Chapter 1A: Harvest Projection for the walleye pollock stock in the Aleutian Islands

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Executive Summary

The Aleutian Islands (AI) pollock stock assessment is on a biennial cycle with full assessments in even years timed with the Aleutian Islands bottom trawl survey, and harvest projections in odd years. For AI pollock in harvest projection years, we present an executive summary to recommend harvest levels for the next two years. A full assessment was conducted in 2022 and can be found at (https://apps-afsc.fisheries.noaa.gov/Plan_Team/2022/AIpollock.pdf). A full stock assessment document with updated assessment and projection model results will be presented in next year's SAFE report.

The AI pollock assessment consists of a population model, which uses survey and fishery data to generate a historical time series of population estimates, and a projection model, which uses results from the population model to predict future population estimates and recommended harvest levels. The Aleutian Islands walleye pollock stock assessment uses the Assessment Model for Alaska (here referred to as AMAK). AMAK is a variation of the "Stock Assessment Toolbox" model presented to the Plan Team in the 2002 Atka mackerel stock assessment (Lowe *et al.* 2002). The data sets used in this assessment include total catch biomass, fishery age compositions, AI bottom trawl survey abundance estimates, and AI bottom trawl survey age compositions. For a harvest projection year, we do not re-run the assessment model, we update the projection model with new catch data. This incorporates the most current catch information without re-estimating model parameters and biological reference points. The stock remains at tier 3b.

Summary of Changes in Assessment Inputs

Changes in the input data: There were no changes made to the assessment model inputs since this was a harvest projection year. New data added to the projection model included an updated 2022 catch estimate (3,058 t) and new catch estimates for 2023. The 2023 catch was estimated at 3,663 t by increasing the official catch as of September 25, 2023 (3,238 t), by an expansion factor of 13%, which represents the average fraction of catch taken after September 25 in the last three complete years (2020-2022). The 2024 catch was set at the 3-year average for 2020-2022 of 2,701 t.

Changes in the assessment methodology: There were no changes in assessment methodology.

Summary of Results

For the 2024 fishery, we recommend the maximum allowable ABC of 51,516 t from the updated projection model. This ABC is down slightly from the 2023 ABC of 52,383 t and last year's projected 2024 ABC of 52,043 t due to the increase of catch over what had been projected catch in 2023. Reference values for AI pollock are summarized in the following table, with the recommended ABC and OFL values for 2024.

Quantity	As estimated or *specified last* year for: 2023	2024	As estimated or *recommended this* year for: 2024	2025*
M (natural mortality rate)	0.21		0.21	
Tier	3a		3a	
Total (age 1+) biomass (t)	264,173	281,618	279,764	302,068
Female spawning biomass (t)				
Projected	78,628	80,432	79,747	81,3352
$B_{100\%}$	174,218		174,218	
$B_{40\%}$	69,687		69,687	
$B_{35\%}$	60,976		60,976	
F_{OFL}**	0.380	0.380	0.380	0.380
$maxF_{ABC}$	0.305	0.305	0.305	0.305
F_{ABC}	0.305	0.305	0.305	0.305
OFL (t)	52,383	52,043	51,516	53,030
maxABC (t)	43,413	43,092	42,654	43,863
ABC (t)	43,413	43,092	42,654	43,863
	As determined this year for:			
Status	2021	2022	2022	2023
Overfishing	no	n/a	no	n/a
Overfished	n/a	no	n/a	no
Approaching overfished	n/a	no	n/a	no

***** Projection based on estimated catches of 3,663 t for 2023 and 2,701 t for 2024, the three-year average (2020-2022), used in place of maximum permissible ABC.

** Long-term equilibrium F_{OFL} and F_{ABC} were 0.380 and 0.305, respectively.

The stock is not subject to overfishing, is not currently overfished, nor is it approaching a condition of being overfished. The tests for evaluating these three statements on status determination require examining the official total catch from the most recent complete year and the current model projections of spawning biomass relative to $B_{35\%}$ for 2023 and 2024. The official total catch for 2022 is 3,058 t, which is a small fraction of the 2022 OFL of 61,264 t; therefore, the stock is not being subjected to overfishing. The estimates of spawning biomass for 2023 and 2024 from last year's assessment model (Barbeaux et al. 2022) and the current year (2023) projection model are 78,628 t and 80,432 t, respectively. The 2023 estimate from the current year projection is above $B_{35\%}$ at 60,976 t and the 2024 estimate is above ½ $B_{35\%}$ and the stock is expected to be above $B_{35\%}$ in 2035 under projection Scenario 7, therefore, the stock is not currently overfished nor approaching an overfished condition. For projection Scenario 7 in 2024 and 2025, F is set equal to max FABC, and in all subsequent years, F is set equal to FOFL. If the stock is expected to be above its MSY level in 2034 under this scenario, then the stock is not approaching an overfished condition.

