

13. Assessment of the Northern Rockfish Stock in the Bering Sea and Aleutian Islands

by

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Executive Summary

Bering Sea/Aleutian Islands (BSAI) northern rockfish are a Tier 3 stock, and in 2005 were moved to a biennial assessment schedule with full assessments in even years to coincide with the frequency of trawl surveys in the Aleutian Islands (AI) and the eastern Bering Sea (EBS) slope. In 2017, the scheduled frequency for some stock assessments was changed in response to the National Stock Assessment Prioritization effort. Bering Sea/Aleutian Islands (BSAI) northern rockfish will maintain a biennial schedule but with operational assessments in odd years. The assessment scheduled for 2025 was not conducted due to the 2025 government shutdown, and the most recent full assessment was conducted in 2023 and can be found at <https://www.fisheries.noaa.gov/resource/data/2023-assessment-northern-rockfish-stock-bering-sea-and-aleutian-islands>. The next operational assessment is currently scheduled for 2027. In years without a full assessment, a harvest projection is produced by revising the recent catch data and re-running the projection model using the results from the previous assessment as a starting point. Therefore, this update does not incorporate any changes to the 2023 assessment methodology, but does update the catches for 2023-2026 and provides projected catches for 2027-2031. The spmR package (version 0.3.0, Ianelli 2026, <https://github.com/afsc-assessments/spmR>) was used for the harvest projection. The harvest projection assessment also includes estimates of catch/biomass (i.e., exploitation rates) using smoothed estimates of total biomass, which uses the 2024 Aleutian Island trawl survey biomass estimate that was not available for the 2024 harvest projection. No concerns regarding recent catch and biomass trends are indicated since the 2024 harvest projection.

Description of Updated Catch

The updated information for this harvest projection includes the final catch values for 2023-2025, and projections of catch for 2026-2031, as summarized in the table below. The 2026 catch is projected to be 7,905 t, 5.2% larger than the estimate of 7,514 t in the 2024 projection. The projected 2026 catch was obtained from the sum of the 2026 observed catch through July and the product of the remaining TAC after July times the average proportion of the remaining post-July TAC caught in 2024-2025. The projected 2026 catch increased relative to the value used in the 2024 projection due to an increase in 2026 observed catch through July relative to recent years. The information used for these calculations is summarized in the table below.

Year	Final Catch through July	TAC	TAC remaining after July	Proportion of remaining TAC caught	Projected final 2026 catch
2023	10,433	11,000	4,265	0.867	
2024	8,809	16,752	12,472	0.363	
2025	8,049	12,000	6,999	0.436	
2026		12,000	6,818		
average, 2024-2025				0.399	

Projections from 2027 – 2031 assume the fishing mortality (F) rates are equal to the average F values from 2021-2025, which were obtained from the harvest projection model and the updated catches.

Summary of Results

For the 2027 fishery, we recommend the maximum ABC of 17,784 t and an OFL of 21,739 t based on the updated projection model. The recommended 2027 ABC is 2.5% smaller than the 2026 ABC of 18,232 t.

A summary of the updated projection model results is shown below.

Quantity	As estimated or specified in 2024 for:		As estimated or recommended this year for:	
	2025	2026	2027*	2028*
<i>M</i> (natural mortality rate)	0.052	0.052	0.052	0.052
Tier	3a	3a	3a	3a
Projected total (age 3+) biomass (t)	292,807	289,639	285,933	284,291
Female spawning biomass (t)				
Projected	124,767	122,075	119,465	118,171
$B_{100\%}$	187,268	187,268	187,268	187,268
$B_{40\%}$	74,907	74,907	74,907	74,907
$B_{35\%}$	65,544	65,544	65,544	65,544
F_{OFL}	0.086	0.086	0.086	0.086
$maxF_{ABC}$	0.070	0.070	0.070	0.070
F_{ABC}	0.070	0.070	0.070	0.070
OFL (t)	22,848	22,284	21,739	21,463
maxABC (t)	18,694	18,232	17,784	17,558
ABC (t)	18,694	18,232	17,784	17,558
Status	As determined in 2024 for:		As determined this year for:	
	2023	2024	2025	2026
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

*Projections are based on estimated catches of 7,416 t and 7,320 t used in place of maximum permissible ABC for 2027 and 2028.

BSAI northern rockfish was not subjected to overfishing in 2025 and is not overfished or approaching an overfished condition.

