status determination criteria, including overfishing and overfished designations

During the 2025 fishery, 27,236 chum salmon were harvested from the CHUM in the CI EEZ; which was less than the 2025 preseason OFL (97.5K), ABC/ACL (78K), and TAC (78K; Table 3). Because the estimated postseason cumulative harvest across the most recent generation (146K) was less than the 2025 OFL (390K) for this stock, it is the recommendation of the NMFS SAFE Team that overfishing did not occur during 2025.

4.7.2 Data and assessment methodology

4.7.2.1 Data input changes for 2026

The 2026 SAFE includes Federal catch data from the 2024-2025 federally managed CI EEZ salmon fishery. These data represent the first years of known catch occurring in the EEZ, as opposed to the catch estimates presented for years prior to 2024.

4.7.2.2 Changes in assessment methodology for 2026

Following the 2024 SSC recommendations, the 2025-2026 assessments used the largest total EEZ harvest over a generation (four years for chum salmon) to calculate the OFL, and the average harvest over that same period to calculate the preseason OFL (OFL_{PRE}).

4.7.2.3 Changes in assessment results for 2026

Given the new 2025-2026 methodology outlined above and in previous sections, relative to the 2024 SAFE report, preseason OFL values in this 2025 SAFE are smaller and considered to be more representative of amounts that could reasonably be harvested in the EEZ during a single season (changed from the multi-year methodology used in the 2024 SAFE). Additionally, using the largest sum of EEZ harvest across a generation, as opposed to the largest observed EEZ harvest multiplied by the generation time used in the 2024 SAFE, results in a smaller OFL value used postseason to assess overfishing for Tier 3 stocks.

4.7.2.4 Existing data and assessment

The ADF&G data and stock assessment sources used for the Federal assessment of the CHUM are described in Section 4.7.

Clearwater Creek is the only State escapement goal for chum salmon in UCI. Recent escapement indices for this stock are provided in Munro (2023) and Munro and Gatt (2025) and in the 2023 UCI commercial salmon fishery season summary (Lipka and Stumpf 2023).

Harvest estimates from this stock includes commercial, personal use, and recreational fisheries, most of which are available from ADF&G reports and through the ADF&G website. Harvest in the CI EEZ occurring in 2024-2025 is considered to be known (rather than estimated as for pre-2024) and complete.

The extent to which escapement indices represent actual numbers of spawners for all freshwater systems is unknown given that a single drainage is monitored. Therefore, estimates of total run size are unavailable.

For UCI, there are no chum salmon “Stocks of Concern” listed by the State.

4.7.2.5 Federal data and assessments

After review by NMFS and unless otherwise stated, this SAFE incorporates ADF&G data and associated estimates of harvest (2024-2025 harvest in State waters and 1999 – 2023 total harvest), escapement, and other data. However, because of the timeline necessary to produce this SAFE in time to implement the Federal drift gillnet fishery in the CI EEZ, NMFS estimated the following quantities during recent years: 2024-205 personal use harvests (based on a 5-year 2018–2022 average); 2022–2025 sportfish harvests, with these estimates considered to be minor portions of overall harvests.

To inform SDC and harvest specifications, the Federal stock assessment relied on the method described previously for Tier 3 stocks.

4.7.3 Stock size and recruitment trends

Stock overview: During the most recent five-year period (2021–2025), a range of 27,236–50,773 chum salmon harvested in the EEZ during this period. No estimates of total run size are available for CHUM.

Escapement Goal: Chinitna River/Clearwater Creek is the only State escapement goal for chum salmon in UCI. For that system, escapement is monitored by aerial survey with the annual escapements set by

the peak aerial survey count for the year, with an escapement goal range of 3,500-8,000 chum salmon that was informed by the Percentile Approach (Clark et al. 2014). For the ten years from 2016–2025, escapements at Chinitna River/Clearwater Creek have met or exceeded the lower bound of the spawning escapement goal range during all but two years (2018 and 2024; Munro and Gatt 2025, Lipka and Stumpf 2025b).

Spawner-Recruitment and yield trends: There are no available spawner-recruitment or yield trends for this stock due to the lack of reliable estimates of spawning escapements across all areas in UCI and lack of age data for harvests or escapements.

While escapement indices are available for 1 system managed by the State, it is the recommendation of the NMFS SAFE Team that the single spawning escapement goal and associated index of annual escapements do not provide a representative estimate of spawning abundance for all tributaries in UCI.

4.7.4 Tier determination and resulting OFL and ABC determination for 2026

Consistent with the 2025 SAFE and SSC recommendation, the NMFS SAFE Team again recommends to the SSC that CHUM be designated as Tier 3. The lack of reliable estimates of spawning abundance or total run size for the stock preclude a Tier 2 determination.

Status and catch specifications for CHUM based on a Tier 3 determination are provided in Table 23. Based on the Tier 3 methods described in the Salmon FMP and this SAFE, the NMFS SAFE Team recommends an OFL of 390,030 chum salmon that reflects the maximum cumulative CI EEZ harvest across a generation time of four years in the timeseries under consideration (1999 – 2025; Table 23). The 2025 preseason OFL is calculated as the largest average harvest over the same generation used to calculate the OFL, resulting in a preseason OFL of 97,508 chum salmon (Table 24).

In recommending values of OFL and ABC, the NMFS SAFE Team notes that there are no known conservation concerns for UCI chum salmon and they are not listed by the State as a "Stock of Concern" in UCI. It assumed that chum salmon are incidentally harvested (not targeted) in the CI EEZ, with the majority of harvest estimated to occur outside the EEZ. The NMFS SAFE Team also assumes that CHUM in UCI is healthy and harvested at a low exploitation rate in the EEZ fishery. Generally, it is understood that conservation and management considerations related to occurring sockeye and coho salmon stocks constrain the total harvest of chum salmon in UCI, including for the CI EEZ fishery. The NMFS SAFE Team welcomes input and additional information on this and other assumptions.

Given the considerations above, the NMFS SAFE Team recommends that a 20% buffer be applied to the preseason OFL (97,508), resulting in an ABC of 78,006 chum salmon (Table 24).

Recommending a 20% buffer for this stock compared to recommended buffers for ACHIN (30%) and PINK (10%; see discussion in Section 4.8.4 below) reflects the NMFS SAFE Team's judgment that CHUM is less of a conservation concern than ACHIN but, based on their size, are more likely to be caught in the gillnet fishery than PINK and that available evidence suggests that there are fewer, perhaps even substantially fewer, chum salmon spawning streams and overall spawning area relative to the other four species of salmon in UCI (see maps at the start of each salmon stock assessment in this SAFE for a qualitative overview of salmon spawning locations throughout UCI based on State data (Giefer 2024)) NMFS has not conducted a formal, quantitative review or assessment of available spawning habitat for chum salmon throughout UCI). As with other stocks for which there is a paucity of available information, the NMFS SAFE Team recommends research to estimate overall escapement and total run size for this stock.

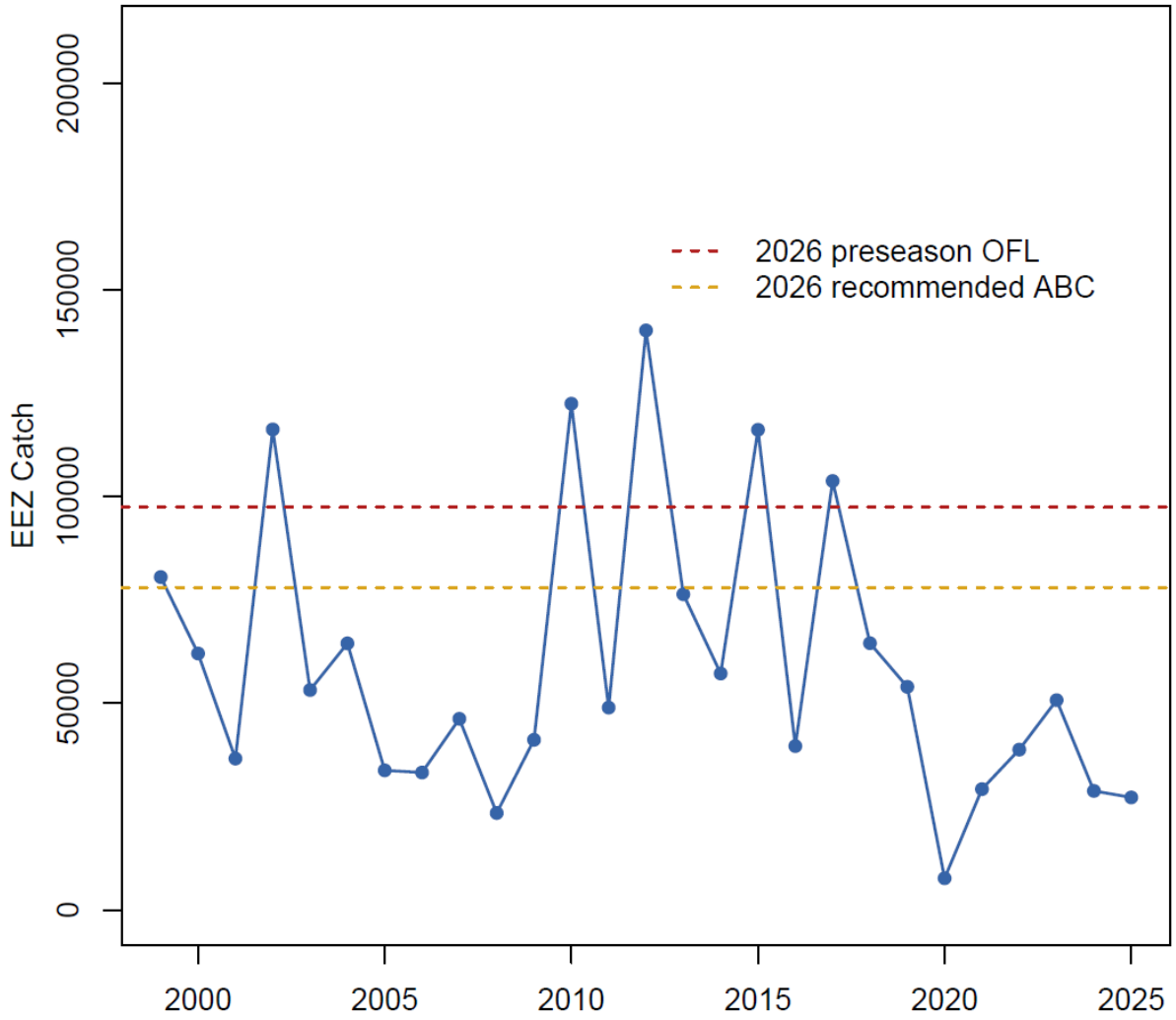

Figure 20. Time-series of aggregate chum salmon harvest in the CI EEZ for years 1999 - 2025 relative to the proposed 2026 OFL and ABC. CI EEZ harvest estimates prior to 2024 are based on methods and assumptions described in section 4.1 of this SAFE report.

