

Bering Sea and Aleutian Island Summaries to be included in November 2026 Introduction to the SAFE

September 2026

1. Walleye Pollock

Status and catch specifications (t) of walleye pollock in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The biomass is reported as age 3+ for eastern Bering Sea, age 1+ for the Aleutian Islands, and the survey biomass for Bogoslof, as reported in the respective assessments. The OFL and ABC for 2027 and 2028 are those recommended by the Team. Catch data are current through September 8 2026 for Aleutian Islands and Bogoslof pollock.

Area	Year	Biomass	OFL	ABC	TAC*	Catch
Eastern Bering Sea	2023	12,389,000	3,381,000	1,910,000	1,314,500	1,307,997
	2024	10,184,000	3,162,000	2,313,000	1,313,580	1,298,531
	2025	8,526,000	2,957,000	2,417,000		
	2026		2,496,000	2,036,000		
Aleutian Islands	2025	288,407	55,728	46,051	5,000	4,528
	2026	305,528	56,231	46,437	19,000	2,478
	2027	331,314	59,090	48,763		
	2028	356,554	62,952	51,917		
Bogoslof	2025	247,137	77,354	58,015	250	63
	2026	247,137	77,354	58,015	250	165
	2027	247,137	77,354	58,015		
	2028	247,137	77,354	58,015		

Aleutian Islands pollock

Aleutian Islands pollock are assessed biennially according to the stock assessment prioritization schedule. A forward projecting age structured model is the primary assessment tool for Aleutian Islands pollock which qualifies as a Tier 3 stock. The assessment model is not run during an off-cycle year. During off-cycle years, a harvest projection is presented with recommendations of harvest levels for the next two years for this species, using updated catch information in the projection model. The most recent full assessment was conducted in 2024 (Barbeaux 2022). A full stock assessment document with updated assessment and projection model results is scheduled for November, 2027.

Status and catch specifications (t) of Aleutian Islands pollock in recent years are in the above table. The grayed-out text below summarizes the 2024 assessment and the status and catch specifications (t) of Aleutian Islands pollock in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2027 and 2028 are those recommended by the Team. Catch data are current through September 8, 2026.

Changes from previous assessment¹

There were no changes to the recommended model. Catches for 1978 to 2024 were updated to latest estimates from the catch accounting system (CAS). The 2024 Aleutian Islands survey index was added. Survey age data from 2022 and 2024 were not yet available.

There was no directed fishery catch of pollock in 2023, but there was a small, directed fishery in 2024 (5.7 t as of November 11, 2024). As of November 11, 2024, the total catch of pollock across the Aleutian Islands was 4,878 t.

Spawning biomass and stock trends

This year's assessment estimates that spawning biomass reached a minimum level of about $B_{26\%}$ in 2010 but has generally increased since; the estimates from the authors' preferred model showed a slight decline in female spawning stock biomass from 2021 (92,891 t) to 2024 (84,781 t), with another slight decline (82,793) projected for 2025. The status of AI pollock in 2023 and 2024 was assessed to be well above $B_{40\%}$. Mean recruitment was high in the late 1970s and mid-1980s, with the 1978 year class having a strong influence on the model. Mean recruitment of age-1 pollock from 1978-1989 was almost six times higher than that from 1998-2022; only one year class since the 1989 year class has exceeded the overall 1978-2022 overall mean recruitment of 135 million age-1 recruits, that being the 2012 year class at 244.5 million age-1 fish. Lower year class strength since 1990 has led to lower abundance of pollock in the Aleutian Islands, despite the fact that exploitation rates have remained low since 1999.

