

SUMMARY OF INFORMATION AVAILABLE FOR COUNCIL DECISION MAKING ON FMP AMENDMENT: REVISED SARDINE STOCK AND MANAGEMENT

Introduction

At this meeting, the Pacific Fishery Management Council (Council) is scheduled to adopt a final preferred alternative (FPA) that would amend the Coastal Pelagic Species Fishery Management Plan (CPS FMP). This amendment would revise the definition of the Pacific sardine stock and specify management provisions for the stock. The purpose of this document is to support Council decision making for final action, complementing the impact analysis and Magnuson-Stevens Fishery Conservation and Management Act (MSA) analysis available in Attachment 2. This document summarizes and incorporates by reference materials made available to the Council and its advisory bodies to support initial decisions on this action thus far.

Council Decision Points

The preliminary preferred alternative (PPA) for this action identifies the Pacific sardine stock as in need of conservation and management, delineating this stock and specifying management measures accordingly. The PPA applies the management approach for intensive management of a stock (also called the “more intensive,” “General,” or “Harvest Guidelines (HG)” control rule) framework defined at [Section 4.6.3](#) of the CPS FMP and currently utilized for Pacific sardine. The main decision points for the Council at final action are as follows:

1. **Stock Definition** - Whether to revise the Pacific sardine stock definition to reflect updated science on population biology. Doing so would define a single, coastwide U.S. stock and would apply the CPS management framework to that stock
2. **Management Provisions** - If the stock is revised, the current management framework for Pacific sardine may be applied, and the Council can consider several adjustments within that framework under Alternative 1 including:
 - a. **Specification of a minimum stock size threshold (MSST)** for the overfished status determination criteria (SDC)
 - b. **Specification of a CUTOFF** within the HG control rule
 - c. **Set DISTRIBUTION to 1** in the overfishing limit (OFL), acceptable biological catch (ABC), and HG

Options for specifying MSST:

- a) **Static Value:** MSST = X mt age 1+ biomass or reasonable proxy consistent with BSIA
 - Option a.i: MSST = 65,000 mt age 1+ biomass or reasonable proxy
 - Option a.ii: MSST = 150,000 mt age 1+ biomass or reasonable proxy
- b) **Formulaic (PPA):** MSST = $10\%B_0 - 30\%B_0$ (where X% is determined upon BSIA), or other reasonable proxy

Options for specifying the CUTOFF parameter: 50,000 mt, 150,000 mt (**PPA**), or 314,4000 mt.

The Council’s PPA, Alternative 1, with PPA Options for MSST and CUTOFF is summarized in Table 1 below:

Table 1. Stock definition, management strategy, reference points, and control rules specified for Pacific sardine under Alternative 1

FMP Element	Specification
Stock Definition	U.S. Pacific Sardine stock
Management Strategy	More intensive (i.e., general harvest control rule)
Overfished SDC	Biomass < MSST
MSST	Option b. $MSST = 10\%B_0 - 30\%B_0$ (where X% is determined upon BSIA), or other reasonable proxy
Overfishing SDC	Catch > OFL
OFL	$BIOMASS * E_{MSY} * DISTRIBUTION$
ABC	$BIOMASS * BUFFER * E_{MSY} * DISTRIBUTION$ Where BUFFER comprises P* and sigma
DISTRIBUTION	1
ACL	Less than or equal to the ABC based on data available for the specifications cycle
ACT	Less than or equal to the ACL based on data available for the specifications cycle
Accountability measures	Recommended based on data available for the specifications cycle
HG	$H = (BIOMASS - CUTOFF) * FRACTION * DISTRIBUTION$ (not to exceed MAXCAT or ACL)
CUTOFF	Option ii. 150,00 mt
FRACTION	Equal to E_{MSY}
MAXCAT	200,000 mt

Table 2 summarizes the comparison of CPS FMP elements between the No Action alternative and the PPA (Alternative 1, with certain PPA options) considered by the Council, and which elements require a Council decision between No Action and Alternative 1 or between options under Alternative 1 in order to take final action.

Table 2. FMP elements and sardine management provisions that are proposed for revision under Alternative 1, the Council's PPA, compared to the No Action alternative.