The 2024 Aleutian Islands survey biomass estimate is 429 kt, which is a 49% increase from the 2022 survey biomass estimate of 287 kt (Figure 13.1).

Under the assumption of harvesting at the estimated average F from 2021-2025, the projected spawning biomass is estimated to decrease from 64% of the SSB_{100} in 2027 to 62% in 2031, as indicated in the 5-year projection table below.

Year	Expected Catch	OFL	ABC	Mean SSB	Mean SSB/SSB ₁₀₀
2027	7,416	21,739	17,784	119,465	0.64
2028	7,320	21,463	17,558	118,171	0.63
2029	7,268	21,311	17,433	117,370	0.63
2030	7,241	21,233	17,369	116,865	0.62
2031	7,228	21,195	17,338	116,544	0.62

The BSAI northern ABC is not apportioned into subarea Biologically-informed Recommended Distributions.

BSAI northern rockfish exploitation rates have averaged 0.017 from 2004-2025 (Figure 13.2), which is below the exploitation rate associated with fishing at $F_{40\%}$ (defined as $U_{F40\%}$). Exploitation rates are computed as the ratio of catch within a year to the beginning year biomass (ages 3+). The estimates of biomass were obtained from the 2023 stock assessment and the harvest projection model. Exploitation rates for BSAI subareas were obtained by using smoothed estimates of survey biomass from the random effects models to spatially partition the estimated total biomass. The exploitation rates from the BSAI subareas are below $U_{F40\%}$. The exploitation rate in the eastern Aleutian Islands has been variable, peaking in 2015, 2019, and 2023. The exploitation rates in the central and western Aleutian Islands have been increasing since 2014. The biomass estimates in the southern Bering Sea area are not viewed as reliable due to relatively large standard deviations and high variability between years, which accounts for the unusually high exploitation rates from 2009 - 2017.

Literature Cited

Spencer, P.D. and N. Laman, 2023. Assessment of the Northern Rockfish Stock in the Bering Sea and Aleutian Islands. North Pacific Fishery Management Council, Anchorage, AK. Available [here](#).

Ianelli, J. 2026. spmR, version 0.3.0: Projection model for evaluating outcomes of catch control rules for Alaska groundfish. <https://github.com/afsc-assessments/afscISS>. Available from <https://github.com/afsc-assessments/afscISS/>.

Figures

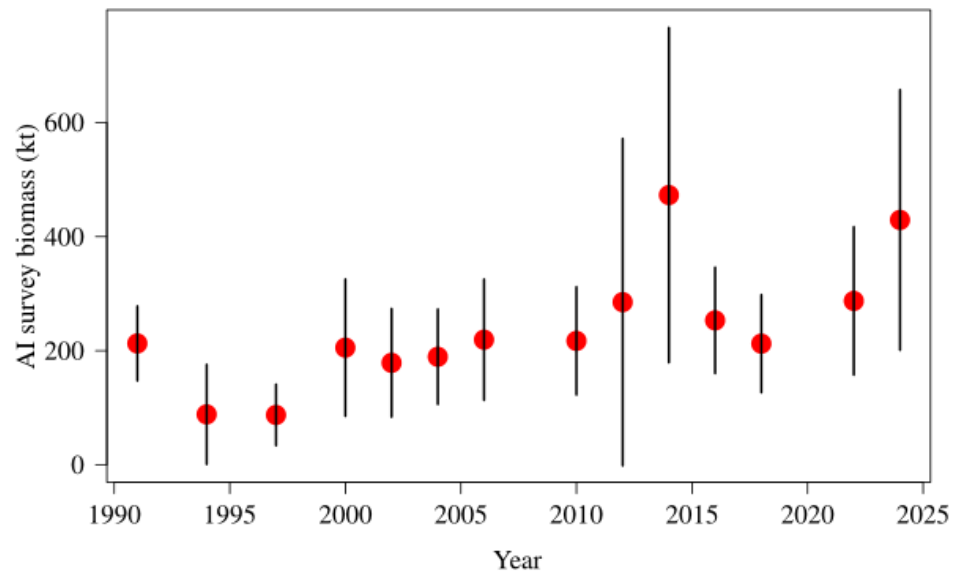


Figure 13.1. Aleutian Islands survey biomass estimates for northern rockfish, with ± 2 standard deviations.