Tier determination/Plan Team discussion and resulting ABCs and OFLs

The official total catch for 2023 was 3,744 t, which is a small fraction of the 2023 OFL of 52,383 t; therefore, the stock is not being subjected to overfishing. The projected spawning biomass for 2025 is 82,781 t and for 2026 is 80,639 t which are above the $B_{40\%}$ value of 63,709 t, placing the AI pollock stock in sub-tier "a" of Tier 3. The model estimated the values of $F_{40\%}$ as 0.325 and $F_{35\%}$ as 0.406. Under Tier 3a, the 2025 and 2026 maximum permissible ABCs 46,051 t and 46,437 t, respectively. The 2025 and 2026 OFLs are 55,728 t and 56,231 t, respectively. The Team recommended setting the 2025 and 2026 ABCs and OFLs at these values. Projections assumed catches of 5,106 t for 2024 and 5,156 t for 2025 based on the five-year average (2019-2023) F of 0.032.

Status determination

The walleye pollock stock in the Aleutian Islands is not being subjected to overfishing, is not overfished, and is not approaching an overfished condition

Bogoslof pollock

Changes from previous assessment

Estimated catches for 2025 and 2026 were updated.

There were no changes to the assessment model.

Spawning biomass and stock trends

NMFS acoustic-trawl survey biomass estimates are the primary data source used in this assessment. This survey has not been updated since the 2024 operational full assessment. Between 1997 and 2024, the values varied between a low of 67,063 t in 2012 and a high of 663,070 t in 2018. The most recent acoustic-trawl survey of the Bogoslof spawning stock was conducted in February 2024 and resulted in a

¹ Greyed out text denotes not updated from previous assessment

biomass estimate of 244,800 t and the random-effects method of survey averaging resulted in a biomass estimate of 247,137 t.

Tier determination/Plan Team discussion and resulting ABCs and OFLs

The SSC has determined that this stock qualifies for management under Tier 5. The assessment authors and the Team recommend that the maximum permissible ABC and OFL continue to be based on the random-effects survey averaging approach, and the previously accepted estimate of M at 0.313 as estimated by the Tier 3 research model.

The maximum permissible ABC value for 2027 is 58,015 t (assuming $M = 0.313$ and $F_{ABC} = 0.75 \times M = 0.235$ and the random effects survey estimate for biomass). The ABC for 2028 is the same. No elevated levels of risk were noted and therefore there is no recommended reduction from maximum permissible ABC.

The OFL for 2027 is 77,354 t (assuming $M = 0.313$ and $F_{OFL} = M$ and the random effects survey estimate for biomass). The OFL for 2028 is the same.

Status determination

The walleye pollock stock in the Bogoslof district is not being subjected to overfishing. It is not possible to determine whether this stock is overfished or whether it is approaching an overfished condition because it is managed under Tier 5.

6. Arrowtooth flounder

Arrowtooth flounder are assessed quadrennially according to the stock assessment prioritization schedule. A forward projecting age structured model is the primary assessment tool for arrowtooth flounder, which qualifies as a Tier 3 stock. The assessment model is not run during an off-cycle year. For this off-cycle year, a harvest projection is presented with recommendations of harvest levels for the next two years for this species, using updated catch information in the projection model. The most recent full assessment was conducted in 2022 (Shotwell et. al, 2022). A full stock assessment document with updated assessment and projection model results is scheduled for November 2027.

Status and catch specifications (t) of arrowtooth flounder in recent years are below. The grayed-out text below the following table summarizes the 2022 assessment and the status and catch specifications (t) of arrowtooth flounder in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2027 and 2028 are those recommended by the Team. Catch data are current through September 5, 2026.

Area	Year	Age-1+ Biomass	OFL	ABC	TAC	Catch
BSAI	2025	908,977	104,428	88,683	14,000	9,312
	2026	898,546	102,472	87,035	14,000	4,547
	2027	891,053	98,654	83,787		
	2028	882,551	95,130	80,779		

Changes from previous assessment

There were no changes in the assessment methodology. Changes in the input data include:

1. Estimates of catch through October 14, 2022, for Bering Sea Aleutian Islands (BSAI).
2. Fishery size compositions for 2020 and 2021.
3. Biomass point-estimates and standard errors from the 2021 and 2022 eastern Bering Sea (EBS) shelf bottom trawl survey (BTS) and 2022 Aleutian Islands (AI) BTS.
4. Age data from the 2021 eastern Bering Sea shelf.

