17. Assessment of the Atka mackerel stock in the Gulf of Alaska

Executive Summary

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Gulf of Alaska (GOA) Atka mackerel are on a biennial stock assessment schedule to coincide with the availability of new survey data from the biennial trawl survey. A full assessment was presented in 2015 which included data from the 2015 GOA bottom trawl survey. On alternate (even) years we present an executive summary with updated catch, last year's key assessment parameters, any significant new information available in the interim, and projections for this year.

Gulf of Alaska Atka mackerel have been managed under Tier 6 specifications since 1996 due to the lack of reliable estimates of current biomass. In 2007, the assessment presented for consideration, Tier 5 calculations of ABC and OFL based on 2007 survey biomass estimates. However, the Plan Team and SSC agreed with the authors that reliable estimates of Atka mackerel biomass were not available and recommended continuing management under Tier 6. The 2015 assessment presented Tier 6 recommendations and did not present Tier 5 calculations given the large variances associated with the 2015 survey biomass estimates, which was essentially based on one significant haul encountered in the western Gulf of Alaska off the Sanak Islands. The Council set the Gulf-wide 2016 OFL, ABC, and TAC for Atka mackerel at 6,200 t, 4,700 t, and 2,000 t, respectively. The 2015 full assessment is available on the web (Lowe 2015, http://www.afsc.noaa.gov/refm/docs/2015/GOAatka.pdf).

Summary of Changes in Assessment Inputs

New catch information includes updated 2015 catch (1,228 t) and 2016 catch (993 t) as of November 5, 2016 (https://alaskafisheries.noaa.gov/sites/default/files/reports/car110_goa2016.pdf).

The 2016 GOA Atka mackerel catch through November 5 was 50% of the 2016 TAC; the 2015 GOA Atka mackerel catch was 61% of the TAC. Figure 17.1 shows the 2016 distributions of observed catches of Atka mackerel in the Gulf of Alaska summed over 20 km areas. Open circles represent observed catches greater than 1 t. Most of these catches occurred during July through October.

Since the 2015 assessment, ages from the 2014 and 2015 GOA fisheries have become available. A total of 238 and 159 otoliths were collected from the Gulf of Alaska in 2014 and 2015, respectively. The data show large numbers of the 2011 year class which was prevalent in the Aleutian Islands. The data continue to show the strong 2006 and 2007 year classes observed in the Aleutian Islands (Figure 17.2).

New survey age information is available from the 2015 summer bottom trawl survey. A total of 413 otoliths were collected from the Western and Central Gulf of Alaska. Over half (59%) of the Atka mackerel otoliths were collected in the Shumagin area. Similar to the 2015 GOA fishery data, the data are dominated by 4-year-olds of the 2011 year class, and the strong 2006 and 2007 year classes are still evident in the 2015 survey age composition (Figure 17.3).

Summary of Changes in Assessment Methodology

There were no changes in assessment methodology.

Summary of Results

There is no new information incorporated into the projection. For the 2017 (and 2018) fishery, we recommend an ABC of 4,700 t. This ABC is equivalent to last year's ABC for 2016. The corresponding

reference values for Atka mackerel are summarized below. Because abundance information for Atka mackerel is very limited, they are managed in Tier 6.

	As estimated or *specified last* year for:		As estimated or *recommended this* year for:	
Quantity	2016	2017	**2017**	2018
M (natural mortality)	0.3	0.3	**0.3**	0.3
Tier	6	6	**6**	6
OFL (t)	6,200	6,200	**6,200**	6,200
maxABC (t)	4,700	4,700	**4,700**	4,700
ABC (t)	4,700	4,700	**4,700**	4,700
	As determined *last* year for:		As determined *this* year for:	
Status	2014	2015	2015	2016
Overfishing	n/a	n/a	**n/a**	n/a
(for Tier 6 stocks, data are not available to determine whether the stock is in an overfished condition)				

Area Apportionment

There is no area apportionment for GOA Atka mackerel. The Council manages GOA Atka mackerel on a Gulf-wide basis.

Summaries for the Plan Team

Species	Year	Biomass	OFL	ABC	TAC	Catch
	2015	Unknown	6,200	4,700	2,000	1,228
Atka mackerel	2016	Unknown	6,200	4,700	2,000	993[1]
(Gulf-wide)	2017	Unknown	6,200	4,700		
	2018	Unknown	6,200	4,700		

1/ Current as of November 5, 2016 (https://alaskafisheries.noaa.gov/sites/default/files/reports/car110_goa2016.pdf).

