16. Assessment of the Other Rockfish stock complex in the Bering Sea and Aleutian Islands

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Executive Summary

The Bering Sea/Aleutian Islands (BSAI) Other Rockfish complex is currently managed in Tier 5 and is assessed on even years to coincide with the Aleutian Islands (AI) bottom trawl survey. The Other Rockfish complex is assessed in two parts: (1) shortspine thornyhead (SST, *Sebastolobus alascanus*), which currently comprise approximately 90% of the estimated total Other Rockfish exploitable biomass; and (2) the remaining "non-SST" species, which are dominated by dusky rockfish (*Sebastes variabilis*) but include at least eleven other *Sebastes* and *Sebastolobus* species. The assumed natural mortality differs between SST (0.03) and the remaining non-SST species in the Other Rockfish complex (0.09). Therefore, they have different definitions of F_{OFL} and F_{ABC}.

In 2026, the BSAI Other Rockfish assessment is presented as an update. We use the most recent approved assessment model (Model 22), cite the most recent full assessment for background information (Sullivan et al. 2022a), and respond to Plan Team and SSC comments when possible, carrying the rest forward for the next full assessment. Relative to the last assessment (Sullivan and Ortiz 2024), the following changes have been made:

Summary of Changes in Assessment Inputs

Changes in the input data

1) Catch updated through September 12, 2026 (accessed September 18, 2026).
2) The 2026 AI bottom trawl survey (BTS) biomass estimates for both SST and non-SST species.
3) The 2025 and 2026 Eastern Bering Sea (EBS) shelf BTS biomass for non-SST species.
4) The 2026 NMFS longline survey (LLS) relative population weights (RPWs) for SST on the EBS slope.

Changes in the assessment methodology

This is an update assessment, and therefore there are no changes to the assessment methods. The recommended model is Model 22 (Sullivan et al. 2022a).

Summary of Results

For the 2027 and 2028 fisheries, we recommend the maximum permissible ABC of 1,150 t for the Other Rockfish stock complex. This ABC is a 9% increase from the 2025/2026 ABC of 1,054 t. The OFL is 1,533 t. Reference values for the BSAI Other Rockfish complex are summarized in the table below, with the recommended ABC and OFL values in bold. In 2025, the stock was not subject to overfishing.

	As estimated or specified in 2024 for:		As estimated or recommended this year for:	
Quantity	2025	2026	2027	2028
M (natural mortality rate) for	0.03	0.03	0.03	0.03
M for non-SST	0.09	0.09	0.09	0.09
Tier	5	5	5	5
RE Model Combined Biomass	40,559	40,559	42,899	42,899
F_{OFL} *(F=M)* for SST	0.03	0.03	0.03	0.03
F_{OFL} *(F=M)* for non-SST	0.09	0.09	0.09	0.09
$maxF_{ABC}$ for SST	0.0225	0.0225	0.0225	0.0225
$maxF_{ABC}$ for non-SST	0.0675	0.0675	0.0675	0.0675
F_{ABC} for SST	0.0225	0.0225	0.0225	0.0225
F_{ABC} for non-SST	0.0675	0.0675	0.0675	0.0675
OFL (t)	1,406	1,406	**1,533**	1,533
maxABC (t)	1,054	1,054	1,150	1,150
ABC (t)	1,054	1,054	**1,150**	1,150
	As determined *in 2024* for:		As determined *this* year	
Status	2023	2024	2025	2026
Overfishing	No	n/a	No	n/a

Area apportionment: Biologically-informed Recommended Distributions (BRDs)

The following table shows the Biologically-informed Recommended Distributions (BRDs) for 2027 and 2028 using current apportionment methodology for BSAI Other Rockfish complex. ABCs are apportioned to the AI and EBS as BRDs by summing the proportion of biomass in each region estimated by the random effects (REMA) model for the SST and non-SST components of the complex. Separate BRDs, ABCs and OFLs are presented below for each area and species/species group to illustrate how they are calculated for the complex. In recent years BSAI Other Rockfish have been managed with a BSAI-wide OFL and ABC and BRDs for the AI and EBS (in bold):

		AI	**EBS**	**Total BSAI**
SST	RE model biomass (t)	14,459	24,342	38,801
	Proportion biomass by region	0.37	0.63	
	Species group BRD (t)	325	548	873
	Species group OFL (t)			1,164
non-SST	RE model biomass (t)	3,905	193	4,098
	Proportion biomass by region	0.95	0.05	
	Species group BRD (t)	264	13	277
	Species group OFL (t)			369
Total Other Rockfish	RE model biomass (t)	18,364	24,535	42,899
	BRD/ABC (t)	**589**	**561**	**1,150**
	OFL (t)			**1,533**

Summaries for Plan Team

The following table gives the projected biomass in the year that harvest specifications were recommended, OFL, ABC, TAC and estimated catch to date for 2025-2026.

Species	Year	Biomass	OFL	ABC	TAC	Catch
Other rockfish	2025	40,559	1,406	1,054	1,054	1,030
	2026	40,559	1,406	1,054	1,054	567*
	2027	42,899	1,533	1,150		
	2028	42,899	1,533	1,150		

*Catch updated through September 12 (accessed on September 18, 2026) Source: NMFS AKRO Catch Accounting System, AKFIN database.

Responses to SSC and Plan Team Comments to Assessments in General

Specifically, for the stocks where the Council requests information related to flexibility in spatial apportionments, either identified by the Council in October 2025 or if the Council identifies additional stocks at this October 2026 meeting, the SSC requests that assessment authors include in December 2026:

1. *A table showing BRDs (from 2026) and subarea ABCs (from 2025 and earlier) for the last 10 years, their associated CV if available, and the catch within each region.*
2. *State whether a stock structure template has been completed for the stock, and, if so, a link to the document.*
3. *Describe other factors relevant to spatial allocation, such as longevity, movement rates, natural mortality, discard mortality, etc. (SSC, October 2026)*

BSAI Other Rockfish have not been identified by the Council as a BRD stock; however, we point reviewers to Table 16-1 for this information.

"There has been no trawl survey on the EBS slope since 2016, which continues to impact several assessments (BSAI Greenland turbot, BSAI POP, BSAI blackspotted/rougheye, BSAI Kamchatka flounder, BSAI shortraker, BSAI other rockfish, and BSAI other flatfish)." (BSAI GPT, November 2024)

The absence of EBS slope BTS data after 2016 remains an important source of assessment uncertainty and is considered in the risk table. The AFSC LLS provides the only contemporary abundance index for SST on the EBS slope, which supports a substantial proportion of the complex biomass. The new 2026 LLS provides an important update to this time series but does not replace an independent contemporary BTS index.

<u>Spatial apportionment/BRDs and uncertainty</u>

"The Teams requested that, when available, documentation describing the rationale for when and how a BRD is specified be provided to the authors and the Teams. This information may also be useful to include in the SAFE intro to provide guidance for when the distribution of potential catch might be flexible (i.e., exceed an area's BRD) based on the level of reliability or importance of a BRD." (Joint GPT, Sept 2025)

"The SSC reiterates from their June 2025 minutes that harvest should generally reflect stock distribution, especially when stock structure and spatial ecology are uncertain. This approach helps maintain biocomplexity, reproductive potential, and fishing opportunities." (SSC, October 2025)

"Uncertainty of BRDs, particularly for areas with sparse data (e.g., Aleutians), should be quantified and communicated alongside point estimates in the stock assessment." (SSC, October 2025)

"New methods (e.g., REMA, VAST, spatio-temporal apportionment tools) should continue to be developed and brought forward for GPT and SSC review per the status quo." (SSC, October 2025)
This information is available in the last full assessment (Sullivan et al. 2022a) and will be reevaluated in the next full assessment.

Responses to SSC and Plan Team Comments Specific to this Assessment

Declining SST biomass:
"The majority of the SSC discussion focused on the large (23%) decline in estimated biomass, which was strongly influenced by a 61% decline in the longline survey index of shortspine thornyheads. This is a marked decline, especially for long-lived rockfish species and is most likely attributable to sampling error. However, there was sufficient concern that the SSC requests the author or survey group bring forward survey results at the September BSAI GPT meeting in 2025 (if available), recognizing that a catch report is currently scheduled for 2025." (SSC, December 2024)
"In December 2024, the SSC discussed the decline in estimated biomass for the other rockfish complex and requested that, if available, new survey results be brought forward for review at the September 2025 BSAI GPT meeting." (SSC, December 2025)
The SSC requested that new survey information be brought forward to evaluate the large decline in shortspine thornyhead (SST) abundance observed in the EBS slope longline survey (LLS). The current assessment incorporates the newly available 2026 EBS slope LLS RPW for SST (Table 16-6; Figure 16-2). The RPW increased from 9,605 t in 2023 to 16,558 t in 2026, partially reversing the decline from 25,497 t in 2021, although the new observation remains below most values observed during the preceding two decades. The updated LLS information is incorporated directly into the REMA model. Despite the increase in the LLS index, the resulting SST biomass trajectory is similar to that estimated in the previous assessment, with 2026 biomass estimated at 38,801 t compared with 37,408 t projected for 2026 in the 2024 assessment (Table 16-7; Figure 16-2). Thus, the new survey information moderates, but does not fully reverse, the previously observed decline and provides no evidence of a continued rapid decline in SST abundance. Based on the stabilization of the LLS index and estimated biomass trajectory, the population dynamics consideration is reduced from Level 2 in 2024 to Level 1 in the current assessment.

"The SSC recommends that an operational assessment for BSAI other rockfish be prioritized for the 2026 assessment cycle." (SSC, December 2025)
The 2026 assessment is an operational update.

"The SSC encouraged future efforts to re-evaluate the current assumed natural mortality for non-SST species for the next full assessment." (SSC, December 2022) This comment is retained here and in the "Data gaps and research priorities" section for the next full assessment.

The BSAI Plan Team had no recommendations specific to this assessment in this cycle.