- The recommended model did not include fishery size compositions prior to the start of the Observer Program (pre-1991), or fishery size compositions with fewer than 300 samples, or Aleutian Islands survey data prior to the standardization of the survey (pre-1991).

Spawning biomass and stock trends

The projected age 1+ total biomass for 2023 is 929,274 t, which is a slight decrease from the 914,915 t projected for 2023 in last year's assessment. The projected female spawning biomass for 2023 is 514,577 t, which is a slight decrease from last year's 2023 estimate of 528,725 t. Overall, this stock increased steadily from 1985 to 2009, dipped slightly until 2017 and then increased to current levels that are similar to the 2009 time series peak.

Tier determination/Plan Team discussion and resulting ABCs and OFLs

The SSC has determined that reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ exist for this stock. Arrowtooth flounder therefore qualifies for management under Tier 3. The point estimates of $B_{40\%}$ and $F_{40\%}$ from this year's assessment are 224,487 t and 0.146. The projected 2023 spawning biomass is well above $B_{40\%}$, so ABC and OFL recommendations for 2023 were calculated under sub-tier "a" of Tier 3. The authors recommend setting F_{ABC} at the $F_{40\%}$ level, which is the maximum permissible level under Tier 3a, resulting in 2023 and 2024 ABCs of 83,852 t and 87,511 t, respectively. Projected harvesting at $F_{35\%}$ (0.174) gives 2023 and 2024 OFLs of 98,787 t and 103,070 t respectively.

Status determination

Arrowtooth flounder is a lightly exploited stock in the BSAI. Arrowtooth flounder is not being subjected to overfishing, is not overfished, and is not approaching an overfished condition.

7. Kamchatka flounder

Kamchatka flounder are assessed biannually in even years. Due to staffing and reviewer capacity resulting from the 2025 government shutdown, instead of the full assessment model, a harvest projection using updated catch information in the projection model is presented for this species with recommendations of harvest levels for the next two years. The most recent full assessment was conducted in 2024 (Bryan et al. 2024). The next full stock assessment document with updated assessment and projection model results is scheduled for November 2027.

Status and catch specifications (t) of Kamchatka flounder in recent years are below. The grayed-out text below the following table summarizes the 2024 assessment and the status and catch specifications (t) of Kamchatka flounder in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2027 and 2028 are those recommended by the Team. Catch data are current through August 31, 2026.

Area	Year	Age-2+ Biomass	OFL	ABC	TAC	Catch
BSAI	2025	106,850	8,019	6,800	6,800	5,046
	2026	104,888	7,790	6,606	6,606	1,740
	2027	106,999	7,988	6,770		
	2028	104,409	7,630	6,466		

Changes from previous assessment

Changes in the input data:

- Estimates of catch were updated for all years.

2. The 2024 catch was estimated using an expansion factor of 1.03 that was derived from the 5-yr average proportion of Kamchatka flounder caught as of September 23rd.
3. The 2023 fishery length composition data were added to the assessment.
4. The 2023 and 2024 EBS shelf bottom trawl survey biomass and length composition estimates were added to the assessment.
5. The 2024 Aleutian Island bottom trawl survey biomass and length composition estimated were added to the assessment.

No changes were made to the assessment model methodology.

Spawning biomass and stock trends

The projected 2025 female spawning biomass is 44,883 t, above the $B_{40\%}$ level of 34,300 t, and spawning biomass is projected to remain above $B_{40\%}$ for the foreseeable future. The decreasing biomass and biomass trend scaling lower than the 2022 assessment correspond to fitting a lower survey biomass. The addition of the new survey data does result in an overall decrease in the spawning stock biomass, total biomass, numbers, and age-2 recruits trends through time, particularly after 2010.