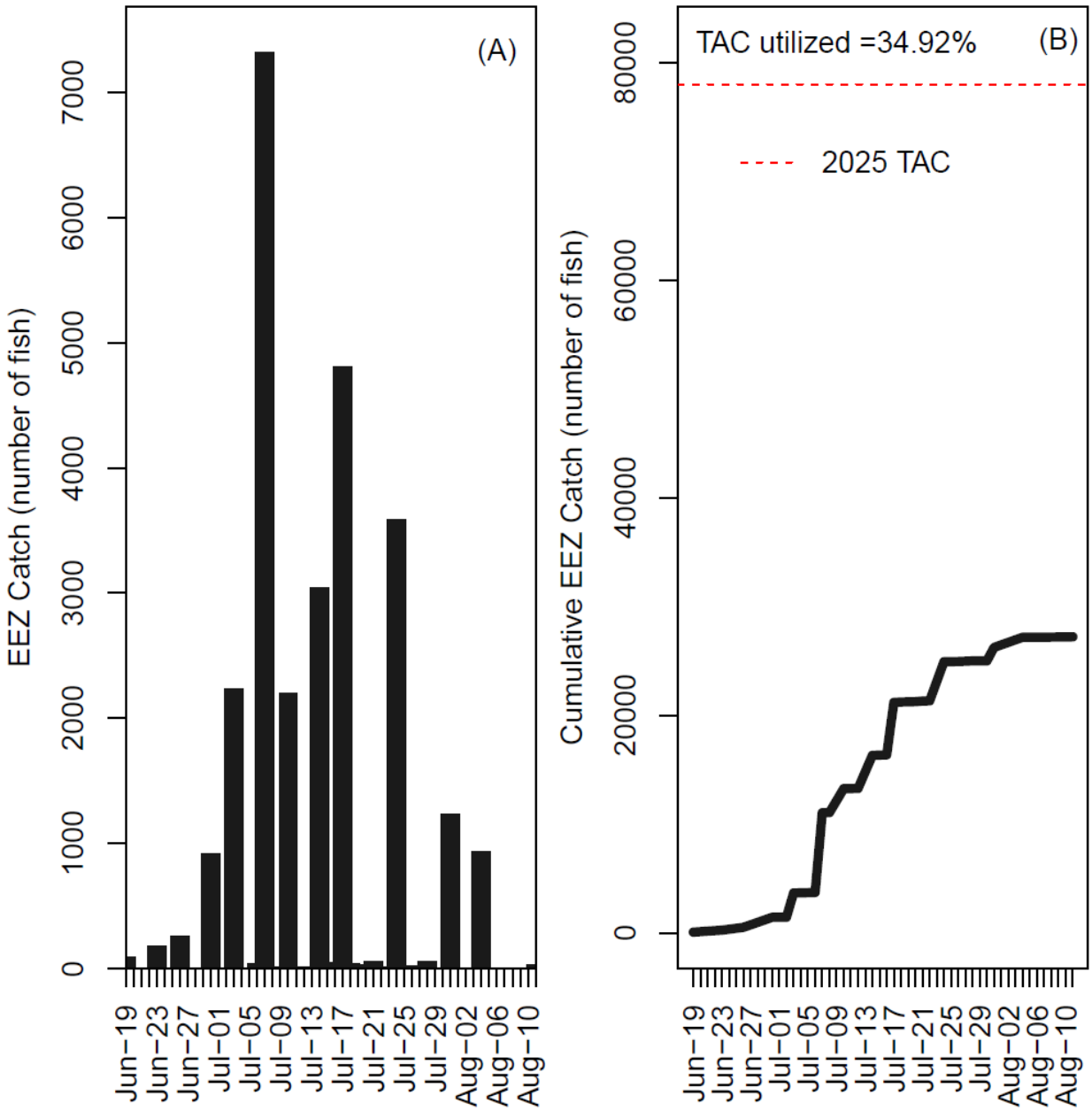

Figure 21. 2025 aggregate Chum salmon CI EEZ catch. Panel A depicts catch by day and panel B shows cumulative daily catch compared to the 2025 TAC.

Table 23. Status and catch specifications for Tier 3 Aggregate chum salmon stock complex. Overfishing is assessed postseason by comparing the actual harvest summed across a generation (EEZ Cum. Harvest) with the postseason overfishing limit (OFL). Unless otherwise noted, values are in the thousands of fish. Shaded values are new estimates or projections based on the current assessment. Bolded EEZ Harvest values are used to calculate OFL and OFL_{PRE}. Note that EEZ harvest prior to 2024 is estimated as described in section 4.1.

Year	Total Harvest	State Drift Gillnet Harvest	EEZ Harvest	EEZ Cum. Harvest	OFL	OFL_{PRE}
1999	180	86	81	NA	NA	NA
2000	133	56	62	NA	NA	NA
2001	91	39	37	NA	NA	NA
2002	246	108	116	296	NA	NA
2003	126	53	53	268	NA	NA
2004	151	73	65	271	NA	NA
2005	74	32	34	268	NA	NA
2006	68	27	33	185	NA	NA
2007	80	29	46	178	NA	NA
2008	54	23	23	137	NA	NA
2009	87	36	41	144	NA	NA
2010	233	94	123	233	NA	NA
2011	134	62	49	236	NA	NA
2012	274	124	**140**	353	NA	NA
2013	145	56	**76**	388	NA	NA
2014	123	51	**57**	323	NA	NA
2015	282	136	**116**	390	NA	NA
2016	128	73	40	289	NA	NA
2017	249	129	104	317	NA	NA
2018	119	44	65	324	NA	NA
2019	133	59	54	262	NA	NA
2020	33	18	8	230	NA	NA
2021	73	36	29	155	NA	NA
2022	103	53	39	130	NA	NA
2023	131	62	51	126	NA	NA
2024	78	40	29	148	561*	442*
2025	120	82	27	146	390	97.5
2026					390	97.5

* For the 2024 SAFE, a different method was used to calculate the Tier 3 OFL and OFL_{PRE}. See the Final 2024 CI EEZ SAFE for additional details.

Table 24. 2026 recommended Tier 3 SDC for the Aggregate chum salmon stock complex and a range of buffers to reduce the preseason OFL to ABC.

Buffer	OFL_{PRE}	ABC	OFL
10%	97,508	87,757	390,030
20%	97,508	78,006	390,030
30%	97,508	68,255	390,030
40%	97,508	58,504	390,030
50%	97,508	48,754	390,030
60%	97,508	39,003	390,030
70%	97,508	29,252	390,030
80%	97,508	19,501	390,030
90%	97,508	9,751	390,030

4.8 Aggregate Pink Salmon, stock complex

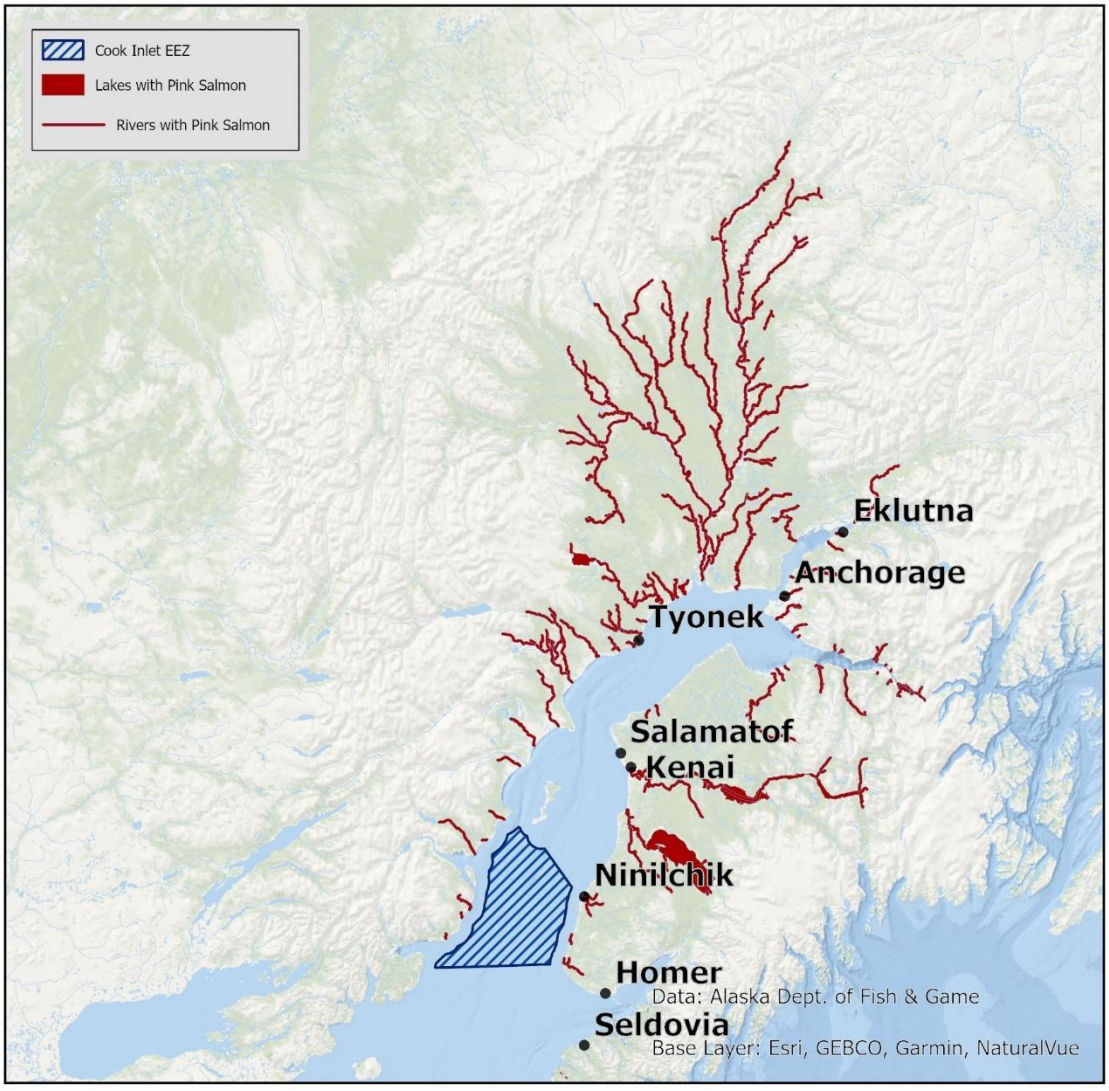

Figure 22. Map showing the CI EEZ and the watersheds with pink salmon located in Upper Cook Inlet.

Definition: As described in the Salmon FMP, the Aggregate pink salmon stock complex (PINK) is defined as all pink salmon harvested in the CI EEZ. The Federal definition for this stock also includes spawning escapements of pink salmon throughout UCI necessary to produce sustainable yield in future years.

This stock definition is applicable to both even- and odd-year broodlines of UCI pink salmon, which are assessed separately.

4.8.1 Retrospective assessment of fishery information relative to status determination criteria, including overfishing and overfished designations

4.8.1.1 Even-Year broodline

During the 2024 fishery (most recent even year run), 6,250 pink salmon were harvested in the CI EEZ; which was less than the 2024 OFL (300K), preseason OFL (270K), ABC/ACL (135K), and TAC

(122K). Because the estimated postseason cumulative harvest across a generation time (36K) was less than the 2024 OFL (300K) for this stock, it is the recommendation of the NMFS SAFE Team that overfishing did not occur during 2024 (Table 25).

4.8.1.2 Odd-Year Broodline

During the 2025 fishery (most recent odd-year run), it is estimated that 6,080 pink salmon were harvested in the CI EEZ. Because the total catch mortality for this stock across the most recent generation (~30K) was well below the 2025 OFL of 116K, it is the NMFS SAFE Team's assessment that overfishing did not occur.

4.8.2 Data and assessment methodology

4.8.2.1 Data input changes for 2026

The 2026 SAFE includes Federal catch data from the 2024-2025 federally managed CI EEZ salmon fishery. These data represent the first years of known catch occurring in the EEZ, as opposed to the catch estimates presented for years prior to 2024.

4.8.2.2 Changes in assessment methodology for 2026

Following the 2024 SSC recommendations to the NMFS SAFE Team, the 2025-2026 assessments used the largest total EEZ harvest over a generation (two years for pink salmon) to calculate the OFL, and the average harvest over that same period to calculate the preseason OFL (OFL_{PRE}). For odd-year PINK, the highest cumulative generational harvest in the time-series were the years 2007 and 2009; therefore, harvests during those years are used to calculate the OFL (sum of harvests across those years) and OFL_{PRE} (average harvest across those years).

4.8.2.3 Changes in assessment results for 2026

Given the new 2025-2026 methodology outlined above, relative to the 2024 SAFE report, recommended preseason OFL values in this 2026 SAFE are smaller and considered to be more representative of amounts that could reasonably be harvested in the EEZ during a single season (changed from the multi-year methodology described in the 2024 SAFE). Additionally, using the largest sum of EEZ harvest across a generation, as opposed to the largest observed EEZ harvest multiplied by the generation time used in the 2024 SAFE, results in a smaller OFL value used postseason to assess overfishing for Tier 3 stocks.

4.8.2.4 Existing data and assessment

The ADF&G data and stock assessment sources used for the Federal assessment of the PINK are described in Section 4.8.