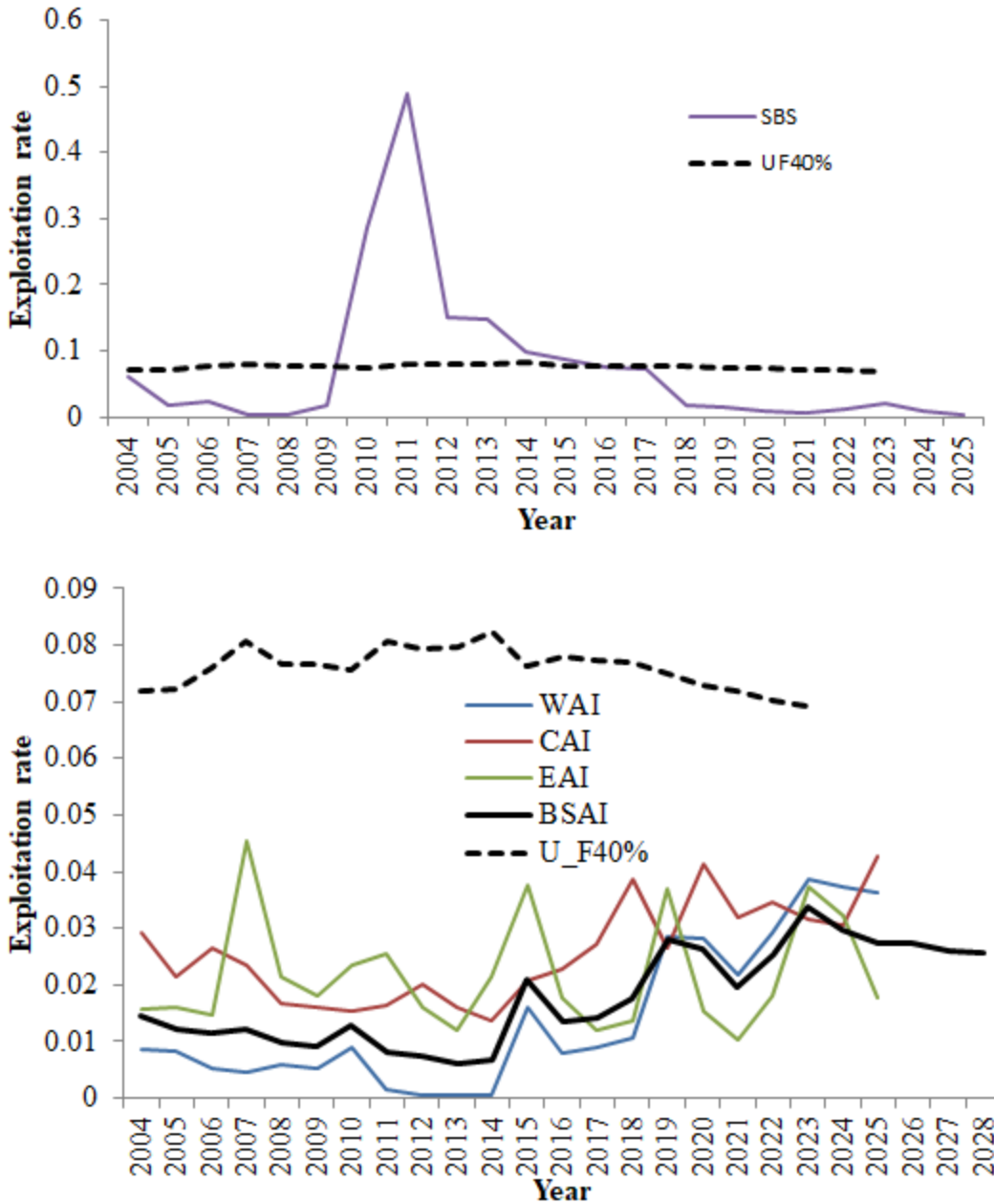


Figure 13.2. Exploitation rates for northern rockfish. The $U_{F40\%}$ is the exploitation rate for each year that would occur from fishing at $F_{40\%}$, and is a function of the beginning year numbers at age, size at age, and fishing selectivity. The high exploitation rates in the southern Bering Sea (SBS) area result from highly variable survey biomass estimates for this area. BSAI exploitation rates in 2027 and 2028 are based on projected biomass and catch.