Tier determination/Plan Team discussion and resulting ABCs and OFLs

This stock was managed under Tier 3 for the first time in 2014. As noted above, projected spawning biomass for 2025 is above $B_{40\%}$, placing Kamchatka flounder in sub-tier “a” of Tier 3. For the 2025 fishery, the authors and Team recommend setting 2025 ABC at the maximum permissible value of 6,800 t from the projection model. This value is a decrease of 8% from the 2025 ABC currently specified (7,360 t). The recommended 2025 OFL is 8,019 t, a 8% decrease from the 8,687 t currently specified for 2025. The author listed the assessment-related considerations as a Level-2 area of concern due to degrading model fit to the survey biomass and higher retrospective pattern from the previous model. However, the Team did not recommend any reductions from the maximum permissible ABC.

Status determination

Kamchatka flounder is not being subjected to overfishing, is not overfished, and is not approaching an overfished condition.

8. Northern rock sole

The BSAI Northern rock sole stock is assessed biennially according to the stock assessment prioritization schedule. A forward projecting age structured model is the primary assessment tool for northern rock sole which qualifies as a Tier 1 stock. The assessment model is not run during an off-cycle year. During off-cycle years, a harvest projection is presented with recommendations of harvest levels for the next two years for this species, using updated catch information in the projection model. The most recent full assessment was conducted in 2024 (McGilliard et al. 2024). A full stock assessment document with updated assessment and projection model results is scheduled for November 2027.

Status and catch specifications (t) of northern rock sole in recent years are in the below table. The grayed-out text below summarizes the 2024 assessment and the status and catch specifications (t) of northern rock sole in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2027 and 2028 are those recommended by the Team. Catch data are current through August 22, 2026.

Area	Year	Age-6+ Biomass	OFL	ABC	TAC	Catch
BSAI	2025	881,154	165,444	157,487	75,000	41,506
	2026	885,284	166,220	158,225	75,000	34,278
	2027	855,290	160,588	152,865		
	2028	861,606	161,774	153,993		

Under the flatfish exchange the northern rock sole TAC was decreased by 8,000 mt t in 2025
(<https://www.fisheries.noaa.gov/bulletin/ib-25-29-exchange-flatfish-reserves-amendment-80-allocations-total-allowable-catch>).

Changes from previous assessment

This stock assessment is on a two-year cycle, thus any data that became available after the 2022 full stock assessment was added to the models for consideration this September. New data include:

1. Catch biomass through October 1, 2024
2. 2023 catch biomass was updated to reflect October – December 2023 catches
3. 2022 and 2023 fishery age composition data
4. 2022 and 2023 survey age composition data
5. 2022 and 2023 survey weight-at-age estimates
6. 2023 and 2023 fishery weight-at-age estimates
7. 2023 and 2024 Eastern Bering Sea (EBS) shelf survey biomass

A new model (Model 24.2) was proposed that is a substantial change from the previously accepted model (Model 18.3). Model 24.2 is a minor modification of Model 22.2, which was brought forward in November 2022 and therefore, not available for review for harvest specifications. Model 22.2 was used for determining the reduction from maximum permissible ABC for the 2023 harvest specifications. Model 24.2 is similar to Model 22.2 except it uses input sample sizes for survey age compositions derived using the bootstrap approach, and subsequently applies Francis data weighting.

Spawning biomass and stock trends

Spawning biomass has an increasing trend from the model start in 1975 through 2003 when it peaked at 650,900 t and then dropped to a low of 399,977 in 2008 before increasing again to 619,715 t in 2015. The stock has been steadily decreasing from 2015 to 2023 down to 254,160 t, but shows a slight uptick to 271,988 t in 2024. Recruitment was maintained at near historic lows for several consecutive years from 2008 to 2014. More recently a pulse of recruits has begun to appear in the surveys including strong year classes from 2014 to 2020; however there is a lot of uncertainty regarding the true strength of these year classes. The stock assessment model projects a 2025 female spawning biomass of 301,051 t, an 13.4% decrease from the previous 2025 female spawning biomass estimate of 347,811 t. The projected spawning biomass for 2026 is 330,774 t. Exploitation rates are relatively low and recent catches have typically been well below TACs.