There are no escapement goals or known and reliable estimates of pink salmon escapement in UCI.

Harvest estimates from this stock includes commercial, personal use, and recreational fisheries, most of which are available from ADF&G reports and through the ADF&G website. Harvest in the CI EEZ occurring in 2024-2025 (the first and second years of a federally managed fishery in UCI EEZ) is considered to be known (rather than estimated as for pre-2024) and complete.

4.8.2.5 Federal data and assessments

After review by NMFS and unless otherwise stated, in addition to the 2024-2025 Federal harvest data for pink salmon from the CI EEZ, this SAFE also incorporates ADF&G data and associated estimates of harvest (2024-2025 harvest in State waters and 1999 – 2023 total harvest).

To inform SDC and harvest specifications, the Federal stock assessment relied on the method described previously for Tier 3 stocks.

Pink salmon have discrete even- and odd-year broodlines that do not interact and SDC are calculated separately for each brood-year. As per the recommended Tier 3 methodology, the 2026 even-year broodline OFL is the maximum cumulative historical harvest (283K) over a generation (2 years; 2012;

2014) in the time series under consideration. The preseason OFL is the largest average catch (141K) over the same generation (two years) used to calculate the OFL and represents an amount that could reasonably be harvested in a year.

4.8.3 Stock size and recruitment trends

Stock overview:

Even-year: During the most recent five year even-year return (2016, 2018, 2020, 2022, 2024), a range of approximately 6–110K pink salmon harvested in the CI EEZ during this period. No estimates of total run size are available.

Odd-year: During the most recent five year odd-year return period (2017, 2019, 2021, 2023, 2025), a range of 6–26K pink salmon harvested in the CI EEZ during this period.

Escapement Goal: There are no State spawning escapement goals for pink salmon in UCI.

Spawner-Recruitment and yield trends: There are no available spawner-recruitment or yield trends for this stock due to the lack of reliable estimates of spawning escapements across all areas in UCI.

4.8.4 Tier determination and resulting OFL and ABC determination for 2026

Consistent with the 2024-2025 SSC recommendations, the NMFS SAFE Team recommends to the SSC that PINK be designated as Tier 3 stock.

Similar to chum salmon, it is the assumption of the NMFS SAFE Team that the CI EEZ pink salmon stock complex is healthy, is not subject to overfishing and that past estimates of EEZ harvests represent incidental (not targeted) harvests that are not impactful to the overall spawning population. Given the small size of pink salmon relative to other salmon, it is also assumed that many pink salmon would get through the gillnets used in the CI EEZ, which primarily target sockeye salmon. As such, while spawning estimates are not available, it is the judgment of the NMFS SAFE Team that even- and odd-year pink salmon represent a particularly low conservation concern with respect to harm to the stock that could come as a result of fishing activity in the CI EEZ. The NMFS SAFE Team welcomes feedback, data, and additional information pertaining to the assumptions and analyses presented in this SAFE.

Given the considerations above, the NMFS Safe Team recommends a preseason OFL of 141,406 pink salmon and that a 10% buffer be applied to this, resulting in an ABC of 127,266 pink salmon (Table 26).

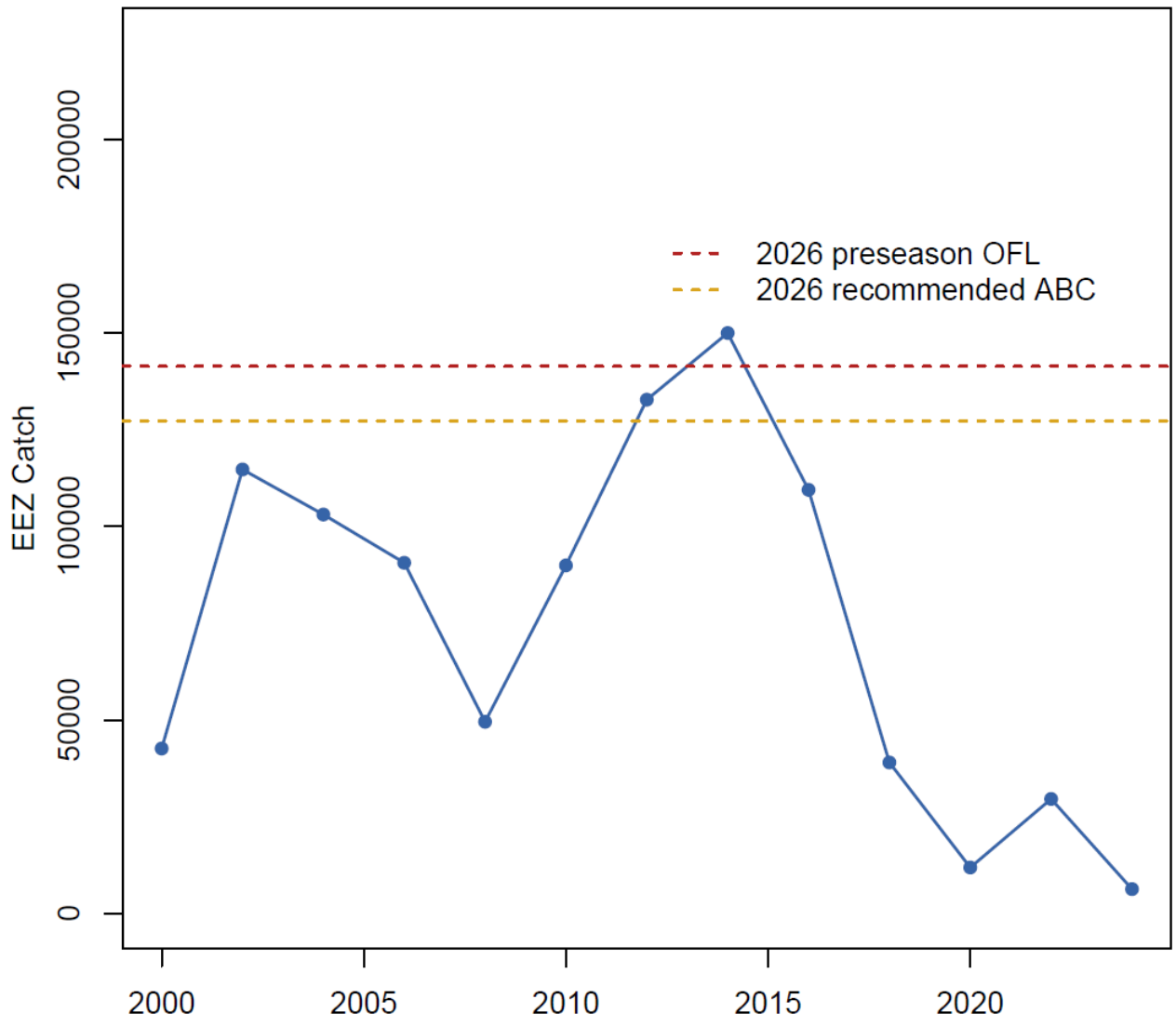

Figure 23. Time-series of pink salmon harvest in the CI EEZ for years 1999 - 2025 relative to the proposed 2026 OFL and ABC. The CI EEZ harvest estimates prior to 2024 are based on methods and assumptions described in Section 4.1 of this SAFE report.

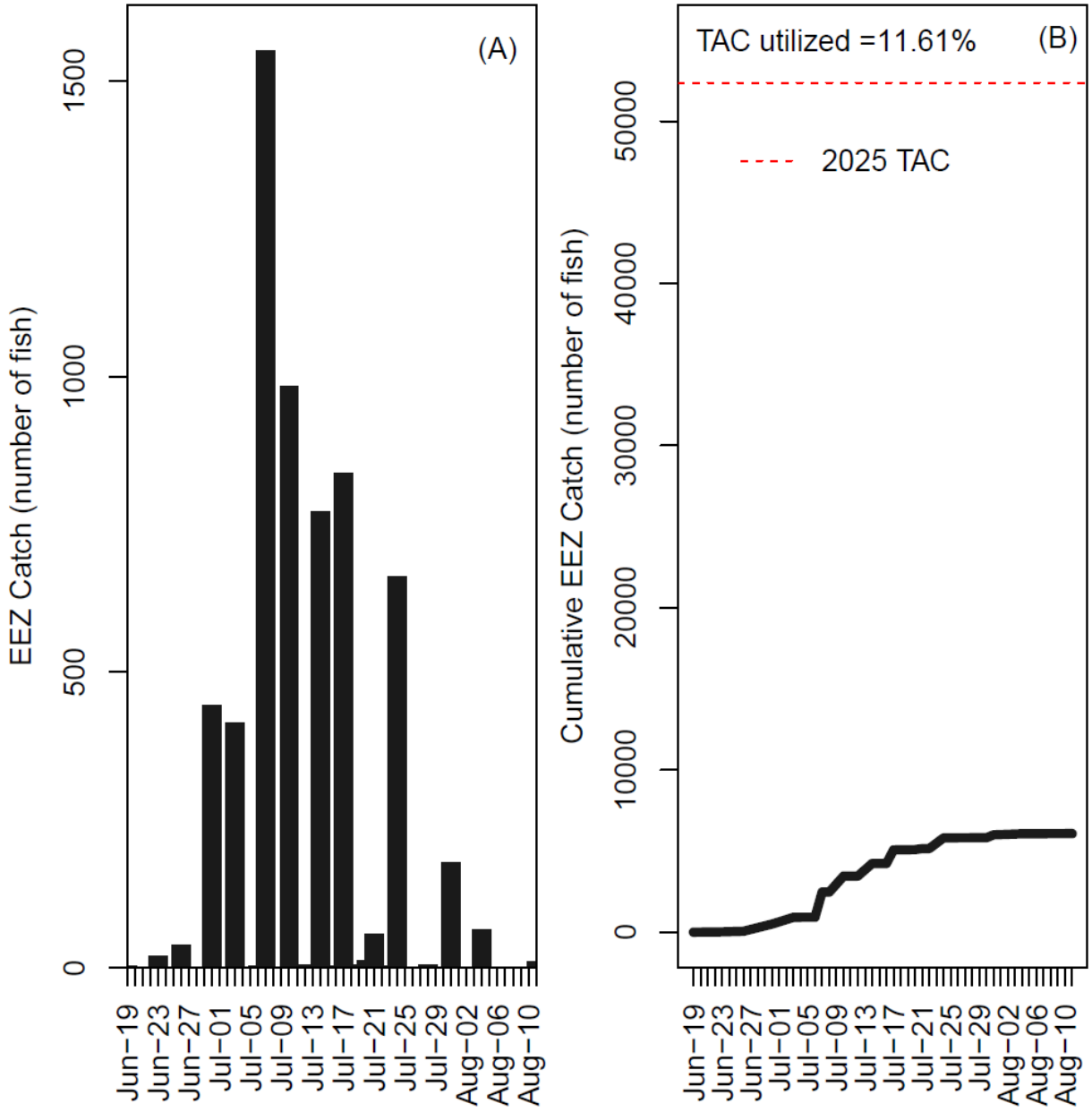

Figure 24. 2025 aggregate odd-year pink salmon CI EEZ catch. Panel A depicts catch by day and panel B shows cumulative daily catch compared to the 2025 TAC.

Table 25. Tier 3 status and catch specifications for the Aggregate pink salmon stock complex. Overfishing is assessed postseason by comparing the actual harvest summed across a generation (EEZ Cum. Harvest) with the postseason overfishing limit (OFL). Unless otherwise noted, values are in the thousands of fish. Shaded values are new estimates or projections based on the current assessment. Bolded EEZ Harvest values are used to calculate OFL and OFL_{PRE}. Note that EEZ harvest prior to 2024 is estimated as described in section 4.1.