Introduction

The Other Rockfish complex includes all species of *Sebastes* and *Sebastolobus*, except Pacific ocean perch (POP, *Sebastes alutus*), northern rockfish (*S. polyspinis),* rougheye rockfish (*S. aleutianus*), and shortraker rockfish (*S. borealis*). Current definitions of the complex do not specifically exclude blackspotted rockfish (S. *melanostictus)*, a recently recognized species (Orr and Hawkins 2008) that had historically been identified as rougheye rockfish in research surveys. However, blackspotted are currently not distinguished from rougheye rockfish in the

fishery catches, and are therefore managed under the BSAI blackspotted/rougheye complex. The two most abundant species in the Other Rockfish complex are SST and dusky rockfish. Other species include redstripe rockfish (*S. proriger*), redbanded rockfish (*S. babcocki*), yelloweye rockfish (*S. ruberrimus*), harlequin rockfish (*S. variegatus*), sharpchin rockfish (*S. zacentrus*), longspine thornyhead (*Sebastolobus altivelis*), and broadbanded (also called broadfin) thornyhead (*Sebastolobus macrochir*).

The Other Rockfish complex is managed through annual catch limits (Table 16-1). ABCs and OFLs for SST are calculated separately from non-SST Other Rockfish because SST is the most abundant species in the BSAI Other Rockfish complex, and because it is managed under a lower natural mortality estimate (M=0.03) than the non-SST Other Rockfish (M=0.09). However, the OFL and ABC reference points are for the entire Other Rockfish complex combined. The ABC is then spatially apportioned into BRDs between the EBS and AI.

For a full description of BSAI Other Rockfish biology, distribution, life history, prey and predators, and evidence of stock structure, please refer to the last full assessment (Sullivan et al. 2022a).

Fishery and Management History

The Other Rockfish category was added to the BSAI Fishery Management Plan (FMP) in 1986, and the complex is managed through annual catch limits (Table 16-1). Before 2002, BSAI Other Rockfish were managed with separate OFLs in the EBS and AI management areas (Sullivan et al. 2022a). In 2002, Reuter and Spencer (2002) recommended a BSAI-wide OFL. Since then, BSAI Other Rockfish have been managed with a BSAI-wide OFL and ABC. The ABC is then spatially apportioned into Biologically-informed Recommended Distributions (BRDs; formerly subarea ABCs) between the EBS and AI.

There is no directed fishery for species in the Other Rockfish complex; however, incidental catch occurs in multiple fisheries and gear types, including the Atka mackerel trawl, rockfish trawl, flatfish trawl, and sablefish hook-and-line fisheries (Figure 16-1). Tables 16-2 and 16-3 report catches of the most common species in commercial catches since 2003, including dusky rockfish, shortspine thornyhead (SST), other thornyheads, harlequin rockfish, yelloweye rockfish, redbanded rockfish, redstripe rockfish, and black rockfish. Because landed thornyheads are not identified to species, observer samples are used to partition thornyhead catch and estimate the proportion attributable to SST. SST comprise the majority of thornyhead catch in both management areas, averaging 93% in the AI and 97% in the EBS since 2003.

Catch composition and the fisheries contributing to Other Rockfish catch differ between the AI and EBS (Figure 16-1). In the AI, non-SST species, particularly dusky rockfish, comprise most of the catch, whereas SST comprise a larger proportion of Other Rockfish catch in the EBS. Recent EBS catches have been particularly influenced by SST, which increased from 310 t in 2021 to 506 t in 2022, 507 t in 2023, and 651 t in 2024 before declining to 386 t in 2025. In the AI, dusky rockfish remained the largest component of the non-SST catch in 2025, while SST catch was 190 t.

Discard rates differ substantially between SST and the non-SST component of the complex. Since 2003, non-SST discard rates have averaged 36% in the AI and 54% in the EBS, compared with 24% and 14%, respectively, for SST (Tables 16-4 and 16-5). Discard rates also vary considerably among years. For example, non-SST discard rates in the EBS were 75% in 2025 and 69% in the partial 2026 catch data, whereas SST discard rates declined from 60% in

the AI in 2024 to 20% in 2025. Lower discard rates for SST are consistent with their higher value relative to many of the non-SST species.

Total BSAI Other Rockfish catch was 1,361 t in 2024, exceeding the 1,260 t ABC and TAC. Catch declined to 1,030 t in 2025, below the 1,054 t ABC and TAC. Catch in 2026 was 567 t through September 12 and is therefore incomplete (Table 16-1). A full description of the BSAI Other Rockfish fishery, history of management measures, and historical catches from 1977 through 2002 is provided in the last full assessment (Sullivan et al. 2022a). Catch from non-commercial sources, including removals associated with research, subsistence, personal use, recreational fishing, and exempted fishing permit activities, is reported in Table 16A-1 of Appendix 16A. Non-commercial removals are generally small relative to commercial catch.

Data

Fishery

Commercial catch data were updated through September 12, 2026 using the NMFS Alaska Regional Office Catch Accounting System and AKFIN database. Detailed catch information for BSAI Other Rockfish is provided in Tables 16-1 through 16-5. Species-specific catches in the AI and EBS are reported in Tables 16-2 and 16-3, respectively, and discard rates for non-SST and SST are reported in Tables 16-4 and 16-5. Spatial patterns in aggregate catch and annual catch by fishery, gear type, management area, and species group are shown in Figure 16-1.

Survey

Bottom trawl surveys (BTS)

Exploitable biomass of Other Rockfish is estimated using BTS biomass from the AI, EBS shelf, and EBS slope BTS (Table 16-6). In the 2026 AI BTS, biomass estimates for SST were 14,601 t in the AI and 352 t in the Southern Bering Sea (SBS). These estimates were similar to those from the 2024 survey (14,239 t and 382 t, respectively), suggesting relatively little change in SST survey biomass in these regions between 2024 and 2026. The EBS slope BTS has not been conducted since 2016, limiting contemporary trawl survey information for SST in this region.

Non-SST biomass estimates are considerably more variable among years and regions. In the 2026 AI BTS, non-SST biomass was estimated at 4,547 t in the AI and 10 t in the SBS, compared with 1,475 t and 1,973 t, respectively, in 2024. The EBS shelf BTS frequently encounters few or no non-SST rockfish, resulting in highly variable biomass estimates and numerous zero observations throughout the time series. Zero biomass observations are treated as missing (NA) in the REMA model. The 2025 and 2026 EBS shelf biomass estimates were 297 t and 99 t, respectively.

For a full description of the trawl surveys and long-term trends in the SST and non-SST species groups, please refer to the last full assessment (Sullivan et al. 2022a).

NMFS longline survey (LLS)

This assessment uses LLS relative population weights (RPWs) as a relative index of abundance for SST on the EBS slope, where the LLS has been conducted biennially in odd years 1997-2023 and will be sampled in even years starting in 2026 (Table 16-6; Rodgveller et al. 2011). RPWs are computed using survey catch per unit of effort (CPUE) rates that are multiplied by the area of each stratum and the mean weight of fish caught by station and stratum.

The LLS provides the only contemporary fishery-independent abundance index for SST on the EBS slope because the EBS slope BTS has not been conducted since 2016. The SST RPW

declined substantially from 25,497 t in 2021 to 9,605 t in 2023 but increased to 16,558 t in 2026. The 2026 estimate therefore represents a partial rebound from the low 2023 observation, although it remains below most observations from the preceding two decades.

The LLS also samples SST in the Aleutians; however, these RPWs are not used in the assessment because the LLS only samples the eastern half of the region (Table 16-6). There was a 51% decline in the SST LLS RPWs in the AI between 2022 and 2026.

For a full description of the LLS and the rationale for incorporating this index into the assessment, please refer to Sullivan et al. (2022a).

Analytic Approach

Model structure

Exploitable biomass is estimated using a state-space random walk model implemented in the rema R package (Sullivan et al. 2022c). The REMA model is fit to design-based estimates of survey biomass and associated observation error by species group (SST and non-SST) and region in the EBS and AI. True population biomass is modeled as a time series of random effects, and the smoothness of the estimated biomass trajectory relative to the survey observations is governed by the process error. The recommended model is Model 22, which was accepted for management in 2022 and has remained unchanged in subsequent update assessments. For a full description of the accepted Model 22 see Sullivan et al. (2022a).

Model 22 for SST
In Model 22, SST biomass is estimated using three spatial strata: the AI, comprising the eastern, central, and western AI; the Southern Bering Sea (SBS), which is sampled during the AI BTS; and the EBS slope. Model 22 fits the AI and SBS BTS biomass estimates and the EBS slope BTS biomass estimates through 2016. The model also fits LLS RPWs on the EBS slope, which provide the only contemporary abundance index for SST in this region following discontinuation of the EBS slope BTS after 2016. SST do not occur on the EBS shelf; therefore, the EBS shelf BTS is not used for the SST component of the assessment.

Model 22 for non-SST
Non-SST biomass is estimated using four spatial strata: the AI, SBS, EBS shelf, and EBS slope. As described in the BTS data section, the EBS shelf survey frequently has zero biomass observations (n=11). Consistent with previous assessments, these zero observations are treated as missing (NA) in the model (Sullivan et al. 2022a).

Reference points
For Tier 5 stocks, F_{OFL} and F_{ABC} are defined as M and 0.75M, respectively. The ABC is obtained by multiplying F_{ABC} by the estimated REMA biomass, and the overfishing level (OFL) is obtained by multiplying F_{OFL} by the estimated REMA biomass. The SST M of 0.03 is borrowed from the GOA thornyhead stock assessment and is the average M over a range of published values for SST (Echave and Hulson 2018). The non-SST M of 0.09 is the M previously used for dusky rockfish, the most abundant species in the non-SST component of the complex (Clausen and Heifetz 2001).

ABC and OFL are calculated separately for the SST and non-SST components of the complex and then summed to obtain BSAI-wide harvest specifications. Biologically informed recommended distributions (BRDs) between the AI and EBS are based on the estimated

regional biomass of SST and non-SST. Biomass in the EBS is obtained by summing SBS, EBS slope, and EBS shelf biomass estimates.

Results

Model 22 generally fits the SST survey indices well and produces a relatively smooth biomass trajectory despite differences among survey observations (Figure 16-2). The 2026 EBS slope LLS RPW increased to 16,558 t following the low 2023 estimate of 9,605 t, partially reversing the decline observed between 2021 and 2023. The 2026 AI BTS biomass estimate was 14,601 t, similar to the 2024 estimate of 14,239 t, while biomass in the SBS remained low (Table 16-6). Consequently, estimated SST biomass in 2026 was 38,801 t, slightly higher than the 37,408 t that was projected forward from the terminal year in the 2024 assessment (Table 16-7; Figure 16-2). The updated data therefore result in relatively little change to the SST biomass trajectory compared with the previous assessment.