Tier determination/Plan Team discussion and resulting ABCs and OFLs

The SSC has determined that northern rock sole qualifies for management under Tier 1. Spawning biomass for 2025 is projected to be well above the B_{MSY} estimate of 183,756 t, placing northern rock sole in sub-tier “a” of Tier 1. The Tier 1 2025 and 2026 maxABCs are 157,487 t and 158,225 t respectively.

Status determination

Northern rock sole is not being subjected to overfishing, is not overfished, and is not approaching an overfished condition.

9. Flathead sole

Flathead sole is a Tier 3 assessment that uses an age-structured model. A harvest projection is presented with recommendations of harvest levels for the next two years for this species using updated catch information in the projection model instead of the full assessment model. Flathead sole are currently assessed on a four-year cycle; the most recent full assessment was conducted in 2024 (Kapur and Cronin-Fine 2024) and will be updated in 2028.

Status and catch specifications (t) of flathead sole in recent years are below. The grayed-out text below the following table summarizes the 2024 assessment and the status and catch specifications (t) of flathead sole in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2027 and 2028 are those recommended by the Team. Catch data are current through September 8, 2026.

Area	Year	Age-3+ Biomass	OFL	ABC	TAC	Catch
BSAI	2025	801,418	101,621	83,807	36,000	8,777
	2026	832,021	106,283	87,700	36,000	16,216
	2027	872,126	108,596	89,655		
	2028	923,800	111,401	92,006		

Changes from previous assessment

The following changes were made in the input data:

1. bottom trawl survey biomass for years 2021-2024;
2. survey length composition data for years 2021-2024;
3. conditional age-at-length data from the bottom trawl survey for years 2021-2023;
4. marginal fishery length compositions from 2020-2023 (though only 2022 and 2023 are included in the likelihood);
5. marginal fishery age compositions from 2020 and 2021. The Age and Growth program was not able to provide marginal fishery age compositions for more recent years due to staffing shortages;
6. replacement of the input sample sizes for survey compositional data with values obtained from the surveyISS package version 1.0.0 (previously, the number of hauls or the nominal sample size [number of otoliths] were used for marginal lengths and conditional age-at-length data respectively).

The proposed assessment methodology was the same as the most recent full assessment conducted in 2020 (Monnahan and Haehn 2020), with the small change that the projection model was updated to the latest version of spm and the recruitment time series passed to the projections now begins in 1977 for consistency with other assessment workflows (previously the entire time series from 1964 onwards had been used). The Team concurred with the authors' recommendation.

Spawning biomass and stock trends

Spawning biomass and Age 3+ biomass have followed decadal-scale fluctuations as they decreased from the beginning of the estimates in the the 1960s to the early 1980s, increased from the the early 1980s to the late 1990s, decreased from the late 1990s to the late 2010s, and have been increasing since then. Spawning biomass and age 3+ biomass are projected to increase slightly in 2025. Recruitment has been more variable than biomass with more frequent periods of increases and decreases, and is projected to increase slightly in 2025.

Tier determination/Plan Team discussion and resulting ABCs and OFLs

The SSC has determined that reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ exist for this stock, thereby qualifying flathead sole for management under Tier 3. The current values of these reference points are $B_{40\%}=97,315$ t, $F_{40\%}=0.40$, and $F_{35\%}=0.49$. Because projected spawning biomass for 2025 (204,323 t) is above $B_{40\%}$, flathead sole is in Tier 3a. The authors and Team recommend setting ABCs for 2025 and 2026 at the maximum permissible values under Tier 3a, which are 83,807 t and 87,700 t, respectively. The 2025 and 2026 OFLs under Tier 3a are 101,621 t and 106,283 t, respectively.