Brood Year	Year	Total Harvest	State Drift Gillnet Harvest	EEZ Harvest	EEZ Cum. Harvest	OFL	OFL_{PRE}
Even	2000	190	48	43	NA	NA	NA
	2002	490	109	115	157	NA	NA
	2004	394	132	103	218	NA	NA
	2006	442	122	91	194	NA	NA
	2008	208	54	50	140	NA	NA
	2010	321	74	90	139	NA	NA
	2012	499	170	**133**	223	NA	NA
	2014	703	267	**150**	283	NA	NA
	2016	425	159	109	260	NA	NA
	2018	173	45	39	148	NA	NA
	2020	395	282	12	51	NA	NA
	2022	134	60	30	41	NA	NA
	2024	70	31	6	36	300*	270*
	2026					283	141
Odd	1999	26	2	1	NA	NA	NA
	2001	85	17	15	16	NA	NA
	2003	60	17	13	28	NA	NA
	2005	63	15	16	29	NA	NA
	2007	163	26	**42**	58	NA	NA
	2009	245	65	**75**	116	NA	NA
	2011	48	9	6	81	NA	NA
	2013	64	18	13	19	NA	NA
	2015	71	12	10	22	NA	NA
	2017	196	67	23	33	NA	NA
	2019	100	12	16	39	NA	NA
	2021	112	40	26	41	NA	NA
	2023	86	34	24	50	NA	NA
	2025	70	31	6	30	116	58

*For the 2024 SAFE, a different method was used to calculate the Tier 3 OFL and OFL_{PRE}. See the Final 2024 CI EEZ SAFE for additional details.

Table 26. 2026 recommended Tier 3 SDC for the Aggregate even-year pink salmon stock complex and a range of buffers to reduce the preseason OFL to ABC.

Buffer	OFL_{PRE}	ABC	OFL
10%	141,406	127,266	282,813
20%	141,406	113,125	282,813
30%	141,406	98,985	282,813
40%	141,406	84,844	282,813
50%	141,406	70,703	282,813
60%	141,406	56,563	282,813
70%	141,406	42,422	282,813
80%	141,406	28,281	282,813
90%	141,406	14,141	282,813

5 Summary of NMFS SAFE Team Recommendations to the SSC for the 2026 CI EEZ Stock Assessment cycle.

Recommended 2026 Tiers, SDC, and buffer to reduce the preseason OFL to the ABC.

Table 1 contains 2026 NMFS SAFE Team recommendations for stock tiers, SDC, and buffers to reduce the preseason OFL to the ABC.

Recommended 2025 Preliminary Postseason Stock Status in Relation to SDC

Table 2 contains preliminary 2025 postseason stock status in relation to SDC. Values in Table 2 are likely to be updated in future years as estimates of harvests and escapement become finalized. For example, this 2026 SAFE report estimated 2025 sportfish and personal use harvests because they were not available in time for this report.

Recommended 2025 Preliminary Postseason Harvests in Relation to Final Preseason Harvest Specifications

Table 3 contains preliminary 2025 postseason harvests for each stock in comparison to the 2025 final harvest specifications.

Additional Recommendations

- The NMFS SAFE Team recommends research projects to measure spawning escapements of salmon harvested in the CI EEZ salmon fishery. Given that the number of escapement monitoring projects has declined in recent years, which restricts the ability to assess SDC, increasing the number of monitored systems would greatly assist the assessment of salmon stocks harvested in the CI EEZ.
- The NMFS SAFE Team recommends a genetic mixed stock analysis study of salmon caught in the CI EEZ fishery. At present, the origin of Chinook salmon harvested in the EEZ and the proportion of sockeye attributed to KNSOCK, KASOCK, and AOSOCK are unknown. These data would allow for more accurate Tier 1 SDC and recommended AOSOCK and ACHIN buffers.
- The NMFS SAFE Team greatly appreciated long-format feedback of the workshop held during May 2025, and would support continuation of these workshops in future years, or the creation of a Salmon Plan Team.
- The NMFS SAFE Team recommends an assessment of alternative fishery methods for the CI EEZ (e.g., purse seines) that could be used to harvest available yield for stocks with a high abundance while enabling species that are in a low state of abundance to be released.
- The NMFS SAFE Team recommends using the Bayesian AR approach to predict run size and State harvest levels for Tier 1 stocks, and the resulting buffers to account for scientific uncertainty in reducing the preseason OFL to the recommended ABC
- The NMFS SAFE Team recommends prioritizing future research to better characterize the abundance, timing, spatial distribution, and genetic stock composition of the coho salmon harvested in the CI EEZ fishery (Willette et al. 2003).
- As with other stocks for which there is a paucity of available information, the NMFS SAFE Team recommends research to estimate overall escapement and total run size for CHUM

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Appendix A. Preliminary Draft COHO Risk Table

Table A 1. Aggregate coho salmon stock complex risk table assessment.

Assessment-related	*Population dynamics*	*Ecosystem*	*Fishery-informed stock*
Level 1 - Normal Concern	Level 1 – Normal Concern	Level 2 – Increased Concern	Level 2 – Increased Concern

- ***Assessment-related***

Recommended **Level 1 concern:** The Aggregate coho salmon stock complex is assessed as a Tier 3 stock using historical EEZ harvest information to derive status determination criteria. While Tier 3 assessments are inherently data-limited, the methodology applied in this SAFE is transparent, internally consistent, and explicitly precautionary. The use of the largest total EEZ harvest over a generation to determine the postseason OFL, and the average harvest over that same period to determine the preseason OFL, follows SSC guidance and represents a conservative approach that is robust to uncertainty in run size and escapement.

Uncertainty associated with historical EEZ harvest estimates is explicitly addressed through the application of precautionary buffers ranging from 0.1 to 0.9, allowing risk to be managed directly through harvest specifications rather than through model-based assumptions. Importantly, post-2024 EEZ harvests are now directly observed rather than estimated, reducing uncertainty moving forward.

Although escapement data for indicator stocks remain incomplete in recent years, this limitation does not compromise the assessment framework itself. Instead, it appropriately constrains the assessment to Tier 3 and precludes over-interpretation of overfished status. Given the conservative nature of the harvest control rule, the lack of retrospective patterns, and the absence of severe assessment performance issues, overall assessment-related risk is considered normal rather than elevated.

- ***Population Dynamics***

Recommended **Level 1 concern:** The population dynamics of coho salmon in Upper Cook Inlet are data-limited but not demonstrably anomalous. The life history of coho salmon is well characterized, and there is no evidence indicating extreme deviations in recruitment, growth, or survival relative to historical expectations for Alaska coho salmon stocks.

While total run size for the Aggregate coho salmon stock complex is not known, available indicators do not suggest abrupt or unprecedented changes in population dynamics. Indicator stock escapements in the Deshka and Little Susitna rivers have not consistently met lower-bound escapement goals in recent years; however, these goals were developed using the percentile approach, under which periodic underachievement is expected. Neither indicator stock is currently classified as a Stock of Concern by the State of Alaska, and cumulative escapement information is insufficient to support an overfished determination under Federal criteria.

The absence of comprehensive escapement monitoring across Upper Cook Inlet limits inference regarding absolute abundance, but this limitation represents a lack of resolution, not evidence of unusual or extreme biological behavior. Given the absence of rapid declines, extreme recruitment failure, or atypical age or size structure signals, population dynamics risk is considered within the normal range for a data-limited stock complex.

- ***Ecosystem***

The most recent data available suggest an ecosystem risk **Level 2 Concern**: "Multiple indicators showing consistent adverse signals a) across the same trophic level, and/or b) up or down trophic levels (i.e., predators and prey of stock)". This elevated risk score is informed by warmer ocean temperatures in 2025 offshore in the gyre and on the shelf, and the ongoing reduced marine freshwater and marine survival of coho as monitored in SE Alaska. CPUE of juvenile coho salmon in Icy Strait, SE Alaska, in the summer continued an 8 year below-average trend (Strasburger et al., 2025 in Ferriss 2026). Preliminary coho ocean age-0 marine survival (percentage of ocean age-0 coho per smolt (escapement only) by smolt year) in Auke Bay, SE Alaska, continued a declining trend and was below average for a 3rd year (Vulstek and Russell, 2024). Preliminary marine survival indices of 2025 coho salmon (ocean age-0 and age-1 harvest plus escapement) in Auke Bay continued an 11 year below-average trend (Vulstek and Russell, 2024). The mechanisms driving continued low coho survival may include juvenile growth rate and size, smolt age, and smolt ocean entry timing. Coho salmon returning in 2026 were in freshwater in the fall of 2023 through 2024, the nearshore marine environment in spring 2025, and the central Gulf of Alaska 2025-2026. The freshwater conditions for early stage coho are not represented in this risk table. This risk table section is informed by cited contributions to the 2024 and 2026 Gulf of Alaska Ecosystem Status Report (Ferriss 2024 and 2026).

Environmental Processes: The GOA shelf and gyre experienced prolonged periods of above average temperatures (including periods in marine heatwave status) through the winter, spring, and fall, at surface and at depth (Lemagie and Bell, Lemagie and Callahan, Jones, and Ocean Temperature Synthesis, in Ferriss 2026). Previous warm years in the Gulf of Alaska (2014-2016 and 2019) have resulted in poor coho salmon returns. However, temperature thresholds for dynamics leading to these poor returns are not well known, and cannot be used to interpret the impacts of the warmer 2025 temperatures. Ecological responses associated with warm years in the GOA were observed at lower (more responsive) trophic levels (e.g., increased frequency of harmful algal blooms, Farrugia et al., in Ferriss 2026), indicating ecological implications that might persist into 2026. Upcoming 2026 winter and spring surface temperatures are predicted to be cooler than average, in alignment with weak La Niña conditions (Lemagie and Bell, Bond and Ortiz, in Ferriss 2026), however this relationship has not been reliable the past 2 years and above-average surface temperatures persist through the fall 2025. The Pacific Decadal Oscillation and the North Pacific Gyre Oscillation continue a multi-year negative trend, which historically was associated with reduced survival of Alaska salmon, however these relationships should be questioned as they have weakened since 1988, and then became inverse from 2014-2019 (Litzow 2020).

Prey: Prey for juvenile coho salmon in the marine environment was approximately average in 2025. Spring zooplankton populations observed closest to Cook Inlet (Shelikof Str. and Seward Line) had mixed trends in biomass of small copepods, lower biomass of large copepods, and above-average biomass of euphausiids (Hopcroft, Kimmel et al., in Ferriss 2026). Age-0 pollock were observed at record low abundance in western GOA in spring 2025 (Rogers et al., in Ferriss 2026), but with good body condition index (Porter et al., in Ferriss 2026). Forage fish were available in aggregate, in 2024. Capelin biomass was approximately average to above average (Siple et al., Whelan et al., in Ferriss 2026), and herring Sitka and Craig stocks continue to have relatively elevated populations supported by the strong 2016 and 2020 year classes (Siple et al., Dressel et al., in Ferriss 2026). Forage species that are relatively lower in abundance include Pacific sandfish, sandlance, and prickleback (Siple et al., Whelan et al., in Ferriss 2026). The reproductive success of piscivorous, diving and planktivorous seabirds (with an overlapping prey base with coho salmon), were above average in the western GOA and breeding timing was average to early in the spring (Drummond et al., Whelan et al., in Ferriss 2026), indicating adequate prey availability. The status of deepwater squids (e.g., armhook squid, *Berryteuthis anonychus*) as prey for adult coho in the winter is unknown. Summer fork-length of juvenile coho salmon in Icy Strait increased from below average in 2024 to near average in 2025, but their energy

density continued a 5-year trend of below average. Length and energy density indicate approximately average to below-average foraging success and predation risk (Fergusson and Strasburger, in Ferriss 2026).

Predators and Competitors: Predation pressure from key predators in the marine environment on juveniles (seals) and adults (killer whales and salmon sharks) is expected to not have changed in recent years, although these populations are not well monitored. Competitors for marine juvenile and adult coho salmon include hatchery-released pink and chum salmon. Adult coho salmon had higher, but not extremely high, competition with pink salmon for deepwater squid in 2025, relative to 2024, due to the odd year increases in pink salmon returns (Whitehouse, in Ferriss 2026). Competition for returning coho salmon in 2026 is expected to be lower due to the lower even year returns of pink salmon (Shaul and Geiger, 2016).

