

PROPOSED TERMS OF REFERENCE

Review of Net Change in Acoustic-Trawl Method Survey for Data Used in Coastal Pelagic Species Stock Assessments

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Southwest Fisheries Science Center, La Jolla, CA

BACKGROUND

The NOAA Southwest Fisheries Science Center (SWFSC) conducts Coastal Pelagic Species (CPS) surveys (aka California Current Ecosystem Surveys) to collect data used to inform management of federally-managed fisheries. CPS surveys using the acoustic-trawl method (ATM) have been conducted since 2006 and data from these surveys are used in CPS stock assessments, with a different subset of data years used for each stock based on data and review history. These CPS surveys have almost always taken place during the summer and sometimes during the spring; spring CPS surveys have not happened since 2021. The survey data is used to estimate species-specific biomasses, age compositions, and weight-at-age data used in stock assessments.

In 2025, the SWFSC integrated their summer CPS survey with the Northwest Fisheries Science Center's Joint U.S.-Canada Integrated Ecosystem and Pacific Hake Survey, since both surveys used the ATM along the U.S. West Coast. The resulting Integrated West Coast Pelagics Survey, commonly referred to as the "Integrated Survey", completed its inaugural survey during summer 2025.

The Integrated Survey still uses the ATM to collect survey data. Methods and gear remain primarily the same as used on the CPS survey, with the exception of switching to a new Multi-Function Trawl (MFT) Net from the Nordic 264 net used during prior CPS surveys. The MFT was designed in collaboration with industry experts to be able to trawl in both the mid-water for hake and at the surface for CPS. The dual fishing modality of the MFT increases safety and efficiency with the goal of providing comparable biological data for the target species. The MFT was first tested during December 2023 then used operationally by the SWFSC for the duration of the 2024 summer CPS survey, the data from which has been incorporated into the 2025 Pacific sardine stock assessment update. The intent is to use the MFT as part of the ATM on the Integrated Survey for collecting survey data on CPS moving forward.

The NOAA National Marine Fisheries Service (NMFS) and the Pacific Fishery Management Council (Council) are responsible for ensuring that new data sources related to the assessment and management of CPS, including new survey designs and proposed changes to existing surveys, are peer-reviewed via the methodology review process. The Council developed a Terms of Reference (ToR; [PFMC 2024, Methodology Review Process for Groundfish and Coastal Pelagic Species for 2025-2026](#)) to guide the review of methodologies. For each individual review, a meeting-specific ToR is produced to provide guidance on key questions to be addressed, additional background information, and to describe expectations relevant to the specific review. This document constitutes the meeting-specific ToR that will be used to guide the 2026 methods review of the switch to the MFT net on NOAA's Integrated West Coast Pelagics Survey for collection of survey data used in CPS stock assessments.

SCOPE

The intent of this methodology review is to evaluate the continued ability to use Integrated Survey data in CPS stock assessments, given the switch to the MFT. Prior summer CPS surveys produced survey data for use in stock assessments of Pacific sardine, Pacific mackerel, and northern anchovy that form the basis for setting harvest guidelines. These three stocks are the focus species for this review.

The methodology review panel will address the following questions:

- 1) Has the switch from a Nordic 264 to the new MFT net on the Integrated Survey resulted in important changes to the species- and length-selectivities?*
- 2) If so, have these changes resulted in important changes in the survey-derived data inputs for the stock assessment (biomass, age composition, weight-at-age)?*

The methodology review panel will review the Integrated Survey and its results within the scope of these questions and in the context of recent stock assessment documents. As an outcome, the methodology review panel will provide recommendations regarding whether the Integrated Survey's survey data outputs can be utilized in future CPS stock assessments, and if not what additional research is needed for this to be possible. The panel will also recommend research topics organized by priority (high, medium, low based on likelihood of influencing estimation of the inputs to the assessments for the three species) and anticipated time frame for completion (near-term, mid-term, long-term) for NMFS and Council consideration.

MATERIALS TO BE PROVIDED

The methodology review panel will be provided with a full set of documentation to allow for this evaluation. The SWFSC plans to present the following information for reviewers:

1. Presentations and analyses:
 - a. Results and recommendations from paired trawling tests in other systems and resource considerations as rationale for switching from the Nordic 264 to the MFT without extensive paired trawling.
 - b. Specifications of both the Nordic 264 and MFT net systems, including dimensions of nets and doors, mesh sizes, and mesh-size transitions.
 - c. Performance of the Nordic 264 and MFT nets during fishing, including sampling depth and vertical and horizontal spread of the net mouth opening.
 - d. Methods and biomass estimation from the 2025 Integrated Survey.
 - e. Species- and length-selectivity comparisons between the Nordic 264 and MFT nets.
 - f. Statistical comparisons of length-selectivity between the Nordic 264 and MFT nets for effects on survey-derived age composition and weight-at-age estimates.
2. Background documentation:
 - a. [NOAA Tech memo documenting MFT development](#) (Shaughnessy 2025)

- b. [Methods and biomass estimation from the 2024 summer CPS survey](#) (Stierhoff et al 2025): when the MFT was first used
- c. [Methods and biomass estimation from the 2023 summer CPS survey](#) (Stierhoff et al 2024): when the Nordic 264 was last used
- d. [2025 update stock assessment for Pacific sardine](#) (Allen Akselrud et al 2025): used 2024 survey data stemming from first MFT use
- e. [2024 benchmark stock assessment for Pacific sardine](#) (Kuriyama et al 2024): used 2023 survey data stemming from last Nordic 264 use
- f. [2025 update stock assessment for Pacific mackerel](#) (Jensen et al 2025): survey data all gathered using Nordic 264
- g. [2021 benchmark stock assessment for northern anchovy](#) (Kuriyama et al 2022): survey data all gathered using Nordic 264

REVIEW CHARGE

The methodology review panel will do the following:

1. Review materials provided to the panel at least two weeks ahead of the panel meeting.
2. Travel to and actively participate in the review meeting.
3. Answer the following:
 - 1) *Has the switch from a Nordic 264 to the new MFT net on the Integrated Survey resulted in important changes in the species- and length-selectivities?*
 - 2) *If so, have these changes resulted in important changes in the survey-derived data inputs for the stock assessment (biomass, age composition, weight-at-age)?*
4. Recommend research topics organized by priority (high, medium, low based on likelihood of influencing estimation of the inputs to the assessments for the three species) and anticipated time frame for completion (near-term, mid-term, long-term).
5. Provide a recommendation on the use of the Integrated Survey and its data outputs in CPS stock assessments.
6. Produce a final consensus (or majority) panel report describing all of the above and meeting the conditions of the overarching [methodology review process ToR](#), to be submitted for consideration by the Council and NOAA's SWFSC.

REFERENCES

Allen Akselrud, C., Jensen, A.J., Kuriyama, P.T., Hill, K.T., and Zwolinski, J.P. 2025. Update assessment of the Pacific sardine resource in 2025 for U.S. management in 2025-2026. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-719.
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