Status determination

Flathead sole is not being subjected to overfishing, is not overfished, and is not approaching an overfished condition.

10. Alaska plaice

Alaska plaice are managed under Tier 3 and are assessed on a four-year cycle, with a full assessment conducted every four years. The last full assessment was conducted in 2024. The assessment model is not run in off-cycle years; instead, a harvest projection is conducted on the off years. A harvest projection involves projecting the model, established in the last full assessment, forward to predict future population estimates and recommended harvest levels for the next two years.

Status and catch specifications (t) of Alaska plaice in recent years are shown below. The grayed-out text below the following table summarizes the 2024 assessment and the status and catch specifications (t) of Alaska plaice in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2027 and 2028 are those recommended by the Team. Catch data are current through August 8, 2026.

Area	Year	Age-3+ Biomass	OFL	ABC	TAC	Catch
BSAI	2025	406,051	34,576	28,745	15,903	7,113
	2026	402,028	33,965	28,230	15,682	3,202
	2027	441,105	39,724	33,021		
	2028	428,560	38,264	32,522		

Changes from previous assessment

In accordance with the approved schedule, a full assessment was conducted for Alaska plaice this year. Changes in the input data include:

1. Updated catch estimates from 2022-2024 (2024 catch data as of November 11, 2024, the remaining catch in 2024 is estimated by assuming the weekly catch in the remaining 12 weeks equals the average catch from the three weeks prior to November 11)
2. Included new biomass index estimates from the 2024 EBS shelf bottom trawl survey.
3. Included new length-composition data from 2022-2024 from the EBS shelf bottom trawl survey.

4. Updated length-composition data from 2000, 2002-2007 and 2021-2024 from the fishery.

Changes in the assessment methodology include:

1. Assessment model transitioned to Stock Synthesis versions 3.30.22.
2. Updated each year's input sample size for the survey age- and length- composition data using a general bootstrap framework implemented in the "surveyISS" Rpackage.
3. Included age-1 and age-2 fish in the fishery and survey age-composition data.
4. Adjusted the maximum age for linear growth from age-1 to age-3 and estimated all growth parameters except the coefficients of variances (CVs).
5. Updated the growth CVs for both males and females with new values determined through likelihood profiles.
6. Updated the length-weight relationship parameter values by estimating them externally using the fishery and survey length-weight data available to 2024.
7. Calculated weight-at-age relationship within SS3.
8. Tuned the variance for the recruitment deviations through SS3.

The survey biomass estimate for 2024 (338,621 t) was 5% lower than the 2023 estimate and is the second lowest value in the survey time series next to 2021 (327,810 t). Similarly, model estimates of female spawning biomass (147,511 t in 2024) continued their decline since 2013. In contrast, model estimates of total biomass (392,468 t in 2024) show an increasing trend since 2021. These results are likely due to estimates of relatively strong recruitment since 2014, a pattern which began to emerge in the 2019 assessment. The Alaska plaice stock is projected to remain above the $B_{35\%}$ level of female spawning biomass while declining over the next several years. Alaska plaice continue to be found in high abundance in the northern Bering Sea (NBS) and the 2021 NBS estimate (344,578 t) exceeded the EBS estimate for the first time. Note that there was no NBS survey in 2024.

Tier determination/Plan Team discussion and resulting ABCs and OFLs

Reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ exist for this stock, therefore qualifying it for management under Tier 3. The current estimates are $B_{40\%} = 118,563$ t, $F_{40\%} = 0.140$, and $F_{35\%} = 0.170$. Given that the projected 2025 spawning biomass of 150,892 t exceeds $B_{40\%}$, the ABC and OFL recommendations for 2025 were calculated under sub-tier "a" of Tier 3. Projected harvesting at the $F_{40\%}$ level gives a 2025 ABC of 28,745 t and a 2026 ABC of 28,230 t. The recommended Tier 3a OFLs are 34,576 t and 33,965 t for 2025 and 2026, respectively.