Responses to SSC and Plan Comments on Assessments in General

From the December 2015 SSC minutes: The SSC did not make any comments on assessments in general that would pertain to the Tier 6 GOA Atka mackerel assessment.

From the October 2016 SSC minutes: *The SSC reminds groundfish and crab stock assessment authors to follow their respective guidelines for SAFE preparation.* The GOA Atka mackerel assessment strives to follow the Groundfish SAFE Guidelines.

The SSC requests that stock assessment authors bookmark their assessment documents and commends those that have already adopted this practice. The GOA Atka mackerel assessment has the bookmark feature.

From the December 2015 GOA Plan Team minutes: *The Team recommends that a workgroup or subset of authors investigate applying the geostatistical approach to selected stocks. The Team recommends an evaluation on how best to tailor the RE model to accommodate multiple indices. Finally, an area apportionment approach using the RE model which specifies a common "process error" has been developed and should be considered. This may help in some situations where observation errors are particularly high and/or vary between regions.*

Reliable estimates of Atka mackerel biomass are not available and GOA Atka mackerel are managed under Tier 6 specifications. There is no area apportionment for GOA Atka mackerel. The Council manages GOA Atka mackerel on a Gulf-wide basis.

Responses to SSC and Plan Team Comments Specific to this Assessment

The SSC and Plan Team did not make any comments specific to the Atka mackerel assessment.

Figures

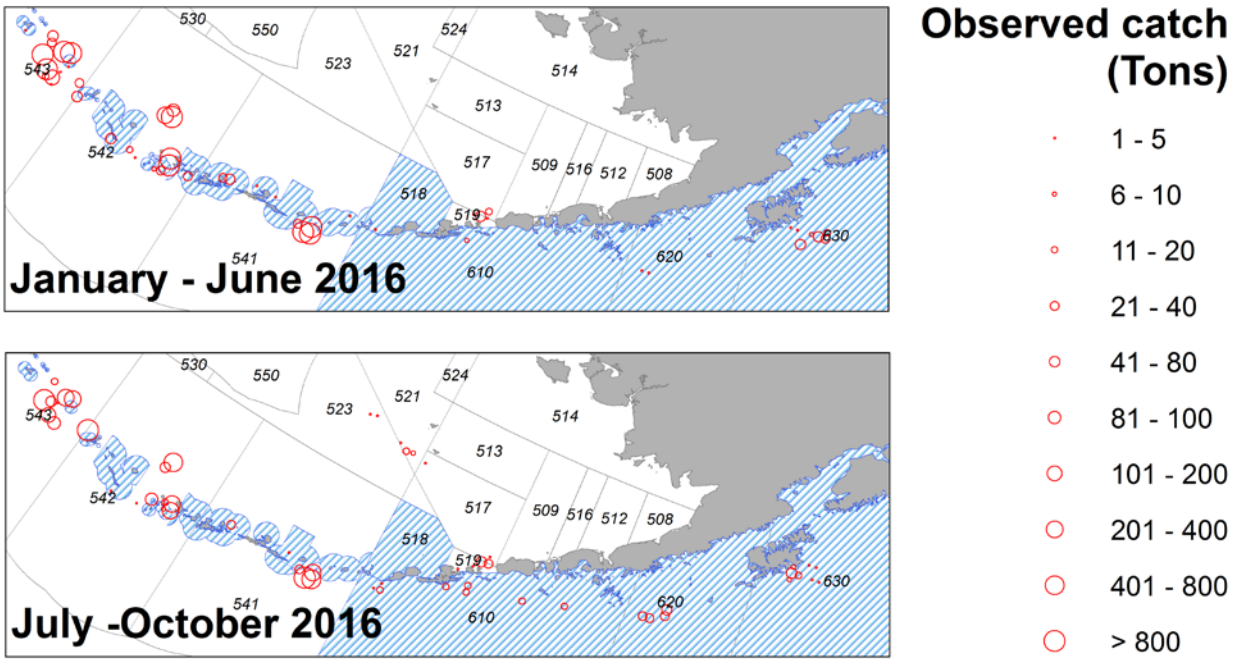

Figure 17.1. Observed catches of Atka mackerel summed for 20 km^2 cells for 2016 where observed catch per haul was greater than 1 t. Shaded areas represent areas closed to directed Atka mackerel fishing.