Parameter estimates for SST were also nearly unchanged between assessments. Process error decreased slightly from 0.18 in 2024 to 0.17 in 2026, while the EBS slope LLS scaling parameter (q) remained 0.69 (Table 16-8).

Non-SST survey biomass remains highly variable and uncertain among years and regions, and Model 22 dampens these large fluctuations in the underlying survey observations (Figures 16-3 and 16-4). The 2026 AI BTS biomass estimate increased to 4,547 t from 1,475 t in 2024, while the 2026 SBS estimate declined to 10 t and the EBS shelf estimate was 99 t (Table 16-6). These observations resulted in an increase in estimated total non-SST biomass from 2,701 t in 2024 to 4,098 t in 2026 (Table 16-7; Figure 16-3). Process error for non-SST increased from 0.76 in the 2024 assessment to 0.88 in the current assessment, reflecting the high variability of the survey biomass observations (Table 16-8).

Total estimated BSAI Other Rockfish biomass in 2026 is 42,899 t, of which approximately 90% is SST (Table 16-7). Fishery exploitation rates differ substantially between the two components of the complex. SST exploitation has generally remained low, averaging approximately 1% in both the AI and EBS since 2003. In contrast, non-SST exploitation rates have averaged 38% in the AI and 16% in the EBS, reflecting substantially lower and more variable estimated biomass relative to catch (Table 16-9). Non-SST exploitation rates declined in the AI from 22% in 2024 to 14% in 2025 and 7% in the partial 2026 data as estimated biomass increased. In the EBS, non-SST exploitation was 32% in 2025 and 31% in the partial 2026 data.

Harvest recommendations

Amendment 56 Reference Points

For this update assessment we recommend retaining BSAI Other Rockfish in Tier 5 under the NPFMC definitions for ABC and OFL based on Amendment 56 to the BSAI FMP. For Tier 5 stocks, reliable estimates of biomass and M are available, and the maximum permissible fishing mortality rate for ABC (i.e., $maxF_{ABC}$) is defined as $\leq 0.75M$. The recommended $maxF_{ABC}$ is therefore 0.0225 for SST (M = 0.03) and 0.0675 for non-SST (M = 0.09).

As described in the previous section, the recommended Model 22 was fit separately to survey data for SST and non-SST species groups. The 2026 estimated biomass, carried forward as the 2027/2028 predicted biomass, is 38,801 t for SST and 4,098 t for non-SST, for a combined predicted biomass of 42,899 t. The 95% confidence interval for SST biomass is 28,004-53,761 t, and the 95% confidence interval for non-SST biomass is 633-26,517 t. These intervals are

estimated by REMA separately for each component and therefore represent uncertainty for the SST and non-SST models, respectively, rather than a single confidence interval for the summed complex-wide biomass. The substantially wider relative uncertainty for non-SST reflects the high variability and uncertainty of the survey observations (Figures 16-2 and 16-3; Table 16-6), which results in greater process error estimates for non-SST (0.88) than for SST (0.17; Table 16-8).

Specification of OFL and Maximum Permissible ABC
For the 2027 and 2028 fisheries, the recommended Tier 5 reference points are calculated separately for SST and non-SST and summed to obtain BSAI-wide harvest specifications. Based on the biomass estimates shown below, the recommended BSAI-wide OFL is **1,533 t** and the maximum permissible ABC is **1,150 t**. The authors recommend setting ABC equal to the maximum permissible ABC. Component-specific reference points are provided for informational purposes.

2027/2028	SST	non-SST	Total Other Rockfish
M	0.03	0.09	-
Biomass	38,801	4,098	**42,899**
F_{OFL}	0.03	0.09	-
$maxF_{ABC}$	0.0225	0.0675	-
F_{ABC}	0.0225	0.0675	-
OFL	1,164	369	**1,533**
maxABC	873	277	**1,150**
ABC	873	277	**1,150**

Risk Table and ABC Recommendation
Since 2020, the SSC has requested that full or update assessments fill out a risk table with assessment, population dynamics, environmental and ecosystem, and fishery performance considerations to inform potential reductions from maximum permissible ABC. The guidelines for risk table definitions are now available to reference in the Introduction to the BSAI SAFE.

Assessment considerations: (Level 1, down from Level 2 in 2024)

The BSAI Other Rockfish complex is assessed under Tier 5 and is split into SST and non-SST components in the assessment because of substantial differences in survey information, *M*, and relative abundance. SST currently account for ~90% of the estimated exploitable biomass of the complex. In contrast, non-SST species make up a substantial proportion of the catch, particularly in the AI, where non-SST catch has historically exceeded SST catch and has occasionally exceeded estimated non-SST biomass (Table 16-9).

The reliability of biomass estimates differs substantially between the SST and non-SST stock complex components. SST biomass is informed by relatively consistent AI BTS observations and the EBS slope LLS, although the EBS slope BTS has not been conducted since 2016 (Table 16-6; Figure 16-2). In contrast, non-SST survey observations are highly variable, frequently have large CVs or zero observations, and represent an assemblage of species with differing distributions and life histories (Table 16-6; Figures 16-3 and 16-4). This uncertainty is reflected in substantially greater estimated process error for non-SST (0.88) than for SST (0.17; Table 16-8).

These limitations are longstanding features of the assessment rather than new or increasing sources of uncertainty in 2026. They are nevertheless important because Tier 5 harvest specifications require reliable estimates of biomass. The large SST biomass dominates the complex-wide biomass estimate and resulting harvest specifications, potentially obscuring uncertainty and management concerns for the much smaller non-SST component, which experiences substantially greater exploitation relative to estimated biomass (Table 16-9). **Given that these limitations are understood, have been consistently evaluated in previous assessments, and have not increased in the current assessment, assessment considerations are assigned Level 1.**

Population dynamics considerations: (Level 1, down from Level 2 in 2024)
With contributions from Ivonne Ortiz and Elizabeth Siddon

The primary population dynamics concern identified in the 2024 assessment was the sharp decline in the EBS slope LLS RPW for SST between 2021 and 2023. The LLS RPW increased from 9,605 t in 2023 to 16,558 t in 2026, partially reversing this decline, while the 2026 AI BTS estimate of 14,601 t was similar to the 2024 estimate of 14,239 t (Table 16-6). Consistent with these observations, estimated SST biomass has stabilized and increased slightly in the terminal years, from 37,617 t in 2023 to 38,801 t in 2026. The LLS also samples SST in the Aleutians, and there was a 51% decline in the SST LLS RPWs in the AI between 2022 and 2026 (Table 16-6). However, the AI RPWs are not used in the assessment because the LLS only samples the eastern half of the AI region. Because the AI LLS and BTS do not show consistent trends, we did not pursue the AI RPW decline further. We will, however, continue to monitor the AI LLS RPW in the assessment.

Recent environmental indicators suggest mixed conditions for early life stages, including cooler subsurface temperatures in the eastern Bering Sea, continued warming in the western AI, and regional differences in zooplankton availability. Although warming and marine heatwaves may affect early survival, particularly for the prolonged pelagic stages of SST, their effects on recruitment remain poorly understood (Ortiz 2026; Siddon 2026). **Because biomass estimates for SST have stabilized and there are no strong indications of elevated risk to other components of the stock, population dynamics considerations are assigned Level 1.**

Environmental/Ecosystem considerations: (Level 1)
With contributions from Ivonne Ortiz and Elizabeth Siddon

Recent ecosystem indicators suggest mixed environmental conditions for BSAI Other Rockfish, with information primarily available for SST and dusky rockfish (Ortiz 2026; Siddon 2026). Bottom temperatures have generally declined from their 2016 peaks in the Aleutian Islands, although warming persists in the western Aleutians. In 2026, SST occupied somewhat warmer and shallower waters than in 2024, while dusky rockfish showed relatively little change in depth and temperature distributions. Zooplankton indicators and fish condition suggest potentially unfavorable foraging conditions in the Aleutians, whereas conditions in the eastern Bering Sea appear more favorable. However, changes in the availability of benthic invertebrates and other prey may provide some buffering for SST, which have a more generalist diet than dusky rockfish.

Although environmental variability may affect early survival, growth, and distribution, direct evidence of adverse effects on the productivity of either component remains limited. The diversity of species and life histories within the complex, together with limited species-specific

ecological information, further complicates interpretation of these indicators. **Overall, available information does not indicate unusual ecosystem conditions that warrant increased concern for the complex, and we retain the environmental/ecosystem rating of Level 1.**

Fishery performance considerations: (Level 1, down from Level 2 in 2024)

There are no directed fisheries for BSAI Other Rockfish, and catch occurs as bycatch in several fisheries. In recent years, elevated SST catch in the EBS was associated with the Amendment 80 bottom trawl fishery targeting sablefish and flatfish (Figure 16-1). SST catch in the EBS increased from 310 t in 2021 to 651 t in 2024 but subsequently declined to 386 t in 2025 and to 107 t through September 12, 2026 (Table 16-3).

The reduction in SST catch follows changes in fleet behavior intended to avoid SST bycatch, including movement of fishing effort away from areas of higher SST encounter rates (personal communication, Steve Whitney, AKRO In-season Management). These efforts have substantially reduced recent SST bycatch, and the authors recognize the fleet's efforts to reduce encounters with SST. SST exploitation rates remain low, averaging approximately 1% in both the AI and EBS since 2003 (Table 16-9). **Given the reduction in recent SST catch and absence of an increasing exploitation trend, fishery performance considerations are assigned Level 1.**

Summary and ABC recommendation

Assessment-related considerations	Population dynamics considerations	Environmental/ ecosystem considerations	Fishery Performance considerations
Level 1: Typical to moderately increased uncertainty/minor unresolved issues in assessment.	Level 1: Stock trends are typical for the stock.	Level 1: No apparent environmental/ecosyste m concerns	Level 1: No apparent fishery/resource-use performance and/or behavior concerns

All four risk categories were rated Level 1, indicating no elevated concerns beyond those already accounted for in the assessment and harvest control rule. Therefore, we recommend **no reduction from the maximum permissible ABC for 2027 and 2028**.

