

## COASTAL PELAGIC SPECIES MANAGEMENT TEAM REPORT ON THE STOCK ASSESSMENT PRIORITIZATION PROCESS

In April 2018, the Pacific Fishery Management Council (Council) tasked the Southwest Fisheries Science Center (SWFSC), the Scientific and Statistical Committee (SSC), and the Coastal Pelagic Species Management Team (CPSMT) develop a stock assessment prioritization process for CPS stocks that provides an opportunity for Council input and guidance, similar to the process used for groundfish stocks. For this task, the CPSMT describes the current process for CPS finfish stocks, provides an example of a prioritization worksheet similar to what was done for groundfish, and evaluates the utility of the prioritization process used for groundfish stocks, as well as the national framework for stock assessment prioritization<sup>1</sup>. Market squid was not included in the example worksheet of a stock assessment prioritization process because they are so short-lived (less than 1 year) and traditional stock assessments are not practical and may not be feasible.

### Current Process

As the CPSMT describes in its review of CPS management categories (Agenda Item E.5.a, CPSMT Report 1), management categories (i.e., Active, Monitored, and Prohibited) for stocks in the CPS Fishery Management Plan (FMP) reflect management need, which also inherently influences stock assessment prioritization. The Active category denotes stocks and fisheries with biologically significant levels of catch, or other biological or socioeconomic considerations warranting relatively intense harvest management procedures, e.g., regular stock assessments and annual harvest specifications. In contrast, the Monitored category includes stocks and fisheries for which there is limited fishing effort and/or overfishing is not a concern; therefore, tracking landings against precautionary harvest limits and monitoring available abundance indices and other biological information are sufficient to sustainably manage the stock against multi-year overfishing limits, acceptable biological catch, and annual catch limits and to prevent overfishing.

For stock assessments of Active category stocks, the Council has utilized full assessments, update assessments, and more recently catch-only projections. Currently, the Pacific sardine resources receives a full assessment every three years, with update assessments in intermediate years. Assessment of Pacific mackerel had previously followed a similar pattern; however, in June 2013 the Council adopted a new schedule for Pacific mackerel: full stock assessments every four years starting in 2015, alternating with catch-only projection estimates every four years, in off-science years. The new schedule reflected lower fishery management needs over several preceding years that were expected to continue (i.e., low fishing effort and low catches compared to stock size) and allowed more of the limited assessment capabilities to be allocated to other CPS stocks.

Monitored stocks have not been regularly assessed, but they are not precluded from quantitative assessment at any time, based on management need and data availability and quality. In addition, non-quantitative assessments (e.g., analyses and reviews) of available information from survey results or abundance indices may be conducted for any stock at any time, which is also part of the annual stock assessment and fishery evaluation (SAFE) review for Monitored stocks.

### National Framework for Prioritization and Groundfish Process

As described for stock prioritization of groundfish (March 2018 [Agenda Item H.4, Attachment 1](#)), the national prioritization framework is intended to help in synthesizing a broad range of relevant information in a manner that can more clearly identify which species should be considered for assessments, and the type and frequency of assessment. The ranking process is a tool to focus discussion on species where new assessments may have the greatest potential to enhance fishery benefits or reduce the potential for future fishery losses, but it is not intended to replace the discussion and deliberation of the Council process.

With only five finfish stocks as management unit species in the CPS FMP, a rigorous scoring process to prioritize stock assessments, like for groundfish species, has not been undertaken. The CPSMT reviewed the Technical Memorandum “Prioritizing Fish Stock Assessments” published by the National Marine Fisheries Service (NMFS) and considered the factors in the prioritization framework and their applicability to CPS finfish stock assessments. To provide an example to guide discussion, the SWFSC drafted a modified version of the NMFS prioritization workbook (June 2018 Agenda Item E.3) to apply to CPS (see Figure 1 below). As with the groundfish scoresheet, data and expert opinion would be used to score and weight factors for each stock and the results would inform the ranking or priority for assessment. At present, of the five CPS finfish stocks, sardine and Pacific mackerel are inherently prioritized for regular assessments and commensurate with their designation to the Active management category. For the three remaining finfish stocks, the CPSMT believes the prioritization framework may not provide useful results for prioritizing assessments among them. Because the framework factors (fishery importance, stock status, ecosystem importance, assessment information, and stock biology) for these three stocks are so similar, the resultant scores are also likely to be the same or very similar. Another important consideration for selecting any species for assessment is whether the available data are adequate to conduct the desired level of assessment. The recent review of the status of the central substock of northern anchovy (CSNA) provides an example where even if the Council were to prioritize the CSNA for assessment, the methodology review report (April 2018, Agenda Item C.3, Attachment 2) stated that the acoustic-trawl method survey estimates will not be adequate for assessments until the area inshore of the survey is addressed and an ageing program has been established to estimate abundance at age. In its management categories report (Agenda Item E.5.a, CPSMT Report 1) the CPSMT describes the correspondence between groundfish species categories and CPS management categories based on quality and quantity of data.