Fishery Trends

Updated catch data (t) for AI pollock as of September 28, 2023 (NMFS Alaska Regional Office Catch Accounting System via the Alaska Fisheries Information Network (AKFIN) database, http://www.akfin.org) are summarized in the following table.

Year	Eastern 541	Central 542	Western 543	Aleutians Total	Aleutians ABC	Aleutians TAC
2022	2,143	377	538	3,058	50,752	19,000
2023[1]	2,088	533	617	3,238	43,413	19,000

[1]Current as of September 25, 2023. Source: NMFS Alaska Regional Office Catch Accounting System via the AKFIN database (http://www.akfin.org).

Although open to fishing, there continues to be very little directed fishing for pollock in the Aleutian Islands. In 2022 there was a total of 217 t of pollock landed from pollock targeted fisheries and in 2023 there was a total of 8 t of pollock landed in targeted fisheries as of September 25.

Summaries for Plan Team

Species	Year	Biomass[1]	OFL	ABC	TAC	Catch[2]
AI pollock	2022	308,525	61,264	50,752	19,000	3,058
	2023	264,173	52,383	43,413	19,000	3,238
	2024	279,764	51,516	42,654	19,000	
	2025	302,068	53,030	43,863	19,000	

[1]Total biomass (ages 1+) from the age-structured model

[2]Current as of September 25, 2023. Source: NMFS Alaska Regional Office Catch Accounting System via the AKFIN database (http://www.akfin.org).

Responses to SSC and Plan Team Comments on Assessments in General

No applicable comments.

Responses to SSC and Plan Team Comments Specific to this Assessment

No applicable comments.

Figures

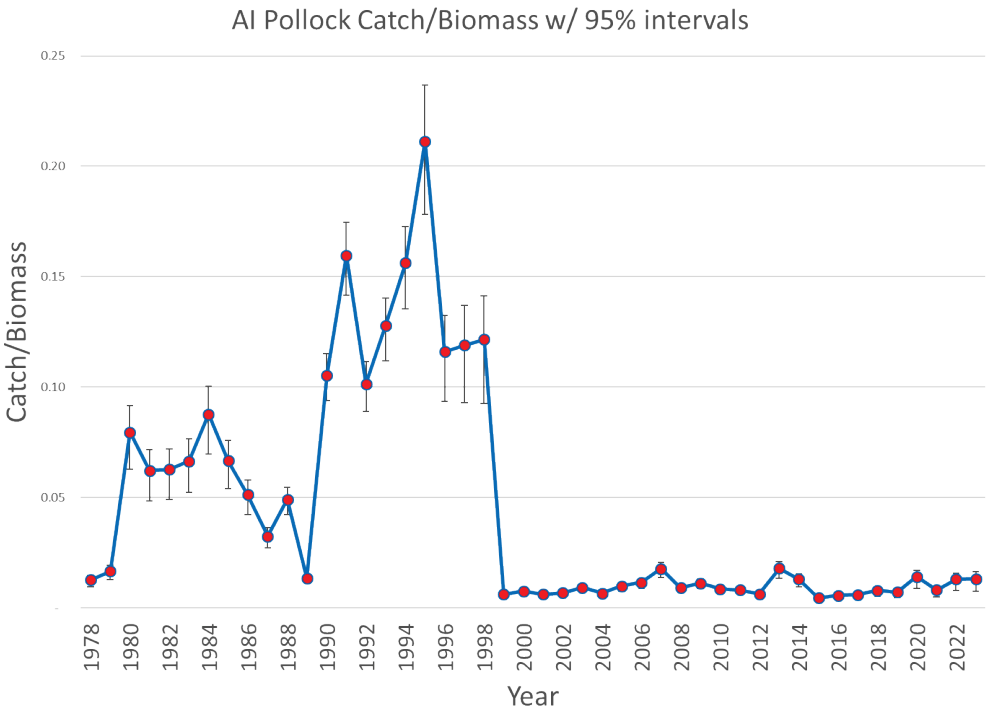

Figure 1A.1. Modeled catch over total biomass (point estimates in red circles) with 95% sampling error confidence intervals for AI pollock from 1978-2023.