

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON  
PACIFIC MACKEREL ASSESSMENT AND BIENNIAL MANAGEMENT MEASURES  
- FINAL ACTION

Dr. Peter Kuriyama (Southwest Fisheries Science Center) presented the results of the Pacific mackerel stock assessment (Agenda Item G.2, Attachment 1), and Dr. André Punt of the Scientific and Statistical Committee (SSC) presented a report on the Pacific mackerel Stock Assessment Review (STAR) Panel (Agenda Item G.2, Attachment 2).

The Stock Assessment Team's (STAT's) preferred assessment model differs from that on which the 2019 assessment was based because it includes age-composition data for the Acoustic-Trawl (AT) survey based on age data from the survey, with an updated age-reading error matrix, a revised age-specific maturity ogive, a prior on age-dependent natural mortality, updated AT survey estimates of abundance, and a prior on survey catchability (Q) for 2016-2021. The assessment did not make use of the AT survey data for 2022 as the SSC did not endorse that year's data for use in Pacific mackerel assessments.

The SSC endorses the STAT-preferred assessment model as the best scientific information available for management of Pacific mackerel. This assessment is assigned to [category 2d](#) because of high uncertainty regarding the scale of the biomass, sensitivity to assumptions, and the fact that much of the biomass derives from the most recent year-class, which is not informed by data. The acceptable biological catch (ABC) should therefore be based upon the category 2 sigma of 1.4426 for the 2023-24 fishing season and 1.8852 for the 2024-25 fishing season. These values for sigma differ from those reported in Section 4 of Agenda Item G.2, Attachment 1. Updated overfishing limit (OFL)-ABC tables are given below. Given that the 2022 AT survey was not used in the assessment, and the high value for natural mortality, a larger proportion of the 2023-24 and particularly 2024-25 OFLs reflect the biomasses of cohorts whose sizes were inferred from the stock-recruitment relationship than was the case for the 2019 assessment.

The SSC endorses the OFLs of 11,693 mt for 2023-24 and 12,765 mt for 2024-25, and the associated 1+ biomasses on 1 July 2023 and 2024 of 55,681 mt and 60,785 mt. The 2024-25 overfishing limit could be recalculated if the ABC for 2023-24 is less than the harvest guideline for that year. The final ABCs depend on the Council's risk tolerance as reflected in the choice of p\*.

The SSC noted that a catch-only projection is scheduled for 2025 for use in setting management measures for the 2025-26 and 2026-27 fishing years. However, this means that the 2021 survey will provide the most recent information on abundance for management decision-making in 2025, even though AT survey estimates of biomass should be available for 2023 and 2024. Alternatively, an update assessment could be scheduled. Any decision on how to set 2025-26 and 2026-27 management measures should consider the workload for the analysts, the magnitude of landings relative to the annual catch limit (ACL), and the estimates of biomass from the AT survey, as well as the desire to use the most recent information on biomass. In the longer-term, a management system such as that for northern anchovy using the survey estimates of biomass could be explored.

**a) Fishing year 2023-24**

<b>Harvest Control Rule Formulas</b>					
OFL = BIOMASS * $E_{MSY}$ * DISTRIBUTION					
ABC <sub>P-star</sub> = BIOMASS * BUFFER <sub>P-star</sub> * $E_{MSY}$ * DISTRIBUTION					
HG = (BIOMASS - CUTOFF) * FRACTION * DISTRIBUTION					
<b>Harvest Formula Parameters</b>					
BIOMASS (ages 1+, mt)	<b>55,681</b>				
P-star	0.45	0.40	0.35	0.30	0.25
ABC Buffer <sub>Cat 1</sub>	0.9133	0.8330	0.7573	0.6851	0.6148
ABC Buffer <sub>Cat 2</sub>	0.8342	0.6939	0.5736	0.4693	0.3779
$E_{MSY}$ =FRACTION	0.30				
CUTOFF (mt)	18,200				
DISTRIBUTION (U.S.)	0.70				
<b>Harvest Control Rule Values (MT)</b>					
OFL =	<b>11,693</b>				
ABC <sub>Cat 1</sub> =	10,679	9,740	8,855	8,011	7,189
ABC <sub>Cat 2</sub> =	9,754	8,114	6,707	5,488	4,419
HG =	<b>7,871</b>				

**b) Fishing year 2024-25**

<b>Harvest Control Rule Formulas</b>						
OFL = BIOMASS * $E_{MSY}$ * DISTRIBUTION						
$ABC_{P\text{-star}} = BIOMASS * BUFFER_{P\text{-star}} * E_{MSY} * DISTRIBUTION$						
HG = (BIOMASS - CUTOFF) * FRACTION * DISTRIBUTION						
<b>Harvest Formula Parameters</b>						
BIOMASS (ages 1+, mt)	<b>60,785</b>					
P-star	0.45	0.40	0.35	0.30	0.25	
ABC Buffer <sub>Cat 1</sub>	0.8883	0.7876	0.6954	0.6100	0.5295	
ABC Buffer <sub>Cat 2</sub>	0.7891	0.6203	0.4836	0.3721	0.2804	
$E_{MSY}$ =FRACTION	0.30					
CUTOFF (mt)	18,200					
DISTRIBUTION (U.S.)	0.70					
<b>Harvest Control Rule Values (MT)</b>						
OFL =	<b>12,765</b>					
ABC <sub>Cat 1</sub> =	11,339	10,054	8,877	7,787	6,759	
ABC <sub>Cat 2</sub> =	10,073	7,918	6,173	4,750	3,579	
HG =	<b>8,943</b>					

PFMC  
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