Spatial Apportionment: Biologically-informed Recommended Distributions (BRDs) (Previously Area Allocation of ABC)
For the 2027 and 2028 Other Rockfish complex fishery, we recommend BRDs of 561 t and 589 t for the EBS and AI, respectively. The species group reference points are provided in the table below to show how BRDs were calculated:

		AI	EBS	Total BSAI
SST	RE model biomass (t)	14,459	24,342	38,801
	Proportion biomass by region	0.37	0.63	
	Species group BRD (t)	325	548	873
	Species group OFL (t)			1,164
non-SST	RE model biomass (t)	3,905	193	4,098
	Proportion biomass by region	0.95	0.05	

	Species group BRD (t)	264	13	277
	Species group OFL (t)			369
Total Other Rockfish	RE model biomass (t)	18,364	24,535	42,899
	BRD/ABC (t)	**589**	**561**	**1,150**
	OFL (t)			**1,533**

Status Determination
The stock/complex is not being subjected to overfishing as determined by comparing the catch from the most recent complete year (2025) to the specified OFL for that year. The 2025 catch of 1,030 t is below the 2025 OFL of 1,406 t (Table 16-1); therefore, the stock is not being subject to overfishing.

F_{limit}
Fishing mortality rate above which the stock is considered to be overfishing. For non-SST, $F_{limit}=M=0.09$. For SST, $F_{limit}=M=0.03$.

Ecosystem Considerations

Ecosystem Effects on the Stock

BSAI Other Rockfish is a complex of non-target species with diverse life histories, distributions, habitat associations, and trophic relationships. Consequently, relatively little is known about ecosystem effects on the complex as a whole, and available ecosystem information is generally species-specific. Previous assessments have focused primarily on SST and dusky rockfish, the two most abundant species represented in the complex. A review of ecosystem information for these species is provided in the most recent full assessment (Sullivan et al. 2022a). Current ecosystem conditions and their potential implications for the 2026 BSAI Other Rockfish assessment are evaluated as part of the Risk Table and ABC recommendation section above.

Fishery Effects on the Ecosystem

There are no directed fisheries for species in the BSAI Other Rockfish complex. For a discussion of the contribution to discards and offal production or to bycatch of prohibited species, forage fish, HAPC biota, marine mammals, seabirds, sensitive species or non-target species from these fisheries, the reader should refer to the stock assessments for which Other Rockfish are common bycatch, including BSAI Atka mackerel and BSAI Pacific ocean perch.

Data Gaps and Research Priorities

<u>High priority</u>

1. Update *M* estimates for BSAI Other Rockfish**:** Natural mortality directly determines Tier 5 F_{ABC} and F_{OFL} and is therefore a critical parameter for this assessment. Updated estimates should be recommended using best available life history information (e.g., Sullivan et al. 2022b, TenBrink et al. 2023, TenBrink 2025)
2. Evaluate the composition and Tier designation of the BSAI Other Rockfish complex: SST currently account for approximately 90% of estimated biomass, while non-SST species contribute disproportionately to catch and have substantially more uncertain biomass estimates. This structure allows the relatively large SST biomass to dominate complex-level harvest specifications and potentially mask uncertainty and exploitation patterns within the non-SST assemblage. A future full assessment should evaluate

separating SST and other thornyheads from the remaining Other Rockfish complex, analogous to the GOA thornyhead stock complex, and determine whether available biomass information for the remaining species meets Tier 5 requirements. If reliable biomass estimates are not available, Tier 6 management should be evaluated for the remaining assemblage. Such an analysis could mirror what was done for Gulf of Alaska Other Rockfish in the 2023 assessment (Appendix 16B of Omori et al. 2023).

Medium priority

1. Implement and evaluate diagnostics for the *rema* R package: Improved model diagnostics would facilitate evaluation of model assumptions, influential observations, process error, and uncertainty in biomass estimates, particularly for the highly variable non-SST component (Balstad et al. 2024).
2. Update life history information, including maturity data: Available maturity and other life history information should be reviewed and updated during the next full assessment (e.g., TenBrink 2025). This review should identify whether available maturity data adequately characterize the major species in the complex and identify priorities for new maturity sampling or analysis.

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Literature Cited

Balstad, L.J., Sullivan, J., and C. Monnahan. 2024. A Plain Language Guide to Model Validation in REMA. Plan Team Report, Joint Groundfish Plan Teams, North Pacific Fishery Management Council. 605 W 4th Ave, Suite 306 Anchorage, AK. https://meetings.npfmc.org/CommentReview/DownloadFile?p=f4caca9e-3721-4c28-ab81-ab326dd3796a.pdf&fileName=Model%20Validation%20in%20REMA%20.pdf

Clausen, D. and J. Heifetz. 2001. Pelagic Shelf Rockfish *In*: Stock assessment and fishery evaluation report for the groundfish resources of the Gulf of Alaska as projected for 2002. Nov. 2001. North Pacific Fishery Management Council, P.O Box 103136, Anchorage, AK 99510.

Echave, K.B, and Hulson, P.J.F. 2018. Thornyheads. *In*: Stock assessment and fishery evaluation report for the groundfish resources of the Gulf of Alaska as projected for 2019. North Pacific Fishery Management Council, 605 W 4th Ave, Suite 306 Anchorage, AK 99501.

Omori, K.L., Tribuzio, C.A., and Ferris, B. 2023. Assessment of the Other Rockfish stock complex in the Gulf of Alaska. North Pacific Fishery Management Council, Anchorage, AK. Available from https://www.npfmc.org/library/safe-reports/

Orr, J.W. and Hawkins, S. 2008. Species of the rougheye rockfish complex: resurrection of *Sebastes melanostictus* (Matsubara, 1934) and a redescription of *Sebastes aleutianus* (Jordan and Evermann, 1898)(Teleostei: Scorpaeniformes). Fishery Bulletin, 106(2), pp.111-135.

Ortiz, I. 2026. Ecosystem Status Report 2026: Aleutian Islands, Stock Assessment and Fishery Evaluation Report, North Pacific Fishery Management Council, 1007 West 3rd Ave., Suite 400, Anchorage, Alaska 99501.

Reuter, R.F. and P.D. Spencer. 2002. Other Rockfish. *In:* the Stock assessment and fishery evaluation report for the groundfish resources of the Bering Sea and Aleutian Islands as projected for 2003. Nov. 2002. North Pacific Fishery Management Council, P.O., Box 103136, Anchorage, AK 99510.

Rodgveller, C.J., C. Lunsford, P. Malecha, and D. Hanselman. 2011. Calculations of indices of abundance from the Alaska Fishery Science Center's Longline Survey. Unpublished report. https://akfinbi.psmfc.org/analyticsRes/Documentation/RPN_HowTo_2011.pdf

Siddon, E. 2026. Ecosystem Status Report 2026: Eastern Bering Sea, Stock Assessment and Fishery Evaluation Report, North Pacific Fishery Management Council, 1007 West 3rd Ave., Suite 400, Anchorage, Alaska 99501.

Sullivan, J., Callahan, M., Kingham, A., TenBrink, T., Ortiz, I., and Siddon, E. 2022a. Assessment of the Other Rockfish stock complex in the Bering Sea and Aleutian Islands. North Pacific Fishery Management Council, Anchorage, AK. Available from https://www.npfmc.org/library/safe-reports/

Sullivan, J. Y., C. A. Tribuzio, and K. B. Echave. 2022b. A review of available life history data and updated estimates of natural mortality for several rockfish species in Alaska. U. S. Dept. Comm., NOAA Tech. Memo. NMFS-AFSC-443, 45 p.

Sullivan, J., C. Monnahan, P. Hulson, J. Ianelli, J. Thorson, and A. Havron. 2022c. REMA: a consensus version of the random effects model for ABC apportionment and Tier 4/5 assessments. Plan Team Report, Joint Groundfish Plan Teams, North Pacific Fishery

Management Council. 605 W 4th Ave, Suite 306 Anchorage, AK 99501. https://meetings.npfmc.org/CommentReview/DownloadFile?p=eaa760cf-8a4e-4c05-aa98-82615da1982a.pdf&fileName=Tier%204_5%20Random%20Effects.pdf

Sullivan, J. and I. Ortiz, 2024. Assessment of the Other Rockfish stock complex in the Bering Sea and Aleutian Islands. North Pacific Fishery Management Council, Anchorage, AK. Available from https://www.npfmc.org/library/safe-reports/

TenBrink, T.T., Gburski, C.K. and Hutchinson, C.E. 2023. Growth, distribution, and mortality of Light Dusky Rockfish and Harlequin Rockfish in the Aleutian Islands. Marine and Coastal Fisheries, 15(5), p.e10268.

TenBrink, T.T. 2025. Reproductive biology and age at maturity of shortspine thornyhead (*Sebastolobus alascanus*) in Alaska. Fishery Bulletin, 123(4) https://doi.org/10.7755/FB.123.4.3.

Tables

Table 16-1. Regulatory catch limits (OFL, ABC, and TAC), total catch, and associated management measures for Other Rockfish in the Bering Sea/Aleutian Islands (BSAI), 2003-2026, from the NMFS AKRO Catch Accounting System, AKFIN database, accessed September 18, 2026. The 2026 data only represent catch through September 12, 2026. The eastern Bering Sea (EBS) and AI Biologically-informed Recommended Distributions (BRDs) were formerly called subarea ABCs. Shading highlights years when catch exceeded TAC, ABC, or BRD.

	BSAI				AI				BS				Management measures
Year	OFL	ABC	TAC	Catch	OFL	BRD	TAC	Catch	OFL	BRD	TAC	Catch	
2003		1,594	1,594	685	846	634	634	390	1,280	960	960	295	Separate OFLs for AI and BS
2004		1,594	1,094	633	846	634	634	331	1,280	960	460	302	
2005	1,870	1,400	1,050	447		590	590	282		810	460	165	
2006	1,870	1,400	1,050	570		590	590	422		810	460	149	
2007	1,330	999	999	646		585	585	429		414	414	217	
2008	1,330	999	999	596		585	585	382		414	414	214	
2009	1,380	1,040	1,040	566		555	555	372		485	485	193	
2010	1,380	1,040	1,040	766		555	555	498		485	485	268	
2011	1,700	1,280	1,000	945		570	500	617		710	500	328	
2012	1,700	1,280	1,070	919		570	570	711		710	500	208	
2013	1,540	1,159	873	789		473	473	597		686	400	192	
2014	1,550	1,163	773	913		473	473	589		690	300	324	Combined OFL for BSAI
2015	1,667	1,250	880	651		555	555	467		695	325	184	
2016	1,667	1,250	875	768		555	550	490		695	325	278	
2017	1,816	1,362	875	828		571	550	568		791	325	260	
2018	1,816	1,362	845	986		571	570	775		791	275	211	
2019	1,793	1,345	663	1,274		388	388	570		956	275	704	
2020	1,793	1,345	1,088	1,095		388	388	740		956	700	355	
2021	1,751	1,313	916	1,001		394	394	609		919	522	392	
2022	1,751	1,313	1,144	1,308		394	394	657		919	750	651	
2023	1,680	1,260	1,260	1,223		380	380	569		880	880	653	

	BSAI				AI				BS				Management measures
Year	OFL	ABC	TAC	Catch	OFL	BRD	TAC	Catch	OFL	BRD	TAC	Catch	
2024	1,680	1,260	1,260	1,361		380	380	573		880	880	788	
2025	1,406	1,054	1,054	1,030		415	415	523		639	639	507	
2026	1,406	1,054	1,054	567		415	415	401		639	639	166	

Table 16-2. Catch (t) of Bering Sea and Aleutian Islands Other Rockfish species in the Aleutian Islands, 2003-2026. Source: NMFS AKRO Catch Accounting System, AKFIN database, NMFS AFSC FMA Observer Debriefed Haul and Length tables, accessed September 18, 2026.