○ *Fishery Performance*

Recommended **Level 2 concern:** The CI EEZ drift gillnet fishery primarily targets sockeye salmon; however, coho salmon are vulnerable to harvest due to overlap in size and migration timing, and may be directly targeted during some portion of the fishing season. This interaction represents a consistent and biologically plausible pathway for fishery-related risk, particularly during periods when sockeye-directed effort overlaps temporally and spatially with coho migration.

Despite this vulnerability, realized EEZ coho harvests in recent years have remained well below preseason ABC and postseason OFL values, indicating that existing management measures and effort levels have effectively constrained coho removals. However, because coho salmon cannot be selectively avoided once encountered in gillnets, fishery performance risk remains elevated relative to stocks that are either directly targeted or spatially segregated.

Additional considerations supporting increased concern include genetic evidence indicating that a substantial proportion of coho salmon harvested in the EEZ originate from northern Cook Inlet drainages, where escapement monitoring is limited, and ecological considerations related to prey availability for endangered Cook Inlet beluga whales.

Given these factors, fishery-related risk is best characterized as increased concern, but not extreme, as there is no evidence of uncontrolled harvest, chronic overages, or fishery-driven population decline.

Table A 2. Risk table scoring criteria.

Risk table considerations/levels of concern				
	Assessment-related	*Population dynamics*	*Ecosystem*	*Fishery-informed stock*
Level 1: Normal	Typical to moderately increased uncertainty/minor unresolved issues in assessment.	Stock population dynamics (e.g., recruitment, growth, natural mortality) are typical for the stock and recent trends are within normal range.	No apparent ecosystem concerns related to biological status (e.g., environment, prey, competition, predation), or minor concerns with uncertain impacts on the stock.	No apparent concerns related to biological status (e.g., stock abundance, distribution, fish condition), or few minor concerns with uncertain impacts on the stock.
Level 2: Increased concern	Substantially increased assessment uncertainty/ unresolved issues, such as residual patterns and substantial retrospective patterns, especially positive ones.	Stock population dynamics (e.g., recruitment, growth, natural mortality) are unusual; trends increasing or decreasing faster than has been seen recently, or patterns are atypical.	Indicator(s) with adverse signals related to biological status (e.g., environment, prey, competition, predation).	Several indicators with adverse signals related to biological status (e.g., stock abundance, distribution, fish condition).
Level 3: Extreme Concern	Severe assessment problems; very poor fits to important data; high level of uncertainty; very strong retrospective patterns, especially positive ones.	Stock population dynamics (e.g., recruitment, growth, natural mortality) are extremely unusual; very rapid changes in trends, or highly atypical patterns compared to previous patterns.	Indicator(s) showing a combined frequency (low/high) and magnitude(low/high) to cause severe adverse signals a) across the same trophic level as the stock, and/or b) up or down trophic levels (i.e., predators and prey of the stock) that are likely to impact the stock.	Multiple indicators with strong adverse signals related to biological status (e.g., stock abundance, distribution, fish condition), a) across different sectors, and/or b) different gear types.

Appendix B. Bayesian AR-1 Models

This appendix provides the SSC with details on the Bayesian autoregressive Tier 1 method for calculating a preseason OFL and the corresponding ABC. The development of this approach stems from requests by the SSC to incorporate the probability of over-forecasting when calculating and selecting Tier 1 buffers to reduce the preseason OFL to the ABC. This Bayesian approach is similar to the 2024-2025 Tier 1 method of calculating a preseason OFL, except that AR forecasts are fit using RStan (Stan Development Team 2024), a Bayesian probabilistic programming language. Note that the time-series model structure used is identical to that of previous assessments (*i.e.*, AR-1). However, with the Bayesian approach used here, the preseason run size forecast is fit using an AR-1 model, and the preseason forecasted State harvest ($\hat{F}_{state}$) is generated based on the posterior predictive distribution of a Beta distribution conditioned on historical state harvest rates. This change reflects the lack of temporal structure in historical state harvest, and uncertainty in such values which can be propagated into preseason forecasts of OFL. In addition to producing OFL_{PRE} to ABC buffers based on a 25-year retrospective assessment of over-forecasting errors (similar to the approached used in previous assessments, but using a 25-year instead of 10-year retrospective window), a range of buffers based on a given target probability (1-49%) that the true OFL may be below a given ABC value is also generated from the posterior distribution of OFL_{PRE}. Posterior distributions of OFL_{PRE} ($p(\widehat{OFL}_y)$) are constructed using the posterior distributions of run size forecasts ($p(\hat{R}_y)$) and predicted State harvest rates ($p(\hat{F}_{state,y})$) in year y, as:

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

resulting in a distribution of OFL_{PRE} values and their associated relative probabilities of occurring given the uncertainty associated with the aforementioned forecasts.

- ***Preseason run size forecast***

An AR-1 model was fit to the natural log of historic total run sizes as,

$$ln(\hat{R}_t) = \alpha + \beta ln(R_{t-1})$$

$$ln\ ln\ (R_t) \sim normal(\hat{R}_y, \sigma)$$

Where R_t is the total run size in year t, $\hat{R}_t$ is the predicted run size, α is the intercept, β is the slope, and σ is the log-normal standard error. Vague priors were specified as:

$$\alpha \sim normal(0, 10^{10})$$

$$\beta \sim (0, 10^{10})$$

$$\sigma \sim normal(0,5)[0, \infty).$$

- ***Preseason state harvest ($\boldsymbol{F_{state}}$) forecast***

Data on historical (2015-2015) State-waters harvest rates were assumed to follow a Beta distributed likelihood, with shape parameters a and b:

$$F_{state} \sim Beta(a, b)$$

The predicted state harvest rate for the upcoming year ($\hat{F}_{state,y}$) is then generated via the posterior predictive distribution of the estimated Beta distribution, thereby propagating uncertainty in the estimated distribution of historical state harvest rates.

- ***OFL to ABC buffers***

The primary method for determining the OFL to ABC buffers relies, as in previous assessments, on retrospective estimates of positive forecast errors based on median symmetric accuracy (Morley et al., 2018). For the 2026 SAFE, retrospective estimates of forecast error are estimated over a 25-year (as opposed to 10-years used previously) historical period. In addition, for the 2026 SAFE, we also present an alternative method for buffer determination based on the probability of a given ABC value exceeding the true OFL using the estimated posterior distribution of preseason OFL. For instance, in the scenario where ABC is equal to the median (*i.e.*, point estimate) of the posterior distribution of OFL_{PRE}, one would expect a 50% probability that the true OFL could be below that ABC value. Thus, using a range of percentile values of the posterior distribution of preseason OFL to determine ABC allows selection of ABC values (and associated buffers) associated with a given probability that the true OFL would be below the ABC. For instance, a buffer that results in an ABC value representing the 35th percentile of the posterior distribution of OFL_{pre} would be expected to result in a 35% chance of the true OFL being below this value. We considered a range of buffers representing risk levels ranging from 1-49%. These values (1) provide a means of interpreting the retrospective buffer in terms of risk associated with exceeding the OFL as has been requested by the SSC in 2024 and 2025, and (2) provides a potential alternative option for the SSC/NPFMC to consider in setting buffers based on a target risk tolerance of exceeding the OFL at a given ABC value in this or future assessment cycles. Tables of ABC values (and associated buffers) based on a given target probability of exceeding the true OFL are presented in Tables B1 and B2 for Kenai sockeye and Kasilof sockeye respectively

Table B 1. Buffers and associated ABC values associated with a given target probability of the true OFL being below a given ABC value for Kenai sockeye salmon.

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

Table B 2. Buffers and associated ABC values associated with a given target probability of the true OFL being below a given ABC value for Kasilof sockeye salmon.

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

Appendix C. Equations from the Salmon FMP

○ *Tier 1: Salmon stocks with escapement goals and stock-specific harvest estimates*

Each year, salmon stocks that have escapement goals and stock-specific harvest and escapement estimates would be considered for placement in Tier 1.

The assessment authors and SSC would identify the Tier 1 stocks each year during the annual harvest specification process.

For the Tier 1 stocks, the following calculations would be conducted each year to determine the status of the managed salmon stocks and set the appropriate biological reference points:

- *Overfishing*

Overfishing occurs whenever a stock or stock complex is subjected to a level of fishing mortality or total catch that jeopardizes the capacity of a stock or stock complex to produce MSY on a continuing basis. The realized fishing mortality rate in the EEZ for a stock (F_{EEZ}) is expressed as an exploitation rate (harvest/total run size), which is calculated for the stock over one generation (the average length of time between when a salmon egg is fertilized and when it spawns as an adult) in years (T), weighted as informed by available data, where t = run year, R = annual run size of a stock, and C_{EEZ} = annual EEZ catch of a stock in year t:

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

The level of fishing mortality in the EEZ above which overfishing occurs (MFMT) for a stock is based on an exploitation rate assessed over one generation and is defined as:

(2) $$MFMT_t = \frac{\sum_{i=t-T+1}^{t} Y_{EEZ,i}}{\sum_{i=t-T+1}^{t} R_i}$$; where

(3) $$Y_{EEZ,i} = max\left(0, R_t - G_t - C_{state,t}\right)$$

and $C_{state,t}$ is the harvest that occurred in state waters in year t and Y_{EEZ} is the potential yield in the EEZ and G = escapement goal or target for a stock. The lower bound of the established escapement goal range is the default used in this tier system; however, NMFS, or the SSC may recommend a different value during the annual stock status determination process based on the best scientific information available (e.g., the point estimate of the spawners necessary to result in maximum sustainable yield in future years, $S_{MSY\text{-}POINT}$). NMFS or the SSC may also recommend additional buffers to account for uncertainty in harvests and escapement estimates. Due to uncertainty inherent to management, the realized yields are unlikely to be equal to the potential yields.

Should F_{EEZ} exceed the MFMT in any year, it will be determined that a stock is subject to overfishing; this definition corresponds to the **F_{OFL} control rule**.

MFMT for a stock would be assessed postseason each year with the most current T years of data.

- *Overfished*

Should a stock's realized spawning escapements summed across a generation fall below the MSST in any year, the stock would be declared overfished. The MSST is defined as one half of the sum of the stock's spawning escapement goal summed across a generation:

(4) $$MSST_t = \frac{\sum_{i=t-T+1}^{t} G_i}{2}$$, evaluated by comparing $\sum_{i=t-T+1}^{t} S_i$ with MSST, where S is spawning escapement in year i.

MSST for a stock would be assessed postseason each year with the most current T years of data used to estimate MSST and S. NMFS or the SSC may recommend buffers to account for uncertainty in escapement estimates or spawning escapement goals.

- *Overfishing Limit (OFL), Acceptable Biological Catch (ABC), and Annual Catch Limit (ACL)*

Specification for OFL, ABC, and ACL will occur as follows:

The preseason estimates of MFMT would be calculated from the sum of potential yield in the EEZ from the previous *T*-1 years and the preseason estimate of potential yield in the EEZ based on the preseason forecast of run size, projected harvest in other fisheries, and the escapement goal or target in a given year, G_t using the following equation:

(5) $MFMT_{pre,t} = \frac{\sum_{i=t-T+1}^{t-1} Y_{EEZ,i} + \hat{Y}_{EEZ,t}}{\sum_{i=t-T+1}^{t-1} R_i + \hat{R}_{,t}}$

where $\hat{Y}_{EEZ,t}$ is the preseason estimate of potential yield in the EEZ for year *t* used to establish annual harvest specifications and is calculated based on:

(6) $\hat{Y}_{EEZ,t} = max(0, \hat{R}_t - G_t - (\hat{F}_{state,t} * \hat{R}_t))$, where $\hat{R}_t$ is the predicted run size in year *t* based on a vetted preseason forecast method and $\hat{F}_{state,t}$ is the estimated harvest rate in State waters over the average generation time (*T*) for the species and stock, or, as recommended by the SSC, an estimated or modeled harvest rate.

The preseason estimates of F_{EEZ} ($\hat{F}_{EEZ}$) is the is calculated from the sum of actual harvests in the EEZ from the previous *T*-1 years and the preseason estimate of potential yield in the EEZ based on the preseason forecast of run size:

(7) $\hat{F}_{EEZ,pre,t} = \frac{\sum_{i=t-T+1}^{t-1} C_{EEZ,i} + \hat{Y}_{EEZ,t}}{\sum_{i=t-T+1}^{t-1} R_i + \hat{R}_{,t}}$

The preseason OFL (OFL_{PRE}) would be equivalent to the estimate of potential yield for a stock as described in Equation 6.

