

Chapter 1A: Assessment of the pollock stock in the Aleutian Islands

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Executive Summary

The Aleutian Islands (AI) pollock stock assessment has changed to a biennial cycle with full assessments in even years timed with the Aleutian Islands bottom trawl survey, and partial assessments in odd years. For AI pollock in partial assessment years, we present an executive summary to recommend harvest levels for the next two years. A full assessment was conducted in 2018 and can be found at (<https://www.afsc.noaa.gov/REFM/Docs/2018/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 partial assessment year, we do not re-run the assessment model, but do 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 an off-cycle year. New data added to the projection model included an updated 2018 catch estimate (1,257 t) and new catch estimates for 2019-2020. The 2019 catch was estimated by increasing the official catch as of October 8, 2019, by an expansion factor of 7.8%, which represents the average fraction of catch taken after October 8 in the last three complete years (2016-2018). The 2020 catch was set at the 3 year average for 2016-2018 of 1,541 t.

Changes in the assessment methodology: There were no changes in assessment methodology since this was an off-cycle year.

Summary of Results

For the 2020 fishery, we recommend the maximum allowable ABC of 55,120 t from the updated projection model. This ABC is up from the 2019 ABC of 52,887 t and nearly the same as last year's projected 2020 ABC of 55,125 t. Reference values for AI pollock are summarized in the following table, with the recommended ABC and OFL values for 2020 in bold.

Quantity	As estimated or <i>specified last year for:</i>		As estimated or <i>recommended this year for:</i>	
	2019	2020	2020	2021
<i>M</i> (natural mortality rate)	0.20		0.20	
Tier	3a		3a	
Projected total (age 1+) biomass (t)	319,892	340,680	340,680	367,017
Projected female spawning biomass (t)				
Projected	95,253	98,182	98,172	102,413
<i>B</i> _{100%}	203,279		203,279	
<i>B</i> _{40%}	81,312		81,312	
<i>B</i> _{35%}	71,147		71,147	
<i>F</i> _{OFL}	0.415	0.415	0.415	0.415
<i>maxF</i> _{ABC}	0.331	0.331	0.331	0.331
<i>F</i> _{ABC}	0.331	0.331	0.331	0.331
OFL (t)	64,240	66,981	66,973	70,970
maxABC (t)	52,887	55,125	55,120	58,384
ABC (t)	52,887	55,125	55,120	58,384
Status	As determined <i>this year for:</i>		As determined <i>this year for:</i>	
	2017	2018	2018	2019
Overfishing	no	no	no	n/a
Overfished	n/a	n/a	n/a	no
Approaching overfished	n/a	n/a	n/a	no

The stock is not being 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 2019 and 2020. The official total catch for 2018 is 1,860 t which is a small fraction of the 2018 OFL of 49,291 t; therefore, the stock is not being subjected to overfishing. The estimates of spawning biomass for 2019 and 2020 from the current year (2019) projection model are 98,172 t and 102,413 t, respectively. The 2019 estimate is above *B*_{35%} at 71,147 t and the 2020 estimate is above ½ *B*_{35%} and the stock is expected to be above *B*_{35%} in 2031 under projection Scenario 7, therefore, the stock is not currently overfished nor approaching an overfished condition.

Fishery Trends

Updated catch data (t) for AI pollock as of October 8, 2019 (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	Easter 541	Central 542	Western 543	Aleutians Total	Aleutians ABC	Aleutians TAC
2018	1,060	546	254	1,860	40,788	19,000
2019	799	415	248	1,462	52,887	19,000

Although open to fishing, there continues to be very little directed fishing for pollock in the Aleutian Islands. In 2018 there was a total of 234 t of pollock landed from pollock targeted fisheries and in 2019 there was a total of 70 t of pollock landed in targeted fisheries. In 2019 an EFP for a directed pollock fishery was approved, but the fishing activity did not occur due to timing and weather constraints.

Summaries for Plan Team

Species	Year	Biomass ¹	OFL	ABC	TAC	Catch ²
AI pollock	2018	231,258	49,291	40,788	19,000	1,860
	2019	250,928	64,240	52,887	19,000	1,577
	2020	340,680	66,973	55,120	19,000	
	2021	367,017	70,970	58,384	19,000	

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

²Current as of October 8, 2019. 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

SSC December 2018:

The SSC recommends that the authors reconsider the time period over which recruitment estimates are used to estimate biological reference points. The authors will explore this recommendation during the next full assessment in 2020.

Figures

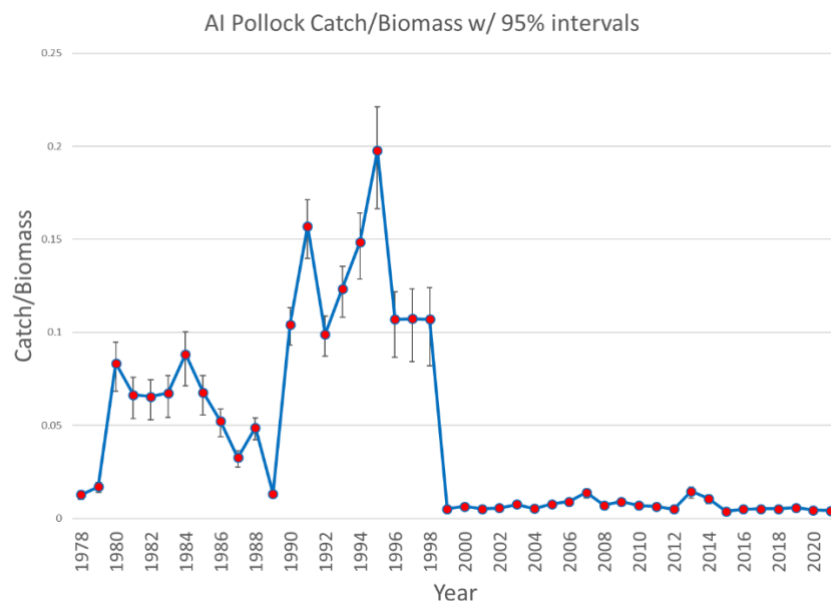


Figure A1:1. Modeled catch over total biomass (point estimates in red circles) with 95% sampling error confidence intervals for AI pollock from 1978-2021. Catches for 2019 and 2020 estimated at 1,541 t, the three year average for 2016-2018.