Year	dusky	SST	other thornyheads	% SST in thornyhead catch	harlequin	yelloweye	redbanded	redstripe	black rf	other rf	Total (t)
2003	151.5	129.3	47.8	73%	34.5	2.4	0.2	0.9	0.2	3.2	389.6
2004	129.5	60.3	37	62%	36.9	0.9	0.2	3.1	1.4	47.9	331.2
2005	134.2	78.1	35.1	69%	14.3	5.6	0.2	0	0	14.1	281.6
2006	161.4	118.7	39.7	75%	25.2	0.4	0.1	1.7	0.1	72.2	421.6
2007	231.7	115.9	15.4	88%	39.9	0.6	1.4	0.5	0.1	23.9	429.4
2008	179.8	107.4	7.8	93%	34.3	4.5	1	0.6	3.2	43.3	382
2009	142	131.7	10.9	92%	22.8	0.2	0.4	0	1.2	63	372.3
2010	226.2	154.8	14.9	91%	42.6	0.5	3.6	0.9	0.4	53.5	497.6
2011	380.5	152.9	10.7	93%	59.3	0.3	0.7	0	0.1	12.2	616.7
2012	435.2	171.1	2.7	98%	51.9	0.1	3.7	0	0.3	46.3	711.4
2013	334.3	226.2	4.6	98%	25.9	0.7	0.9	0	0.5	3.7	596.8
2014	349.3	202.4	8.8	96%	20	0.1	1.5	0.3	0.4	6.2	588.9
2015	294.4	119.7	2.3	98%	32.7	0.1	0.3	0	0.1	17.6	467.1
2016	337.6	113.5	0	100%	36.1	1.3	0.5	0.1	0.3	0.7	490.2
2017	403.5	99.6	0.8	99%	47.9	0.1	1.7	4.5	0.5	9.6	568.2
2018	570.6	90.2	1.3	99%	95.4	0.8	0.9	0	0.3	15.3	774.8
2019	332.4	135	0	100%	92.2	0.3	2	0	0.8	7.2	569.9
2020	426.6	186	0.1	100%	97.8	1	2.3	0.1	1.1	24.3	739.5
2021	361.4	164.5	6	97%	67.6	0.6	0.6	0	0.1	8.2	609.2
2022	380.6	159.1	0	100%	90.5	0.6	0.6	0.3	0	25.5	657.3
2023	355.1	141.2	0	100%	69.2	0.9	1.8	0	0.8	0.3	569.4
2024	248.1	225.9	0	100%	88.7	0.3	2.2	2	0.2	5.4	573.1
2025	235.7	189.6	0.1	100%	58.6	0	1	0	0.4	37.8	523.1
2026	212.9	129.4	1	99%	51	0.1	0.8	0.2	0.3	5	400.8
Avg	292.3	141.8	10.3	93%	51.5	0.9	1.2	0.6	0.5	22.8	523.4

Table 16-3. Catch (t) of Bering Sea and Aleutian Islands Other Rockfish species in the Bering Sea, 2003-2026. Source: NMFS AKRO Catch Accounting System, AKFIN database, NMFS AFSC FMA Observer Debriefed Haul and Length tables, accessed September 18, 2026.

Year	dusky	SST	other thornyheads	% SST in thornyhead	harlequin	yelloweye	redbanded	redstripe	black rf	other rf	Total (t)
2003	22.2	218.9	20.8	91%	0	1.1	17	1	0.3	13.6	295
2004	31.9	224.3	17.7	93%	0.4	1.4	10.4	0	0.9	15	301.9
2005	36.2	103	15.9	87%	0.2	0.7	0.3	0	7.2	1.6	165.2
2006	46.6	89	4.3	95%	0	1.4	0.4	0.1	0.2	6.9	148.8
2007	44.9	163.1	5.1	97%	0	1.7	0	0	0.3	1.8	217.1
2008	15.4	179	7.4	96%	0	1	0	0.1	2.2	9.2	214.3
2009	10.2	177.6	1	99%	0.1	1.1	0.2	0	0.2	2.8	193.3
2010	33.3	200.2	7.1	97%	0.3	1.4	0.5	0	1.5	23.8	268.3
2011	46.1	258	1.7	99%	4.6	1.4	0.5	0	3.5	12.7	328.4
2012	35.9	134.5	9.5	93%	0.1	0.5	2.6	0.1	7.2	17.3	207.6
2013	33.3	142.7	3	98%	0.6	0.7	0.2	0	4.6	7	192.2
2014	42.2	245.9	3.4	99%	1.5	1.5	0.1	4.6	1.8	22.8	323.9
2015	47.7	99.8	2.3	98%	2.3	1.4	0.2	0	1.7	28.5	183.9
2016	36.4	210	9.5	96%	3.1	2.5	0.1	0	6.2	10.2	278.1
2017	30.2	210.9	1	100%	1.7	1.3	1.6	0.3	0.8	11.9	259.8
2018	38.4	148.7	0.6	100%	0.5	1	0.2	0.1	5.2	16.7	211.4
2019	88.2	599.7	1.9	100%	3.4	1.3	0.6	0.1	0.7	7.6	703.5
2020	64.3	247.8	0.4	100%	0.3	0.8	0	0	7.6	33.8	355
2021	65.3	310.5	0.1	100%	3.4	0.8	0	0	0.2	11.6	391.7
2022	122.7	506.4	1	100%	7	1.9	0.5	0	1.2	10.4	651.2
2023	92.4	506.9	0	100%	30.9	2.9	0.2	0	2.6	17.3	653.1
2024	106	651.2	0	100%	5.6	1.5	0.1	0	1.2	22.7	788.3
2025	72.5	386	1	100%	0.8	0.1	0.3	0.4	8.6	37	506.6
2026	37.4	107.1	0	100%	0.9	0.7	0.3	0	5.2	14.7	166.4
Avg	50	255	4.8	97%	2.8	1.3	1.5	0.3	3	14.9	333.5

Table 16-4. Discarded catch (t), total catch (t), and discard rate (%) in the Aleutian Islands and eastern Bering Sea for the non-shortspine thornyhead (non-SST) species in the Bering Sea and Aleutian Islands Other Rockfish complex from 2003-2026. Accessed September 18, 2026 from the NMFS AKRO Catch Accounting System, AKFIN database.

non-shortspine thornyhead (non-SST)						
	Aleutian Islands			Eastern Bering Sea		
Year	Discarded Catch	Total Catch	Discard Rate	Discarded Catch	Total Catch	Discard Rate
2003	157	260	60%	37	76	48%
2004	158	271	58%	44	78	57%
2005	86	203	42%	17	62	27%
2006	158	303	52%	20	60	33%
2007	194	313	62%	39	54	73%
2008	108	275	39%	18	35	51%
2009	101	241	42%	7	16	43%
2010	100	343	29%	42	68	62%
2011	102	464	22%	32	70	45%
2012	83	540	15%	34	73	47%
2013	104	371	28%	32	50	65%
2014	61	387	16%	46	78	59%
2015	53	347	15%	56	84	66%
2016	20	377	5%	38	68	56%
2017	88	469	19%	27	49	56%
2018	190	685	28%	43	63	68%
2019	210	435	48%	36	104	35%
2020	289	554	52%	65	107	60%
2021	236	445	53%	43	81	53%
2022	251	498	50%	69	145	48%
2023	202	428	47%	78	146	53%
2024	113	347	33%	54	137	39%
2025	108	334	32%	90	121	75%
2026	67	271	25%	41	59	69%
Avg.	135	382	36%	42	79	54%

Table 16-5. Discarded catch (t), total catch (t), and discard rate (%) in the Aleutian Islands and eastern Bering Sea for shortspine thornyhead (SST) in the Bering Sea and Aleutian Islands Other Rockfish complex from 2003-2026. Accessed September 18, 2026 from the NMFS AKRO Catch Accounting System, AKFIN database.

Shortspine thornyhead (SST)						
	Aleutian Islands			Eastern Bering Sea		
Year	Discarded Catch	Total Catch	Discard Rate	Discarded Catch	Total Catch	Discard Rate
2003	31	129	24%	8	219	4%
2004	8	60	13%	29	224	13%
2005	9	78	12%	4	103	4%
2006	18	119	15%	6	89	7%
2007	23	116	20%	34	163	21%
2008	6	107	6%	52	179	29%
2009	16	132	12%	16	178	9%
2010	24	155	16%	23	200	12%
2011	41	153	27%	18	258	7%
2012	16	171	9%	10	134	7%
2013	48	226	21%	14	143	10%
2014	86	202	43%	21	246	9%
2015	13	120	10%	12	100	12%
2016	21	114	19%	47	210	22%
2017	14	100	14%	30	211	14%
2018	7	90	8%	17	149	12%
2019	45	135	33%	125	600	21%
2020	105	186	56%	34	248	14%
2021	41	164	25%	47	310	15%
2022	70	159	44%	132	506	26%
2023	71	141	51%	186	507	37%
2024	135	226	60%	127	651	20%
2025	38	190	20%	43	386	11%
2026	9	129	7%	6	107	6%
Avg.	37	142	24%	43	255	14%

Table 16-6. Bottom trawl survey (BTS) biomass estimates (t) and longline survey (LLS) relative population weights (RPW) with coefficients of variation in parentheses from the Aleutian Islands (AI), Eastern Bering Sea (EBS) shelf, and EBS slope. Except for the LLS RPWs in the AI, which are not used because sampling only occurs in the eastern half of the AI, these abundance estimates were used as inputs to the random effects (REMA) model for shortspine thornyhead (SST) and non-SST components of the BSAI Other Rockfish complex. The Southern Bering Sea is defined by the International North Pacific Fisheries Commission (INPFC) and is sampled during the AI trawl survey. SST do not occur on the EBS shelf. Zero biomass observations are treated as NA values in the REMA model.