The **ABC control rule**: ABC must be less than or equal to OFL. The SSC may recommend reducing ABC from OFL to account for scientific uncertainty, including uncertainty associated with the assessment of spawning escapement goals, forecasts, harvests, and other sources of uncertainty.

The ACL will be established equal to or less than the ABC.

○ *Tier 2: Salmon stocks managed as a complex*

Tier 2 stocks are salmon stocks managed as a complex, with specific salmon stocks designated as indicator stocks. An indicator stock is a stock for which sufficient data exists to allow for the development of measurable and objective SDC and can be used as a proxy to manage and evaluate data poor stocks within the stock complex. Further, an indicator stock is thought to be representative of the typical vulnerabilities of stocks within the stock complex. The assessment authors and SSC would identify the Tier 2 stocks each year during the annual harvest specification process. In general, management of Tier 2 stocks is based on aggregate abundance as previously described. Information on the individual indicator stock is used to inform management actions for the stock complex.

For the Tier 2 stocks, the following calculations would be conducted each year to determine the status of the salmon stocks and set the appropriate biological reference points.

- *Overfishing*

The Tier 1 formulas for *F* and MFMT would be used for Tier 2 indicator stocks. Whenever estimates of F or MFMT, as defined under Tier 1, are unavailable for each stock in a stock complex managed under this FMP, a list of indicator salmon stocks for a given stock complex will be established.

Using the same definitions and criteria described under Tier 1, a determination that one or more indicator salmon stocks is subject to overfishing will constitute a determination that the respective stock complex is subject to overfishing, except as provided in the paragraph below.

Overfishing of one or more stocks in a stock complex may be permitted, and may not result in a determination that the entire stock complex is subject to overfishing, under the following conditions established under the National Standard 1 guidelines (50 CFR §600.310(l)):

a) it is demonstrated by analysis that such action will result in long-term net benefits to the Nation;
b) it is demonstrated by analysis that mitigating measures have been considered and that a similar level of long-term net benefits cannot be achieved by modifying fleet behavior, gear selection/configuration, or other technical characteristics in a manner such that no overfishing would occur; and
c) the resulting rate or level of fishing mortality will not cause any stock or stock complex to fall below its MSST more than 50% of the time in the long term.

- *Overfished*

The MSST for a stock complex is equal to one-half the sum of the escapement goals (*G*) for the indicator salmon stocks from the most recent *T* years.

Should a stock complex's cumulative escapements for a generation fall below the MSST in any year, it will be determined that the stock complex is overfished.

Specification for OFL, ABC, and ACL will occur as follows:

The OFL, ACL, and ABC will be set for the indicator stock using the Tier 1 methodology.

○ *Tier 3: Salmon stocks with no reliable estimates of escapement*

Tier 3 salmon stocks or stock complexes have no reliable estimates of escapement or total run size, therefore OFL and ABC are based on catch history. Tier 3 stocks may have escapement goals, but, relative to Tier 2 stocks, the goals and associated inseason assessment of escapement represent a coarse and/or unknown index of abundance rather than a true number of fish. The assessment author and SSC would identify the Tier 3 stocks each year during the annual harvest specification process.

For Tier 3 stocks, the following calculations would be conducted each year to determine the status of the salmon stocks and set the appropriate biological reference points.

- *Overfishing*

For Tier 3 stocks or stock complexes, should the sum of harvest for the most recent generation (T years) be greater than the OFL, then it will be determined that the stock is subject to overfishing. Overfishing for Tier 3 stocks is assessed postseason after stock-specific harvest data become available; NMFS or the SSC may recommend additional buffers to account for uncertainty of estimates.

- *Overfished*

For Tier 3 stocks or stock complexes with escapement goals for suitable indicator stock(s), MSST is calculated the same as for Tier 1 stocks. Should a stock or stock complex's cumulative escapements for a generation fall below the MSST in any year, it will be determined that the stock complex is overfished. When calculating MSST and comparing spawning escapements summed across the most recent generation, NMFS or the SSC may recommend buffers to account for uncertainty in estimates.

For Tier 3 stocks or stock complexes without escapement goals, it is not possible to calculate MSST.

Specification for OFL, ABC, and ACL will occur as follows:

OFL = the largest cumulative annual EEZ catch summed across a generation time (*T* years) in the timeseries under consideration (rolling sum). Postseason, this value of OFL will be the basis for assessing if overfishing of the stock has occurred.

The preseason OFL (OFL_{PRE}) is the basis for defining harvest specifications and is the single season manifestation of the OFL. Unless another value is recommended by the SSC, OFL_{PRE} is equal to the largest average annual catch across a generation in the timeseries under consideration.

ABC = the OFL_{PRE} reduced by a buffer to account for uncertainty. As recommended by the SSC, the ABC could be set higher or lower by applying a more liberal or conservative buffer to the OFL to account for less or greater uncertainty. Potential sources of uncertainty could include but are not limited to: uncertainty associated with the achievement of escapement targets; uncertainty associated with whether the OFL, ABC, or ACL will be achieved or exceeded; uncertainty associated with the level of harvest in fisheries outside the EEZ; uncertainty associated with interannual run size; uncertainty associated with run timing; uncertainty associated with inseason metrics of run size or timing; other sources of uncertainty identified during the annual stock assessment process. ABC would be set each year during the annual stock status determination process based on the best available information.

The ACL is equal to or less than ABC.

Appendix D. SSC Comments from February 2025 Council Meeting

- *General Comments*

The SSC highlights its appreciation for the extensive efforts of the NMFS Cook Inlet Salmon SAFE Team (SAFE team) in drafting the 2025 Cook Inlet EEZ Salmon SAFE report and responding to the SSC recommendations from February 2024. The SSC reiterates the challenge of providing a basis for status determination and harvest specifications for this salmon fishery that requires adapting the escapement-based management policy used by the State of Alaska to comply with the Magnuson Stevens Act (MSA) framework. As noted last year, this is an iterative process and there are opportunities to benefit from lessons learned in MSA salmon management on the West coast by the Pacific Fishery Management Council (PFMC).

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 in the context of continued in-season EEZ management be held in the coming year. This workshop could include members of the SAFE team, ADF&G, SSC, and experts from the PFMC where issues related to federal management of salmon fisheries have been extensively considered. The SSC also recommends evaluating the establishment of a Plan Team for federally managed salmon stocks in the Cook Inlet EEZ, recognizing that costs, timing of data availability, and determining membership of a plan team need to be considered carefully.

With regards to the annual assessment and specifications cycle, the SAFE team suggested providing an early draft of the SAFE by December for review by the SSC. The SSC discussed the benefits of previewing newly proposed analyses and methods in response to requests and recommendations from the previous harvest specifications cycle, whether originating from the SSC, workshops or a plan team. The timing of presenting an early preview would be dependent on how soon the SAFE team could prepare a report and when the SSC could accommodate it in their schedule. This would allow for the SSC to provide feedback and recommendations prior to the meeting at which specifications are set.

The SSC also discussed the need for continued research and data collection, especially genetics and age-sex-length data of the salmon harvested in the EEZ fishery. Priorities include genetic sampling of sockeye to identify the stock structure and timing of the different sockeye runs in the EEZ fishery, and Chinook sampling to assess the importance of Kenai large late run Chinook in EEZ fishery, and to evaluate the prevalence of non-Cook Inlet Chinook in the fishery. Given the number of Chinook salmon reported to be harvested, it would be reasonable to obtain a census sample from the fishery. The SSC acknowledges the value of in-season information that could be provided by a test fishery, as noted during public testimony. A test fishery could help characterize the timing, magnitude, and distribution of returning salmon, as well as support stock composition estimates if in-season genetic stock composition analysis are feasible.

The SSC reiterates its February 2024 report comment that as the Cook Inlet EEZ management process matures and consistent with National Standard (NS) 2, 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.

The drainage maps provided at the beginning of each SAFE chapter for the aggregate salmon stock complexes do not align with the Federal definition of these Upper Cook Inlet aggregates provided below each map. The SSC requests that the authors correct these maps for the final SAFE.

The SSC appreciates the SAFE team providing the GitHub repository with data used for the assessment and requests that this practice continue for future salmon SAFEs.

The SSC reviewed status determination criteria for 2024. Aggregate salmon stock complexes were not apparently subject to overfishing, pending final harvest data. Aggregate salmon stock complexes, with the exception of aggregate chum and pink stocks, were not apparently overfished, pending final harvest and escapement data. For aggregate chum and pink stocks, an overfished status determination is not possible.

- *Tier 1 General Topics*

  - SMSY vs Lower Bound of the State's Scientifically-based Escapement Goals

The Salmon fishery management plan (FMP) specifies the lower bound of the escapement goal range as the default for calculating status determination criteria (SDC) and harvest specifications, unless the SSC recommends otherwise. In its 2024 review of the first Cook Inlet EEZ SAFE, the SSC recommended that the SMSY should be used for Tier 1 stocks to provide sufficient precaution for setting the preseason OFL and SDCs and to be consistent with the interpretation of this reference point. For the 2025 preliminary Cook Inlet EEZ SAFE, the SAFE team recommended using the lower bound of the State's escapement goal range for Tier 1 stocks with the rationale that this represents the best scientific information available for maximizing yield and preventing overfishing over the long term, in fulfillment of NS1 Guidelines. The SAFE team provided a reasonable rationale for considering using the lower bound of the escapement goal. The SSC appreciates the flexibility in determining the value used to estimate the productive capacity of the stock. For example, in the East Area, the MSST for coho uses the lower bound of the escapement goal range, but Chinook uses the mid-point. Both public testimony and the authors noted the PFMC Salmon FMP includes several examples of reference points that are equal to the lower bound of MSY escapement ranges or other lower bound escapement targets. Part of the challenge with determining the correct approach is the unique nature of the harvest specifications for the Cook Inlet EEZ salmon fishery, including the challenge of using escapement-based management with federal reference point requirements under the MSA. For the 2025 specifications, the SSC recommends that OFL and MFMT used in SDC calculations for Tier 1 stocks be based on the best available estimate for the spawning biomass that produces maximum sustainable yield over the long-term (SMSY). Likewise, the SSC recommends that an escapement target equal to SMSY also be used in defining the preseason OFL and ABC specifications for the 2025 season. The SSC also recommends further consideration of this issue, such as by the proposed workshop(s) discussed under General Comments. The SSC recommends this issue be considered on a stock-by-stock basis based on data availability.

  - MSST scaling

In 2024, the SSC recommended using SMSY as the escapement target for calculating MSST for Tier 1 stocks for consistency with how the MSST is defined in the crab and groundfish FMPs. Under this approach, the MSST is 0.5*SMSY (summed over a generation) or half of the spawning abundance expected to produce MSY over the long term. The SAFE team requested input from the SSC on the potential for changing the scalar used to adjust the escapement target in the calculation of MSST to values other than 0.5. The authors noted that this approach is used for select West coast salmon stocks. The SAFE team suggested that the SSC might consider scaling factors from 0.5 to 0.75 and provided examples using 0.6 of the lower bound of the escapement goal as footnotes in Tables 7 and 12 of the preliminary SAFE report. The SSC acknowledges flexibility in the MSST definition but recommends continuing to use 0.5*SMSY (summed over a generation) for the 2025 specifications. The SSC also recommends that the SAFE team provide a more detailed rationale for selecting appropriate scalars for different stocks as necessary.

  - SDC and Harvest Specifications Methods/Buffer Calculations

The SAFE team presented three options to calculate components of the preseason OFL for the Tier 1 stocks:

● Using the State-produced preseason forecast of run size

Autoregressive modeling of historical total run size estimates to project next year's run size as well as the harvest rate in state waters (Fstate). This was the same method used in 2024 and included calculation of buffers for reducing OFL to ABC based on the probability of over forecasting.