The Council’s decisions about the frequency and type of stock assessment typically have been made for a single stock, when harvest levels or other fishery management measures for that stock are being considered. Rather than executing a stock prioritization process each year, the CPSMT analyzes several aspects of each stock, highly similar to the National Prioritization Process, in determining whether to move a CPS stock from Monitored to Active and vice versa. Figure 2 compares the main components of the prioritization framework to the CPS category assignment process. The major difference is that a large portion of the National Prioritization Process analysis is already frame-worked into the CPS management categories. For example, rather than determining a “Target Assessment Level” and “Target Assessment Frequency” on an annual basis, both of these stock prioritization steps are predetermined for each CPS category by definition and need. Rather than making decisions on CPS stock assessments annually, assignment to a CPS category incorporates that decision upfront and maintains it on an ongoing basis.

Should the Council desire to move ahead with the national framework approach for CPS, the CPSMT could take a closer look at the factors listed in Figure 1, along with the scoring range and weighting factors and provide a more in-depth report at a later Council meeting. Additionally, in its management categories report (Agenda Item E.5.a, CPSMT Report 1), the CPSMT has proposed to add a new section to the SAFE document to better describe the information used in analyzing the need to recategorize CPS stocks. Several similarities already exist, as previously stated, between the analysis in the National Prioritization Process and the analysis that determines CPS stock assignments to either the Active or Monitored categories.

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<sup>1</sup> Methot Jr., Richard D. (editor). 2015. Prioritizing fish stock assessments. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-F/SPO152, 31 p.

	Factor #	Factor	Determine Annual Priorities	Target Assessment Frequency	Scoring Based On	Scoring Range	PSDN	PMCK	JMCK	CSNA	NSNA	Factor Wtg
Fishery Importance	1	Commercial Fishery Importance	X	X	PacFIN Ex-Vessel Revenues (e.g. 2012-2017)	0 to 5						
	2	Recreational Fishery Importance	X	X	Regional fisheries expert opinion	0 to 5						
	3	Importance to Subsistence	X	X	Regional fisheries expert opinion	0 to 5						
	4	Rebuilding Status	X	X	National stock status database	0 or 1						
	5	Constituent Demand	X	X	Regional fisheries expert opinion	0 to 5						
	6	Non-Catch Value (Omit for CPS???)	X	X	Regional fisheries expert opinion	0 to 5						
Stock Status	7	Relative Stock Abundance	X		Most recent SSB and target/threshold levels, as available from SIS	1 to 5						
	8	Relative Fishing Mortality	X		Most recent SSB and target/threshold levels, as available from SIS	1 to 5						
Ecosystem Importance	9	Key Role in Ecosystem	X	X	Maximum of bottom-up and top-down components; assigned by regional fisheries expert opinion	1 to 5						
Assessment Information	10	Unexpected Changes in Stock Indicators	X		Regional fisheries expert opinion, where indicators are available	0 to 5						
	11	New Type of Information	X		Regional fisheries expert opinion	0 to 5						
	12	Years Assessment Overdue	X		Calculated: year for setting priorities - year of last assessment - target assessment frequency + 1 year	0 to 10						
Target Assessment Frequency	13	Mean Age in Catch		X	Recent average of mean age; direct measurement or assessment estimates	value						
	14	Stock Variability		X	CV for recruitment from assessment estimates	-1 to 1						

Figure 1. Example of CPS scoresheet based off NMFS prioritization workbook.

Figure 2. Comparison of the main components of the prioritization framework to the CPS category assignment process.