Status determination

Alaska plaice is not being subjected to overfishing, is not overfished, and is not approaching an overfished condition.

13. Northern rockfish

Northern rockfish are assessed biannually according to the stock assessment prioritization schedule. A forward-projecting age-structured model is the primary assessment tool for northern rockfish, which qualifies as a Tier 3 stock. The assessment model is not run during an off-cycle year. During even years, a harvest projection is presented with recommendations of harvest levels for the next two years for this species, using updated catch information in the projection model. The most recent full assessment was conducted in 2023 (Spencer and Laman 2023). The assessment scheduled for 2025 was not conducted due to the 2025 government shutdown. A full stock assessment document with updated assessment and projection model results is scheduled for November 2027.

Status and catch specifications (t) of northern rockfish in recent years are below. The grayed-out text below the following table summarizes the 2023 assessment and the status and catch specifications (t) of northern rockfish in recent years. Biomass for each year corresponds to the projection given in the SAFE report issued in the preceding year. The OFL and ABC for 2027 and 2028 are those recommended by the Team. Catch data are current through July 31, 2026.

Area	Year	Age-3+ Biomass	OFL	ABC	TAC	Catch
BSAI	2025	292,807	22,848	18,694	12,000	8,049
	2026	289,639	22,284	18,232	12,000	5,182
	2027	285,933	21,739	17,784		
	2028	284,291	21,463	17,558		

Changes from previous assessment

Changes in the input data:

1. Catch data was updated through 2022, and total catch for 2023 was projected.
2. The 2022 Aleutian Island survey age composition, the 2021 fishery age composition data, and the 2022 fishery length composition data were included in the assessment.
3. The 2022 Aleutian Island survey biomass estimate was included in the assessment.
4. The ageing error matrix was updated.

Changes in the Assessment Methodology:

1. There were no changes to the assessment methodology.

Spawning biomass and stock trends

The estimated survey biomass for Northern rockfish shows an increasing trend, starting at 91,159 t in 1977 and increasing to a peak of 256,819 t in 2014, and declining to 236,604 t in 2023. The estimated total biomass shows a similar trend, increasing to a peak value of 343,230 t in 2014, and the estimated spawning biomass increases from 55,180 in 1977 to its highest value of 151,130 in 2015.

A relatively high fishing mortality rate in 1977 is estimated to account for the relatively high catch in this year, followed by very low levels of fishing mortality during the 1980s when catch was small. Fishing mortality rates began to increase during the early 1990s, and declined from the late 1990s to 2014. Fishing mortality rates have increased since 2014, and the 2023 estimate of 0.034 is the largest F in the estimated time series beginning in 1977. The stock is currently below F35% and above B40%.

For recruitment, relatively strong year classes are observed in 1984-1985, 1989, 1993, 1995-1998, and 2005, reflecting several of the strong year classes observed in the age composition input data. Most of these estimated strong year classes are larger than their estimates in the 2021 assessment, and years adjacent to the strong year classes are often smaller than estimated in the 2021 assessment (for example, the 1985, 1989, and 2005 year classes). This reflects the influence of the updated ageing error matrix; the greater uncertainty in the observed ages allows stronger recruitments which will be distributed to a greater degree to adjacent observed ages. There is substantial variability in the relationship between recruitment and spawning stock size.

Tier determination/Plan Team discussion and resulting ABCs and OFLs

The SSC has determined that reliable estimates of $B_{40\%}$, $F_{40\%}$, and $F_{35\%}$ exist for this stock, thereby qualifying northern rockfish for management under Tier 3. The author recommended Model 21 with no reductions from maximum permissible ABC and the Team agreed with the author's recommendation.

Status determination

This stock is not being subjected to overfishing, is not overfished, and is not approaching an overfished condition.