● A new Bayesian approach, which is similar to the autoregressive model framework currently used, except that the preseason run size forecast is fit using an AR1 model and the state harvest model fixed to the best models for the current year. As with the current method, buffers for reducing OFL to ABC are based on the magnitude of positive errors in preseason OFL estimates.

The SSC supports the SAFE team's recommendation to use autoregressive models for both Tier 1 stocks (Kenai River late run sockeye and Kasilof River sockeye) to forecast run size and the state waters harvest rates component of the preseason OFL. Details associated with these models are provided for each stock. The SSC notes that the State-produced preseason forecast sibling models had lower forecast error but are currently unavailable due to the timing of when those estimates are produced relative to when they are needed for harvest specifications. 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.

- *Kenai River Sockeye*

The SAFE team recommended designating Kenai River late-run sockeye as a Tier 1 stock. An autoregressive model approach was used to predict the 2025 run size (AR1) and state waters harvest (AR model - zero mean white noise) based on historical data, similar to the 2024 methods. Based on these results, the preseason OFL was determined. Buffers for reducing the preseason OFL to the ABC were based on the retrospective median symmetric accuracy of preseason OFL relative to post-season OFL, for those years where the OFL was over-predicted between 2015 and 2024. Harvest specifications based on using SMSY for the stock and the lower bound of the escapement goal were both presented. The SSC concurs with the SAFE team's recommendation of a Tier 1 designation for Kenai River late run sockeye in 2025. The SSC accepts the methods used by the SAFE team to forecast the 2025 run size estimate and the estimated harvest rate in state waters given the numerous constraints and data availability at this time. The SSC discussed the appropriate buffer for setting the ABC below the preseason OFL. The buffer recommended in the preliminary SAFE using SMSY as a basis for calculating the preseason OFL based on the retrospective accuracy of preseason OFLs was considered conservative by the SSC. The SSC recommends setting an ABC buffer of 30% (rounded from the buffer calculated using the lower bound of the escapement goal). This recommendation recognizes that the SMSY estimate for this stock is near the upper end of the MSY escapement goal range based on the stock-recruit relationships presented in the SAFE. Additionally, there are no conservation concerns for this stock.

Finally, the SSC noted a number of minor editorial comments that will be communicated directly to the SAFE team for the final 2025 SAFE, including correcting the pre-2020 estimates of SMSY and the lower bound of the escapement goal in Table 10. The SSC recommends that the SAFE team provide additional detail (e.g., a table) in the assessment that lists components of the harvest (commercial, sport, personal use, subsistence) and escapement information such that the reader can more easily identify what are final versus preliminary estimates. In addition, the SAFE team should clearly state whether the status determination recommendations (i.e., overfishing and overfished status) include preliminary information.

- *Kasilof River Sockeye*

The SAFE team recommended designating Kasilof River sockeye a Tier 1 stock. An Autoregressive model approach was used to predict the 2025 run size (AR1) and State waters harvest (autoregressive moving average model) based on historical data, similar to the methods used in 2024. Based on these results, the preseason OFL was determined. Buffers for setting an appropriate ABC below the preseason OFL based on the retrospective accuracy of preseason relative to post-season OFL estimates were proposed similar to Kenai River late-run sockeye salmon. Harvest specifications based on using either SMSY or the lower bound of the escapement goal were both presented. The SSC concurs with the SAFE team's recommendation of a Tier 1 designation for Kasilof River sockeye in 2025. The SSC accepts the methods used by the SAFE team to forecast the 2025 run size estimate and the estimated harvest rate in State waters, given the numerous constraints and data availability at this time. The buffer recommended in the preliminary SAFE using SMSY as a basis for calculating the preseason OFL based on the retrospective accuracy of preseason OFL estimates was considered conservative by the SSC. The SSC recommends setting an ABC buffer of 57% (the buffer based on the same analysis, but using the lower bound of the escapement goal).

Finally, the SSC noted several minor editorial comments that will be communicated directly to the SAFE team for the final SAFE, including correcting the pre-2020 estimates of SMSY in Table 15. Similar to Kenai River late-run sockeye, the SSC suggests that the authors provide additional detail for the components of the State harvest (commercial, sport, personal use, subsistence) and clearly distinguish final estimates from preliminary estimates.

- *Tier 3 Stocks*

The SAFE team recommended that aggregate "other" sockeye salmon, aggregate Chinook salmon, aggregate coho salmon, aggregate chum salmon, and the aggregate pink salmon stock complexes be specified as Tier 3 stocks, where harvest specifications are based on historical catch statistics. The SSC supports the designation of these stock complexes as Tier 3.

In its February 2024 minutes, the SSC made several recommendations regarding the Tier 3 aggregate stocks for the 2025 SAFE. The OFLs should be based on limiting harvest in the current year, rather than the multi-year approach that was used in 2024. The SSC recommended that ABC buffers be expressed as a percent reduction from OFL, consistent with groundfish and crab. Finally, the SSC suggested that a starting point might be the 25% default buffer used for Tier 6 average-catch stocks in the groundfish FMPs, though alternatives should be considered on a stock-by-stock basis.

In response, the SAFE team developed a new Tier 3 approach in which the preseason OFL is based on the maximum average catch over a generation during the period 1999-2024. The maximum average over a generation tends to be 40-60% higher than the overall average but will always be lower than the maximum catch over the equivalent period. Overfishing is determined by comparing the cumulative catch over the previous generation to the maximum cumulative catch. The SSC supports this more transparent approach and considers it a substantial improvement over last year. However, it should be acknowledged that this will be less precautionary than the groundfish Tier 6 average-catch approach. Although not articulated in the SAFE, a potential rationale is that for most salmon stocks, a single brood year will return to spawn over several years, so that not all of the stock is exposed to harvest in any single year. This may result in additional resilience to harvest compared to groundfish, where all of the exploitable stock is exposed to harvest.

The SAFE team recommended ABC buffers for each Tier 3 stock, starting with a 15% default ABC buffer. Recommended buffers were 15% for other sockeye, 30% for Chinook, 90% for coho, 20% for chum, and 10% for pinks. In general, proposed departures from the default 15% buffer were well justified. The SSC raised concerns about the recommended buffer for aggregate coho as noted below, but otherwise concurs with the recommended SAFE team buffers for this year.

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.

The SSC agrees with the SAFE team's concern with low coho abundance. Harvest in the EEZ and escapement counts from coho index stocks are at all-time lows. Complete weir counts are not available for either coho indicator stock in the last three years. The SAFE team-recommended buffer of 90% is very large and the resulting ABC would have led to an early fishery closure in 24 of the last 26 years. Instead, the SSC recommends a large, but less extreme buffer of 75% for aggregate coho. This magnitude is comparable to the largest buffer used for BSAI crab stocks of 75% for West Aleutian Islands red king crab, which is at very low abundance and has been closed to directed fishing since 2003.

The SAFE team evaluated aggregate "other" sockeye salmon, aggregate Chinook salmon, aggregate coho salmon, aggregate chum salmon and aggregate pink salmon stock complexes with respect to overfishing by comparing cumulative catch over the previous generation to the maximum cumulative catch. Due to limited availability of indicator stock information, only aggregate "other" sockeye, aggregate Chinook, and aggregate coho could be evaluated for overfished status. While none of these stocks were below the MSST, escapement data to compare to the respective MSST are very limited for aggregate coho. In addition, Kenai large late run Chinook may not be a suitable indicator stock since it is likely not well represented in the EEZ salmon fishery.

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.

The 2025 SAFE document highlighted some sources of uncertainty that were not considered in the assessment, including the unconfirmed historical estimates of salmon harvests in the Cook Inlet EEZ prior to 2024. However, for Tier 3 stocks, these estimates are the basis for the 2024 and 2025 SDC and harvest specifications recommendations. The SSC recommends that, to the extent possible, the SAFE team explore the uncertainty in the historical estimates of salmon harvests in the Cook Inlet EEZ prior to 2024 for all the Tier 3 stock complexes in future assessments.

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.

The SSC identified the following data needs that would provide an immediate benefit to Tier 3 salmon assessments:

- There should be ongoing genetic sampling of EEZ salmon landings. Priorities include genetic sampling of sockeye to identify the stock structure and timing of the different sockeye runs in the EEZ fishery, and Chinook sampling to assess the importance of Kenai large late run Chinook in EEZ fishery and to evaluate the prevalence of non-Cook Inlet Chinook in the fishery.
- It is a concern that monitoring of salmon escapement in Cook Inlet has decreased over time. Ideally, each Tier 3 aggregate stock complex should have several monitored indicator stocks. Increased support for the existing coho indicator stocks is the highest priority.

There were a number of minor errors in the SAFE document that were communicated to the SAFE team.

Appendix E. Social and Economic Considerations

The following is a preliminary excerpt from Section 4 of the 2026 environmental assessment (EA) for Cook Inlet salmon harvest specifications, a draft of which will be submitted to the Council prior to the February 2026 Council meeting. The harvest specs EA addresses the statutory requirements of the National Environmental Policy Act (NEPA) to provide the analytical background for decision-making. This section of the EA is being included in the SAFE report for the purpose of providing the SSC and Council with social and economic information pertinent to the CI EEZ salmon fishery. A draft EA will be published with the proposed harvest specifications; and, after considering public comments, NMFS will publish the final EA along with the final rule that establishes harvest specifications for the upcoming fishing season. The draft harvest specifications EA analyzes a range of alternative harvest strategies:

- **Alternative 1 –** *The no action alternative*. Harvest specifications are not established, total allowable catch (TAC) is not set for any salmon species, and salmon fishing would not be permitted in the CI EEZ.
- **Alternative 2 –** *Status quo and the preferred alternative*. Harvest specifications are established following the methods and procedures in the Salmon FMP. To account for uncertainty, TACs are set less than the preseason overfishing limit (OFL_{PRE}) and less than or equal to the combined acceptable biological catch (ABC) of the salmon stocks and stock complexes for each salmon species.
- **Alternative 3 –** *The alternative that represents the highest allowable harvest under the Salmon FMP*. Harvest specifications are established with TACs set equal to the OFL_{PRE}. This would remove any buffer to account for scientific or management uncertainty such that OFL_{PRE} = ABC = TAC.

- **Economic and Community Considerations**

The preferred alternative would establish TACs in the annual harvest specifications for the CI EEZ salmon fishery. The action would thus allow fishery participants to harvest salmon within the Federal waters of the CI EEZ, with ADF&G management of the fishery inside of three nautical miles of shore. The action does not materially affect other aspects of the fishery such as gear, vessel restrictions, processing, buying, sport and personal use fisheries, or any related community effects of the overall fishery. Such potential impacts of the CI EEZ salmon fishery were fully explored within the A16 EA/RIR, and that analysis has been fully incorporated into this document by reference.

The economic baseline condition for the Federal CI EEZ salmon fishery began with regulations implementing amendment 16 to the Salmon FMP and with harvest specifications, set by regulation, for the first year of this fishery in 2024. Thus, participation, harvest, and value data for 2024 and 2025 are the only economic data available under present management with which the action alternatives can be compared.

- **Cook Inlet EEZ Estimates of Salmon Fisheries Revenue in 2024 and 2025**

- **Harvest and Participation in 2024 and 2025**

A summary of UCI harvests and economic data can be found in the ADF&G season summary reports for 2024 (Lipka and Stumpf 2024) and 2025 (Lipka and Stumpf 2025b), and in the NMFS catch and landings reports[3]. Table E1 summarizes CI EEZ harvests for 2024-2025. Estimated ex-vessel values for the CI EEZ fishery (Table E2) use Federal harvest estimates and State estimates of ex-vessel prices ($/lb.) (Lipka and Stumpf 2025b) for each species.

The data provided in Tables E1 and E2 below summarize data from 2024 - 2025 harvests in the CI EEZ, which provide a comparison of harvest (number of fish), total value ($), and the proportional value for each salmon species harvested by drift gillnet Federal waters. Note that value by species uses an ADF&G preliminary price per pound (Lipka and Stumpf 2025b), which reports harvest in numbers of fish not pounds. These data have

[3] https://www.fisheries.noaa.gov/alaska/commercial-fishing/fisheries-catch-and-landings-reports-alaska#cook-inlet-salmon

been used to calculate a value per fish that has been applied to the number of fish harvested in Federal waters. This value may differ from the estimated price per pound if weights per fish vary considerably between subdistricts.