	SST					non-SST			
	BTS Biomass			LLS RPW		BTS Biomass			
Year	AI	SBS	EBS Slope	AI	EBS Slope	AI	SBS	EBS Shelf	EBS Slope
1982								4,904 (1)	
1983								0 (NA)	
1984								34 (0.71)	
1985								40 (0.9)	
1986								22 (1)	
1987								49 (1)	
1988								0 (NA)	
1989								0 (NA)	
1990								370 (0.79)	
1991	6,153 (0.24)	187 (0.58)				511 (0.37)	61 (0.83)	851 (0.93)	
1992								173 (0.92)	
1993								86 (1)	
1994	6,244 (0.16)	1,071 (0.52)				225 (0.58)	101 (0.49)	47 (1)	
1995								74 (0.7)	
1996				11,340 (0.23)				35 (1)	
1997	8,894 (0.18)	1,545 (0.69)			12,110 (0.23)	644 (0.68)	138 (0.46)	127 (1)	
1998				19,226 (0.20)				527 (0.68)	
1999					4,192 (0.12)			390 (0.75)	
2000	10,648 (0.19)	1,051 (0.48)		23,634 (0.20)		1,276 (0.33)	56 (0.36)	0 (NA)	
2001					9,444 (0.24)			0 (NA)	
2002	14,244 (0.2)	1,012 (0.41)	17,202 (0.11)	22,564 (0.17)		558 (0.31)	99 (0.36)	0 (NA)	38 (0.42)
2003					11,050 (0.27)			54 (0.7)	
2004	17,335 (0.19)	945 (0.56)	19,085 (0.09)	19,217 (0.24)		1,240 (0.41)	5,530 (0.78)	0 (NA)	32 (0.35)

	SST					non-SST			
	BTS Biomass			LLS RPW		BTS Biomass			
Year	AI	SBS	EBS Slope	AI	EBS Slope	AI	SBS	EBS Shelf	EBS Slope
2005					13,503 (0.15)			36 (1)	
2006	17,878 (0.12)	968 (0.55)		14,340 (0.27)		6,005 (0.88)	738 (0.95)	351 (0.84)	
2007					13,135 (0.28)			0 (NA)	
2008			26,330 (0.12)	20,005 (0.25)				0 (NA)	27 (0.45)
2009					16,118 (0.22)			120 (0.58)	
2010	18,075 (0.16)	1,052 (0.73)	29,676 (0.12)	25,953 (0.27)		611 (0.31)	120 (0.44)	57 (0.92)	147 (0.7)
2011					28,630 (0.17)			55 (1)	
2012	14,443 (0.15)	452 (0.77)	29,987 (0.11)	28,483 (0.19)		250 (0.3)	135 (0.57)	36 (1)	52 (0.49)
2013					24,760 (0.09)			39 (1)	
2014	17,611 (0.24)	2,567 (0.67)		28,407 (0.19)		5,645 (0.81)	232 (0.5)	28 (1)	
2015					31,782 (0.14)			142 (1)	
2016	16,541 (0.16)	1,607 (0.53)	36,448 (0.11)	33,776 (0.24)		1,773 (0.33)	218 (0.54)	20 (1)	31 (0.33)
2017					28,295 (0.14)			170 (0.73)	
2018	13,216 (0.2)	1,605 (0.68)		24,608 (0.21)		914 (0.32)	1,639 (0.77)	1,562 (0.7)	
2019					26,073 (0.16)			0 (NA)	
2020				18,423 (0.26)					
2021					25,497 (0.18)			0 (NA)	
2022	12,936 (0.16)	1,278 (0.75)		21,825 (0.28)		1,506 (0.48)	299 (0.39)	43 (1)	
2023					9,605 (0.30)			168 (0.97)	
2024	14,239 (0.13)	382 (0.66)				1,475 (0.31)	1,973 (0.53)	196 (0.61)	
2025								297 (1)	
2026	14,601 (0.15)	352 (0.67)		10,620 (0.20)	16,558 (0.15)	4,547 (0.54)	10 (0.67)	99 (1)	

Table 16-7. Model 22 predicted total biomass for shortspine thornyhead (SST), non-SST, and SST and non-SST combined Other Rockfish in the Bering Sea and Aleutian Islands (BSAI) between the 2024 and current 2026 assessments.

	SST		non-SST		Total	
Year	M22_2024	M22_2026	M22_2024	M22_2026	M22_2024	M22_2026
1991	18,917	18,842	951	995	19,868	19,837
1992	19,083	19,007	713	711	19,795	19,718
1993	19,257	19,181	573	559	19,830	19,740
1994	19,443	19,365	492	475	19,935	19,840
1995	20,135	20,050	585	573	20,720	20,623
1996	20,892	20,800	705	695	21,598	21,494
1997	21,722	21,619	928	931	22,650	22,550
1998	19,982	19,989	1,213	1,246	21,195	21,236
1999	18,802	18,881	1,360	1,392	20,162	20,273
2000	21,906	21,964	1,471	1,500	23,377	23,463
2001	26,142	26,141	1,118	1,115	27,261	27,257
2002	30,851	30,790	879	859	31,730	31,648
2003	33,127	33,091	1,406	1,436	34,533	34,527
2004	36,192	36,138	2,821	3,177	39,014	39,315
2005	37,628	37,611	2,993	3,267	40,621	40,878
2006	39,487	39,495	3,678	4,114	43,165	43,609
2007	40,758	40,783	2,546	2,764	43,304	43,547
2008	43,725	43,682	1,771	1,867	45,496	45,549
2009	44,748	44,764	1,260	1,292	46,008	46,056
2010	48,184	48,137	909	911	49,093	49,048
2011	51,599	51,462	700	690	52,299	52,152
2012	48,346	48,405	552	535	48,897	48,941
2013	52,402	52,388	1,084	1,124	53,487	53,512
2014	55,880	55,769	2,468	2,799	58,349	58,568
2015	58,852	58,669	2,282	2,437	61,134	61,106
2016	55,282	55,232	2,091	2,101	57,373	57,332
2017	55,365	55,277	1,995	2,012	57,360	57,289
2018	53,151	53,091	2,422	2,590	55,573	55,681
2019	51,665	51,609	2,175	2,240	53,840	53,849
2020	49,220	49,205	2,032	2,042	51,251	51,248
2021	46,912	46,935	1,968	1,954	48,880	48,889
2022	41,310	41,616	1,965	1,944	43,275	43,560
2023	37,110	37,617	2,382	2,256	39,492	39,873
2024	37,408	38,121	3,151	2,701	40,559	40,823
2025	37,408	38,459	3,151	2,842	40,559	41,301
2026	NA	38,801	NA	4,098	NA	42,899
2027	NA	38,801	NA	4,098	NA	42,899

Table 16-8. Parameter estimates with standard errors (SE) and lower/upper 95% confidence intervals (LCI/UCI) for the recommended random effects (REMA) Model 22 fit to the shortspine thornyhead (SST) and non-SST species biomass estimates. The 2024 assessment model results are compared with the current 2026 assessment. Estimates are shown on the natural (i.e., arithmetic scale) for ease of interpretation but are estimated in log-space. Process error is pooled across all survey regions for both species groups.

Assessment Year	Species group	Parameter	Estimate	SE	LCI	UCI
2026	SST	Process error	0.17	0.03	0.12	0.25
2026	SST	Scaling parameter (q)	0.69	0.06	0.58	0.83
2026	non-SST	Process error	0.88	0.12	0.67	1.16
2024	SST	Process error	0.18	0.04	0.12	0.26
2024	SST	Scaling parameter (q)	0.69	0.06	0.58	0.83
2024	non-SST	Process error	0.76	0.12	0.55	1.04

Table 16-9. Time series of catch (t), predicted biomass (t) from Model 22 fit using the random effects (REMA) model, and exploitation rate expressed as catch/biomass for the shortspine thornyhead (SST) and non-SST components of the Other Rockfish complex in the Aleutian Islands (AI) and eastern Bering Sea (EBS). Catch accessed September 18, 2026 from the NMFS AKRO Catch Accounting System, AKFIN database.

		Shortspine Thornyhead (SST)			non-SST		
Subarea	Year	Catch	Biomass	Catch/Biomass	Catch	Biomass	Catch/Biomass
AI	2003	129	14,991	0.01	260	874	0.30
	2004	60	16,324	0.00	271	1,263	0.21
	2005	78	16,917	0.00	203	1,998	0.10
	2006	119	17,531	0.01	303	3,162	0.10
	2007	116	17,466	0.01	313	2,099	0.15
	2008	107	17,401	0.01	275	1,393	0.20
	2009	132	17,337	0.01	241	925	0.26
	2010	155	17,273	0.01	343	614	0.56
	2011	153	16,316	0.01	464	425	1.09
	2012	171	15,412	0.01	540	294	1.83
	2013	226	15,838	0.01	371	857	0.43
	2014	202	16,276	0.01	387	2,491	0.16
	2015	120	16,070	0.01	347	2,085	0.17
	2016	114	15,867	0.01	377	1,745	0.22
	2017	100	14,941	0.01	469	1,296	0.36
	2018	90	14,069	0.01	685	963	0.71
	2019	135	13,889	0.01	435	1,071	0.41
	2020	186	13,711	0.01	554	1,191	0.46
	2021	164	13,536	0.01	445	1,325	0.34
	2022	159	13,363	0.01	498	1,474	0.34
	2023	141	13,732	0.01	428	1,513	0.28
	2024	226	14,111	0.02	347	1,553	0.22
	2025	190	14,284	0.01	334	2,463	0.14
	2026	129	14,459	0.01	271	3,905	0.07
	Avg.			0.01			0.38
EBS	2003	219	18,100	0.01	76	562	0.14
	2004	224	19,815	0.01	78	1,914	0.04
	2005	103	20,695	0.00	62	1,269	0.05
	2006	89	21,964	0.00	60	952	0.06
	2007	163	23,316	0.01	54	665	0.08
	2008	179	26,281	0.01	35	473	0.07
	2009	178	27,427	0.01	16	368	0.04
	2010	200	30,864	0.01	68	297	0.23
	2011	258	35,146	0.01	70	265	0.27
	2012	134	32,993	0.00	73	241	0.30
	2013	143	36,550	0.00	50	268	0.18
	2014	246	39,493	0.01	78	308	0.25
	2015	100	42,598	0.00	84	352	0.24
	2016	210	39,365	0.01	68	356	0.19
	2017	211	40,336	0.01	49	716	0.07
	2018	149	39,022	0.00	63	1,627	0.04
	2019	600	37,720	0.02	104	1,169	0.09
	2020	248	35,494	0.01	107	851	0.13
	2021	310	33,399	0.01	81	629	0.13
	2022	506	28,253	0.02	145	470	0.31
	2023	507	23,885	0.02	146	743	0.20
	2024	651	24,010	0.03	137	1,148	0.12
	2025	386	24,174	0.02	121	380	0.32
	2026	107	24,342	0.00	59	193	0.31
	Avg.			0.01			0.16