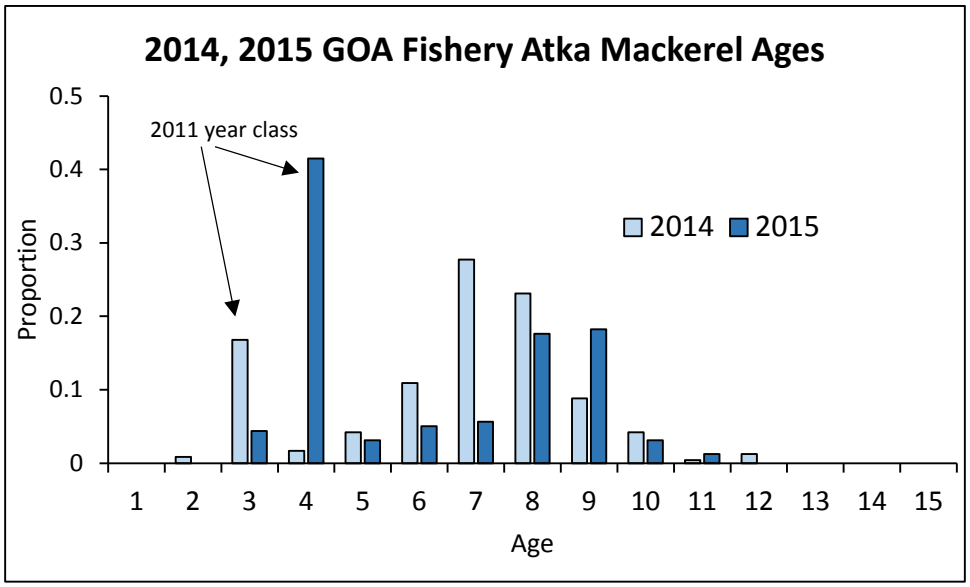

Figure 17.2. Age frequency distribution of Atka mackerel from the 2014 and 2015 Gulf of Alaska fisheries. A total of 238 and 159 otoliths were collected in 2014 and 2015, respectively.

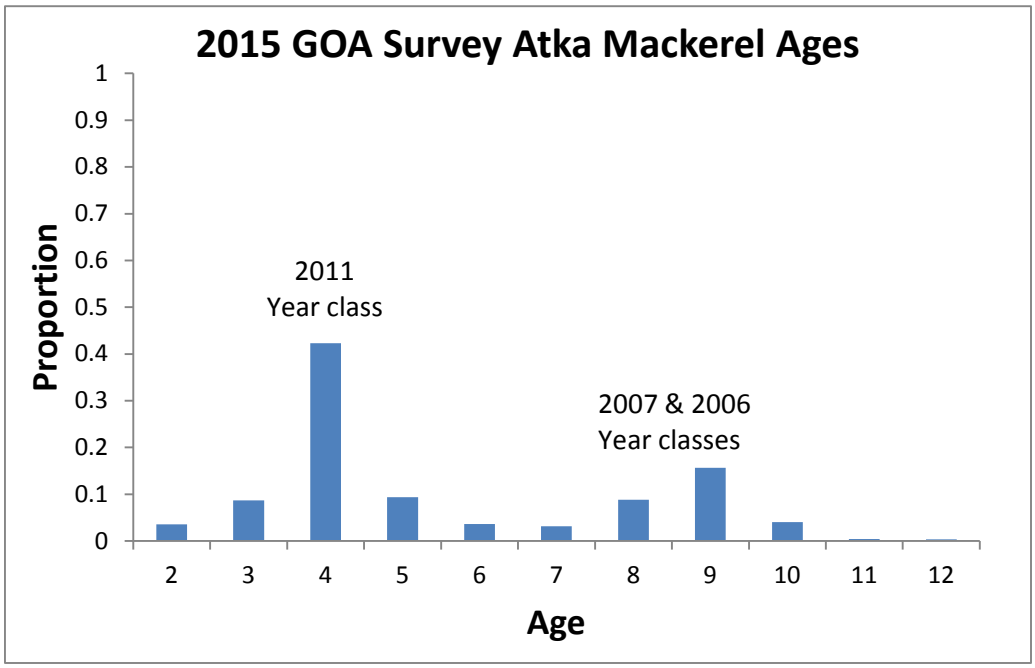

Figure 17.3. Age frequency distribution of Atka mackerel from the 2015 Gulf of Alaska bottom trawl survey. A total of 413 otoliths were collected and aged from the Shumagin (610), Chirikof (620), and Kodiak (630) areas.