FMP Element	No Action	Alternative 1 (PPA)	Change under PPA?	Decision Needed?
Stock definition	Only “NSP”	U.S. Pacific sardine stock	Yes, aligns stock definition with science on Pacific sardine population	Yes
Management Strategy	More intensive – per CPS FMP Section 4.6.3	More intensive – per CPS FMP Section 4.6.3	No	Yes
OFL	BIOMASS * E_{MSY} * DISTRIBUTION	BIOMASS * E_{MSY} * DISTRIBUTION	No	Yes – required element per MSA/NS1
ABC	BIOMASS * BUFFER * E_{MSY} * DISTRIBUTION	BIOMASS * BUFFER * E_{MSY} * DISTRIBUTION	No	Yes – required element per MSA/NS1
DISTRIBUTION	0.87	1	Yes, adjusts distribution based on estimate of stock in U.S. waters	Yes, if applying “more intensive” control rules
E_{MSY}	Deterministic equilibrium MSY , calculated via BSIA	Deterministic equilibrium MSY , calculated via BSIA	No	No
MSST	50,000 mt	$MSST = 10\%B_0 - 30\%B_0$ where X% is determined upon BSIA or other reasonable proxy	Yes, moves from static value defined in FMP to depletion-based formula or proxy to be calculated via BSIA	Yes – required element per MSA/NS1, Council considered several options under Alt 1
HG	$H = (BIOMASS - CUTOFF) * FRACTION * DISTRIBUTION$	$H = (BIOMASS - CUTOFF) * FRACTION * DISTRIBUTION$	No	No if applying “more intensive” control rules
FRACTION	$= E_{MSY}$	$= E_{MSY}$	No	No
CUTOFF	150,000 mt	150,000 mt	No	Yes, Council considered several

				options under Alt 1
ACL	Less than or equal to the ABC based on data available for the specifications cycle	Less than or equal to the ABC based on data available for the specifications cycle	No	No
ACT	Less than or equal to the ACL based on data available for the specifications cycle	May be specified as less than or equal to the ACL based on data available for the specifications cycle	No	No
Allocation	Seasonal allocation per CPS FMP Section 5.5	Seasonal allocation per CPS FMP Section 5.5	No	No
Fishing opportunity, gear, effort, timing, location	Fishery as described in CPS SAFE	Fishery as described in CPS SAFE	No	No
Rebuilding Plans	NSP Rebuilding Plan	To be developed for U.S. stock upon an overfished declaration	Yes, rebuilding plan for NSP does not apply to U.S. stock	No
EFH	As described in Appendix D to CPS FMP	As described in Appendix D to CPS FMP	No	No

Information Available for Decision Points

While developing this FMP amendment, the Council has been presented with the information required to address the tasks under this action, including:

- Summary of literature on Pacific sardine population dynamics ([J.3, Attachment 1](#), November 2025 and J.3.a, National Marine Fisheries Service (NMFS) Report 1, November 2026)
- Requirements and best practices for defining a stock in an FMP ([J.3, Attachment 1](#), November 2025, [F.5, Attachment 1](#) April 2026, [J.1, Attachment 1](#) September 2026)
- Summary of the CPS FMP goals, objectives, and management framework (F.5, [Attachment 1](#), April 2026, [J.1, Attachment 1](#) September 2026 and Sections [1.6](#) and [4](#) of the CPS FMP)
- Outcomes of previous analyses of the management framework to understand the relative benefit of different control rule parameters (J.1, Attachments [1](#), [2](#), and [3](#) September 2026 and J.3, Attachment 2, November 2026, referencing [PFMC 1998](#) and [Hurtado-Ferro & Punt 2014](#))
- Technical guidance on defining SDC ([J.1, Attachment 1](#) September 2026, J.3.a, NMFS Report 1, J.3.a, NMFS Report 1, November 2026)
- Examples of threshold reference points used for species with similar life histories ([J.1, Attachment 3](#) September 2026, J.3, Attachment 2, November 2026)

- Review of MSST options specific to Pacific sardine ([NMFS 2016](#), J.1, Attachments [1](#), [2](#), [3](#), September 2026, J.3, Attachment 2 and J.3.a, NMFS Report 1, November 2026)
- Recommendations of the Scientific and Statistical Committee (SSC), CPS Management Team (CPSMT), and CPS Advisory Subpanel (November 2025, April 2026, July 2026 Joint Advisory Body Meeting, September 2026)

The documentation that has been presented to the Council thus far is summarized by the task it supports under this Action in Table 3, below. The Council may consider this documentation, in addition to the impact analysis and MSA analysis presented in Attachment 2 and summary of technical information in NMFS Report 1, to adopt an FPA for this FMP Amendment at this meeting. Thus far, this documentation has supported the CPSMT, SSC, and the Council in recommending the PPA to meet the goals and objectives of the CPS FMP while fulfilling the requirements of a stock in the FMP (Agenda Item J.1, Supplemental CPSMT and SSC statements, September 2026). Further, it may support adopting FPA options within Alternative 1, as the Council considered multiple options for CUTOFF and MSST.