Figures

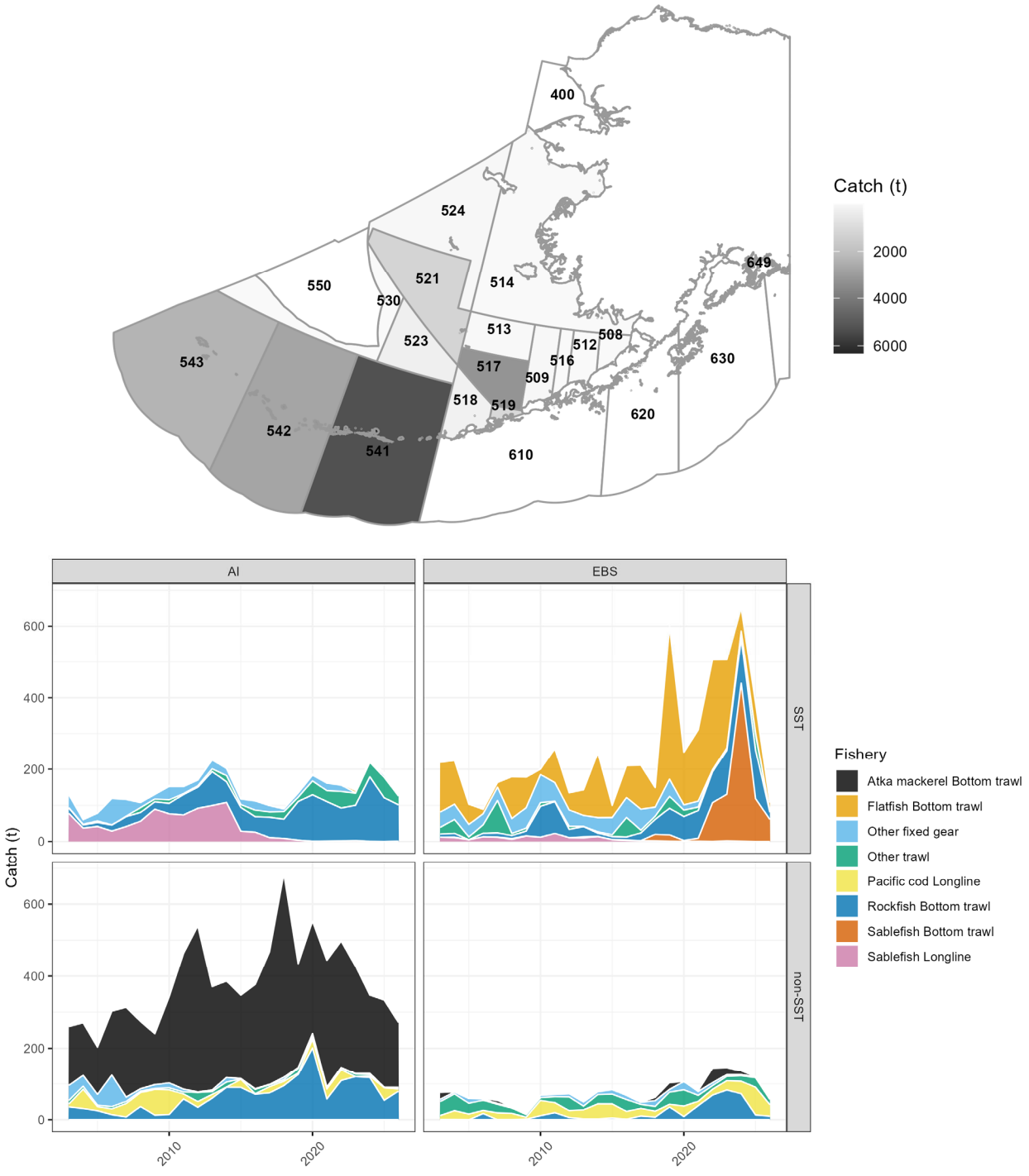


Figure 16-1. Upper panel: Map of aggregated catch of all Other Rockfish in the Bering Sea and Aleutian Islands (BSAI) by NMFS reporting area, 2003-2026. Lower panel: Annual catches of shortspine thornyhead (SST) and non-SST rockfish by dominant fishery and gear type for the Aleutian Islands (AI) and eastern Bering Sea (EBS). Source: NMFS AKRO Catch Accounting System, AKFIN database, accessed on September 18, 2026.

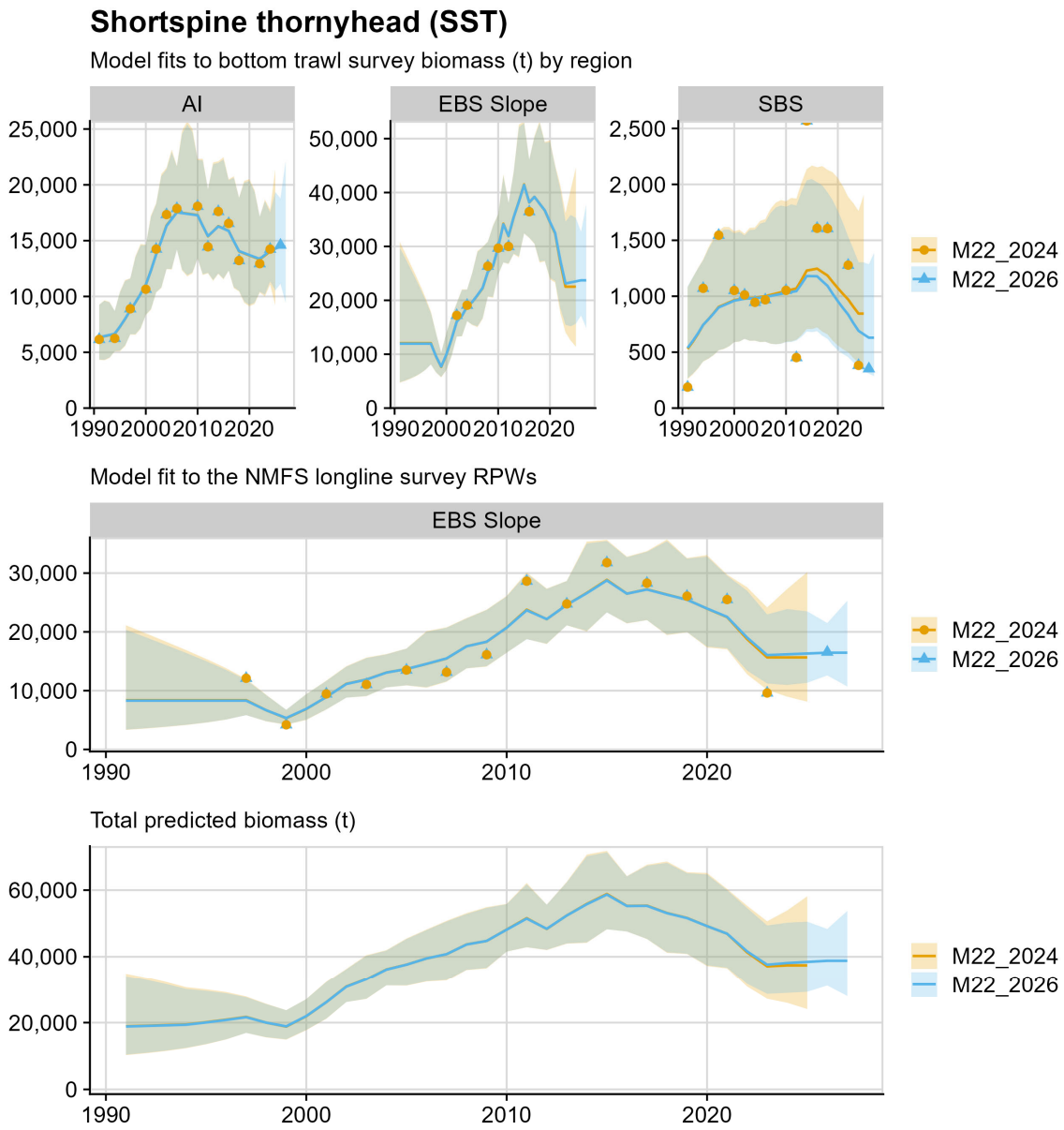


Figure 16-2. Model fits to the Aleutian Islands (AI) and eastern Bering Sea (EBS) bottom trawl surveys (BTS) by region (top), fits to the EBS slope longline survey relative population weights (RPWs; middle), and total predicted biomass for the shortspine thornyhead (SST; bottom) component of the BSAI Other Rockfish complex. The Southern Bering Sea (SBS) is an area defined by the International North Pacific Fisheries Commission (INPFC) northeast of Samalga Pass and is sampled in the AI BTS. Results are shown for the recommended Model 22 from the 2024 assessment (yellow) and the current assessment (blue). Note the difference in y-axis scales.