For the 2025 CI EEZ drift gillnet fishery, total salmon harvests were; 46 Chinook, 385,905 sockeye, 15,444 coho, 6,080 pink, and 27,236 chum salmon; for a total harvest of 434,711 salmon caught (Table E1).

For the State's UCI drift gillnet fishery, total 2025 salmon harvests were: 67 Chinook, 3,135,793 sockeye, 73,613 coho, 79,008 chum, and 31,843 pink salmon for a total harvest of 3,320,324 salmon, and 404 permits (Lipka and Stumpf 2025b, Table E2).

The total estimated value of the CI EEZ drift gillnet fishery in 2025 was $3.9 M and sockeye salmon was the dominant species harvested, accounting for 94% ($3.6 M) of that value (Table 4). In comparison, the total estimated value of the State's UCI drift gillnet fishery was $36 M with sockeye salmon contributing 98% of that value (Lipka and Stumpf 2025b).

The following summaries are for salmon species harvested in the CI EEZ drift gillnet fishery during the 2025 season. These data should be considered preliminary with updates provided in future analyses as the data are further analyzed. The A16 EA/RIR provided historical estimates of harvests in the CI EEZ Area (prior to the advent of the Federal CI EEZ salmon fishery); however, the methodology used for the historical estimates are not directly comparable to the Federal fish ticket data that are available since the implementation of the CI EEZ fishery in 2024.

Chinook salmon: A total of 46 Chinook salmon were harvested, and using an estimated average price of $3.92 per pound for Chinook salmon, the estimated ex-vessel value of the harvest was $1,643.

Sockeye salmon: A total of 385,905 sockeye salmon were harvested, and using an estimated average price of $1.73 per pound, the estimated total ex-vessel value of the harvest was $3.6 M.

Coho salmon: A total of 15,444 coho salmon were harvested, and using an estimated average price of $0.77 per pound, the estimated total ex-vessel value of the harvest was $99,587.

Pink salmon: A total of 6,080 pink salmon were harvested, and using an estimated average price of $0.35 per pound, the estimated total ex-vessel value of the harvest was $23,646.

Chum salmon: A total of 27,236 chum salmon were harvested, and using an estimated average price of $0.38 per pound, the estimated total

Table E 1. 2024-2025 CI EEZ commercial drift gillnet salmon harvests (number of fish). Data should be considered preliminary.

Year	Sockeye	Chinook	Coho	Pink	Chum
2024	324,837	31	4,439	6,250	28,805
2025	385,905	46	15,444	6,080	27,236
Total	710,742	77	19,883	12,330	56,041

Table E 2. CI EEZ commercial drift gillnet salmon harvests value (U.S. $) and the proportional value (%) of drift gillnet harvests that occurred in Federal CI EEZ Area waters. Data from ADF&G season summaries (Lipka and Stumpf 2024; Lipka and Stumpf 2025b) 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%

- **Impacts of the Alternatives on Fishery Revenues**

The harvest and revenue data for 2024 and 2025 (Tables E1-E2) represents the only years of available Federal management data for the CI EEZ salmon fishery with which to compare potential effects of the alternatives. That being said, one can assume that if the no action alternative were chosen some of the Federal waters harvest and value would be forgone and that would create “revenue at risk” of an unknown amount. The actual revenue loss that may occur could be partially mitigated by larger harvests inside State waters, however, as a result, this could also reduce the efficiency of the fishery due to crowding on the grounds and greater competition. This scenario could cause potential cost increases due to these inefficiencies and could have negative effects on vessel safety if a race for fish scenario develops.

Alternative 2 would set TAC specifications using the best scientific information available, including accounting for fishery run cycles. It is anticipated that the 2026 inseason management will be similar to the previous two years, with respect to the overall number of open periods. The proposed harvest specifications are being developed on a parallel track and it is anticipated that, barring unforeseen circumstances such as market shocks, the 2026 Federal fishery harvest and value will not differ significantly from the past two years.

Alternative 3 represents the upper bounds of potential fishery harvests, in that it relaxes biological stock assessment constraints to their upper limits (i.e., no buffer of the OFL_{PRE} to account for scientific uncertainty) and relaxes management constraints (i.e., no buffer applied to the ABC to account for management uncertainty) to increase potential harvest and the value of the CI EEZ salmon fishery. While harvests and fishery value would be maximized under this alternative relative to the other alternatives considered, such gains would also come with the possibility of increased conservation risk to future returns of salmon across UCI and risks to their future sustainability.

- **Number and Description of Small Entities Regulated by This Proposed Rule (Regulatory Flexibility Act Considerations)**

  For Regulatory Flexibility Act purposes only, NMFS has established a small business size standard for businesses, including their affiliates, whose primary industry is commercial fishing (see 50 CFR 200.2). A business primarily engaged in commercial fishing (North American Industry Classification System (NAICS) code 11411) is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates) and has combined annual gross receipts not in excess of $11 million for all its affiliated operations worldwide. In addition, the Small Business Administration has established a small business size standard applicable to charter fishing vessels (NAICS code 713990) of $9 million.

  This action would directly regulate commercial salmon fishing vessels, charter guides, and charter businesses operating in and fishing for salmon in the CI EEZ salmon fishery. Because NMFS expects the State to maintain current requirements for commercial salmon fishing vessels landing salmon in UCI to hold a Commercial Fisheries Entry Commission (CFEC) S03H permit, NMFS does not expect participation from non-S03H permit holders in the federally managed CI EEZ salmon fishery. Therefore, the number of S03H permit holders represents the maximum number of directly regulated entities for the commercial CI EEZ salmon fishery. Therefore, the number of S03H permit holders represents the maximum number of directly regulated entities for the commercial CI EEZ salmon fishery. From 2020 to 2024, there were an average of 544 S03H permits in circulation, with an average of 292 active permit holders, all of which are considered small entities based on the $11 million threshold. The evaluation of the number of directly regulated small entities and their revenue was conducted via custom query by staff of the Alaska Fish Information Network utilizing both ADF&G and fish ticket revenue data and the Alaska CFEC permits database. A total of 244 Federal waters permits were issued in 2024 with 206 fishing in Federal waters. A total of 247 permits were issued in 2025, with 218 permits fishing in Federal waters. These permit counts represent the first two years of the program and the only years for which we have Salmon Federal Fishing Permits (SFFP) permit data. Revenue data is not yet available for SFFP permit holders.

  The commercial charter fishing entities directly regulated by the salmon harvest specifications are the entities that hold commercial charter licenses and that choose to fish for salmon in the CI EEZ where these harvest specifications will apply. Salmon charter operators are required to register with the State of Alaska annually and the numbers of registered charter operators in the CI varies. Available data indicates that from 2019 to 2023 the total number of directly regulated charter vessel small entities that have participated in the CI EEZ was 209. From 2019 to 2023, there was an annual average of 92 charter guides that fished for salmon at least once in the CI EEZ. All of these entities, if they choose to fish in the CI EEZ, are directly regulated by this action and all are considered small entities based on the $9 million threshold. Updated charter vessel counts for 2024 to present have not yet been published.

- **Impacts of the Alternatives on Communities**

This EA analyzes alternative harvest specification scenarios and harvest specifications do not implement any regulatory actions, such as community landings and permit and vessel ownership or location within the CI EEZ salmon fishery. This proposed action would implement harvest specifications for the federally-managed salmon fishery in the CI EEZ that are consistent with the goals and objectives of the Salmon FMP; provide for the sustained participation of fishing communities, harvesters, and processors; and balance the allowable harvest of target salmon stocks with ecosystem needs. This proposed action is necessary for the continued implementation of the Salmon FMP and for NMFS to manage a viable salmon fishery in the CI EEZ while preventing overfishing. A detailed assessment on fishing communities in UCI is provided in the A16 EA/RIR section 4.5.1.5 Fishing Communities.

During the 2025 the CI EEZ salmon fishery landings (by weight) were distributed among six Alaska home ports; Cordova (2%), Homer (39%), Kasilof (23%), Kenai (35%), Ninilchik (1%), and the other landing port is excluded due to confidentiality. Sockeye contributed 88% or about 1.9 M lbs to the total landings, all other species combined contributed the remaining 12% of total landed weight. There were a total of 218 participants out of the 247 federally registered permits for the CI EEZ salmon fishery and a total of 7 federally registered processing permits, see Section 1.4 and 1.6 of this EA for additional fisheries descriptions. Due to confidentiality not all landings and processing data was able to be provided, but the presented data include the majority of available landings data.

Under Alternative 1, salmon fishing in the CI EEZ would not be permitted for any gear. This would result in a loss of revenue to individuals, processors, fishing communities (landing tax), and tribal communities (which could lose revenue if tribal citizens who commercial fish and reside in those communities are unable to participate in the CI EEZ salmon fishery). Presumably harvest opportunity within State waters would maintain the status quo for salmon management unless additional compensatory harvest opportunities were provided. If there were not compensatory harvest opportunities in State waters then spawning escapements for Kenai and Kasilof sockeye salmon and other stocks may greatly exceed their goals. As a result, there could be substantial declines in productivity for the impacted brood years, leading to potentially reduced returns during future years, and reduced revenue for individuals, processors, and communities.

In 2025, 434,711 salmon were landed from the CI EEZ, or approximately 12% of the total salmon harvest in the UCI commercial drift gillnet fishery. During a year of low returns to UCI prohibiting fishing in the CI EEZ may not pose substantial harm to communities. However, if returns were average or above then potential lost opportunity and revenue could cause greater economic harm to individuals, processors, and communities. Alternative 1 is the no action alternative and is not preferred.

Under Alternative 2, it is expected that CI EEZ salmon harvests will be near historic harvest levels, including harvests under Federal management in 2024 and 2025, such that the CI drift gillnet fleet would still be expected to maintain a significant portion of its historical catch in the CI EEZ Area. The available yield (abundance of a salmon stock in excess of escapement needs) would be harvested in the CI EEZ and in State waters to the extent practicable. For 2026, The proposed action would implement harvest limits that allow for harvests consistent with historical levels for most species (other than coho) and are expected to maintain existing opportunities for fishery participants. Therefore, the impacts of Alternative 2 on individuals, processors, and communities are not likely to be significant.

Alternative 3 would set the TACs equal to the OFL_{PRE}; this represents the highest allowable harvest under the Salmon FMP and would remove any buffer to account for scientific or management uncertainty such that OFL_{PRE} = ABC = TAC. This alternative would substantially increase harvests on Tier 3 salmon stocks relative to recent historical harvests. Based on the methods recommended by the SSC and described in the 2026 CI EEZ SAFE report, harvest under Alternative 3 (at the level of the OFL_{PRE}) would equate to the highest average historical harvest across a generation for the years 1999-2025 (Appendix 1 Section 4). Also, due to the mixed stock and multi-species nature of harvests in the CI EEZ salmon fishery, harvest at the OFL_{PRE} level for the Tier

1 stocks could result in harvest above the OFL_{PRE} level for the Tier 3 stocks. Thus, the deleterious impacts to Tier 3 stocks could include overfishing these stocks and some stocks entering or approaching an overfished condition.

This alternative could potentially lead to an initial increase in revenue to individuals, processors, and communities relative to Alternative 2. However, given the lack of buffers to account for scientific and management uncertainty, it's possible that some escapement goals would not be achieved, potentially resulting in a future of diminished fish returns and overall revenue, similar to Alternative 1. Additionally, Alternative 3 results in a greater risk of overfishing, where OFL_{PRE} = ABC = TAC, thereby affecting future yield and harvest opportunity. The long-term impacts of Alternative 3 could include spawning escapement targets not being achieved for some stocks during some years and some stocks approaching an overfished condition or becoming overfished. Therefore, it has the risk of negative community level harm both economically and biologically and is not the preferred alternative.

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[1] https://www.fisheries.noaa.gov/alaska/commercial-fishing/fisheries-catch-and-landings-reports-alaska#cook-inlet-salmon

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