Table 3. Information required to inform Council decision making under this action

Task	Information Needed	Key Findings Presented to the Council	Council and Other Documentation
Stock Definition	Best available science on population dynamics to the extent possible within political and geographic bounds (NS2, NS3) Whether the stock is in need of conservation and management (10 Factors)	Best available science including latest peer reviewed literature show Pacific sardine comprise a single panmictic population without regional differences in demographics or other life history traits (e.g., growth patterns) Pacific sardine in U.S. waters are in need of conservation and management	November 2025 - Summary of literature in Agenda Item J.3, Att 1 - J.3.a, Supplemental SSC Report 1 November 2026 - MSA Analysis in Agenda Item J.3, Att 2 - Summary of literature in Agenda Item J.3.a, NMFS Report 1 National Standard 2 Guidance National Standard 3 Guidance 10 Factors at 50 CFR 600.3005(c)(1)((i)-(x))
Management Provisions	Requirements of a stock in an FMP (MSA and NS) CPS FMP Framework and related analyses	Based on a review of management provisions by NMFS, Council staff, and a joint advisory body meeting, the “more intensive” management framework defined at Section 4.6.3 of the CPS FMP should be applied The more intensive control rule includes: $H = (BIOMASS - CUTOFF) * FRACTION * DISTRIBUTION$ $OFL = BIOMASS * EMSY * DISTRIBUTION$ $ABC = BIOMASS * BUFFER * EMSY * DISTRIBUTION$ ACL = less than or equal to the ABC	Section 4 of the CPS FMP April 2026 - Scoping an Amendment to Revise the Sardine Stock Definition in Agenda Item F.5, Attachment 1 Joint Advisory Body Meeting July 2026 - Council/NMFS Staff Review of Pacific sardine Management Provisions - Joint Meeting Report September 2026 - Proposed ROA for management provisions in Agenda Item J.1, Attachment 3

		DISTRIBUTION can be set to 1 for the U.S. stock	- J.1.a, Supplemental SSC, CPSMT reports Previous analyses - 1998 Amendment 8 MSE - 2014 MSE (Hurtado-Ferro & Punt)
MSST	NS1 and technical guidance Life history of the stock Objective and measurable criteria based on BSIA	The Council must specify objective and measurable criteria to track overfished status of the stock. The SSC recommended use of a depletion-based formula and reasonable proxy over specification of a single static value defined in the FMP considering the species life history and ability to uptake dynamic BSIA on the stock. The formula or a proxy may be calculated in a given harvest specifications cycle. 10-30% B_0 covers the range utilized for small pelagic species with similar life histories. Other Councils specify flexible SDCs, including use of a reasonable proxy, to allow for uptake of BSIA. Such a framework would allow the Council to implement adaptable management that readily uptakes BSIA to calculate an MSST via the formula or reasonable proxy	National Standard 1 Guidance Technical Guidance (Restrepo et al. 1998, Methot et al. 2025, Karp et al. 2019), summarized in Agenda Item J.3.a, NMFS Report 1, November 2026 2016 Review of CPS MSSTs (NMFS 2016) Flexible SDC White Paper (NMFS 2024) SSC Recommendations • July 2026 SSC-CPSSC Report • September 2026 J.1.a, Supplemental SSC Report
CUTOFF	CPS FMP management objectives Evaluation of relative benefit of CUTOFF values via MSEs after development of a range	The CUTOFF is not a required element of fishery management, but meets specific CPS management objectives A range of 50,000 mt – 314,400 mt are expected to provide benefit to the stock based on evaluations of the HG through MSEs. A value of	1998 Amendment 8 MSE (analyzed 0-150,000 mt) 2014 MSE (Hurtado-Ferro & Punt; analyzed 0, 50,000, 150,000, 314,400 mt) CPSMT statements

		100,000 mt or greater is expected to provide greater benefit, while a value of 314,400 mt is expected to have negative impacts on average catch without additional expected benefit to the stock.	• July 2026 Report • J.1.a, September 2026 Supplemental Report
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