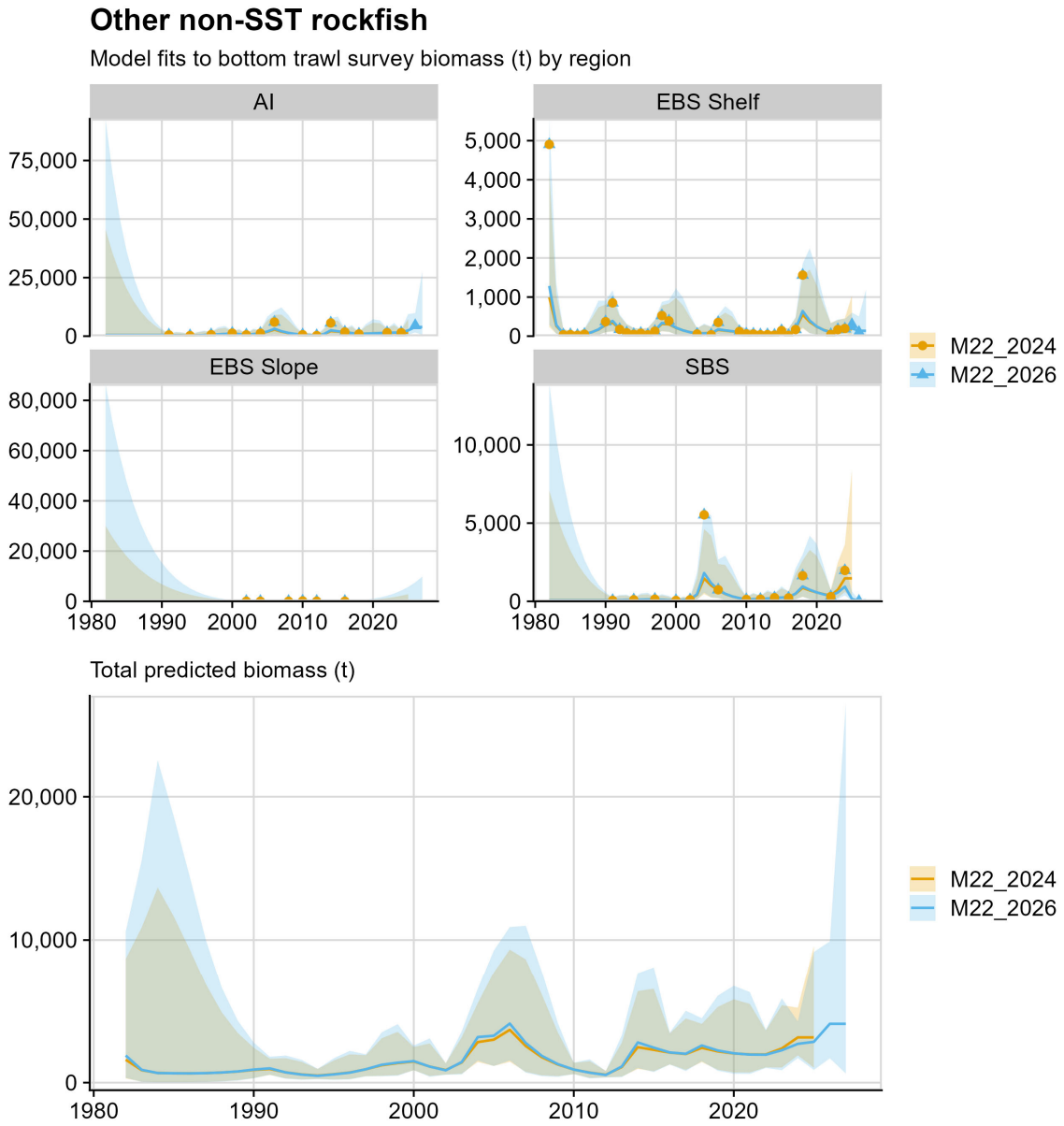


Figure 16-3. Model fits to the Aleutian Islands (AI) and eastern Bering Sea (EBS) bottom trawl surveys (BTS) by region (top), and total predicted biomass for all non-shortspine thornyhead (i.e., non-SST) species (bottom) component of the BSAI Other Rockfish complex. The Southern Bering Sea (SBS) is an area defined by the International North Pacific Fisheries Commission (INPFC) northeast of Samalga Pass and is sampled in the AI BTS. Results are shown for the recommended Model 22 from the 2024 assessment (yellow) and the current assessment (blue). Note the difference in *y*-axis scales.

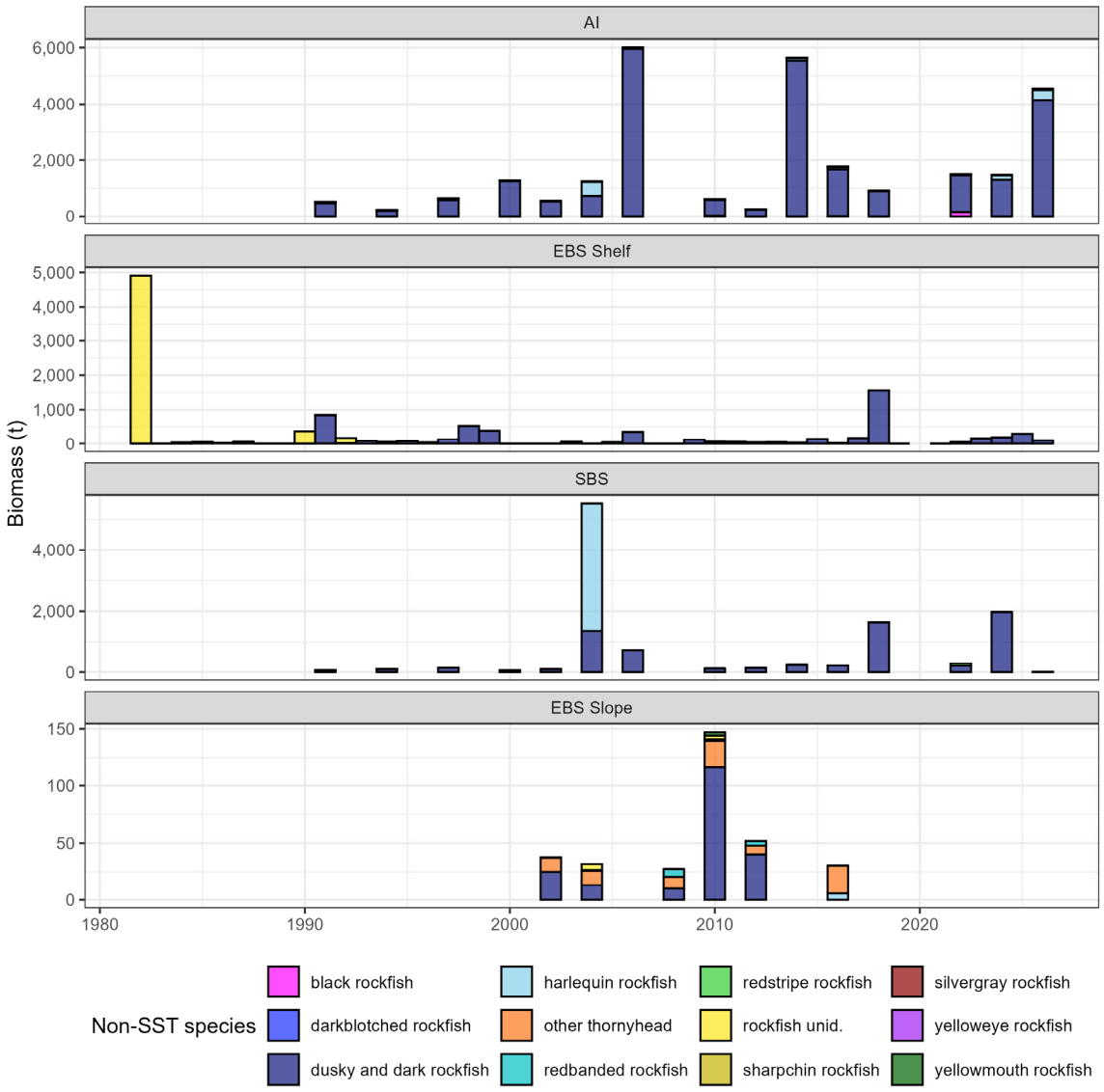


Figure 16-4. Survey biomass of non-SST (all BSAI Other Rockfish except shortspine thornyhead, SST) in the Aleutian Islands (AI), Southern Bering Sea (SBS), eastern Bering Sea (EBS) shelf, and EBS slope regions. The SBS is defined by the International North Pacific Fisheries Commission (INPFC) and is sampled during the Aleutian Islands (AI) survey. Note the difference in *y*-axis scales.

Appendix 16A Supplemental catch data

Kristen Omori

In order to comply with the Annual Catch Limit (ACL) requirements, non-commercial removals in the Bering Sea/Aleutian Islands (BSAI) are presented. Non-commercial removals are estimated total removals that do not occur during directed groundfish fishing. These include removals incurred during research, subsistence, personal use, recreational, and exempted fishing permit activities, but do not include removals taken in fisheries other than those managed under the groundfish FMP. These estimates represent additional sources of removals to the existing Catch Accounting System (CAS) estimates. Research catches of Other Rockfish for the years 2004-2025 are listed in Table 16A-1.

Table 16A-1. Removals (t) from sources other than those included in the Alaska Region's official estimate of catch (e.g., removals due to scientific surveys, subsistence fishing, recreational fishing, fisheries managed under other FMPs) from the Alaska Department of Fish and Game (ADFG), International Pacific Halibut Commission (IPHC), and National Marine Fisheries Service (NMFS). Source: NMFS AKRO Catch Accounting System, AKFIN database, accessed October 14, 2026. Data for the current year are not yet available.

Year	ADFG	NMFS	IPHC	Total (t)
2004		1.47		1.47
2005		1.36		1.36
2006		1.68		1.68
2007		1.78		1.78
2008		1.49		1.49
2009		1.99		1.99
2010	0.01	12.81	0.73	13.54
2011	0.00	23.07	0.31	23.38
2012	0.01	9.88	0.33	10.22
2013	0.10	2.98	0.79	3.87
2014	0.02	4.83	0.84	5.69
2015	0.18	2.85	0.86	3.89
2016	0.08	12.05	0.27	12.40
2017	0.11	3.00	2.46	5.57
2018	0.39	4.26	0.39	5.04
2019	0.58	2.19	1.20	3.96
2020	0.36	1.42	0.38	2.16
2021	0.03	1.49	0.20	1.72
2022	0.01	3.94	0.51	4.47
2023	0.06	0.99		1.05
2024	0.64	2.39	0.01	3.04
2025	0.12	0.01	0.06	0.19