

COASTAL PELAGIC SPECIES ADVISORY SUBPANEL REPORT ON THE  
PACIFIC SARDINE REBUILDING PLAN – FINAL ACTION

The Coastal Pelagic Species Advisory Subpanel (CPSAS) reviewed the various reports submitted for this agenda item and attended the online Scientific and Statistical Committee (SSC) meeting on September 9 to listen to discussion of the sardine rebuilding analysis and rebuilding plan. We commend the modelers for their dedication to produce the rebuilding model and analysis. We also compliment the Coastal Pelagic Species Management Team (CPSMT) for their thoughtful reports, including a socio-economic analysis of the alternatives ([Agenda Item G.1.a, Supplemental CPSMT Report 3](#)).

We concur with the many statements sprinkled throughout the subject reports that highlight the dynamic cycles of sardines and the uncertainties inherent in attempting to develop a rebuilding model in light of the acknowledgment that at present the Rebuilder tool, as applied to Pacific sardines, does not model environmental variability and population dynamics.

Scientists agree the sardine resource rises and falls dramatically, even without fishing pressure. The directed fishery has been closed since 2015, but according to the 2020 stock assessment, the biomass has continued to decline with no evidence of recruitment. California CPS fishermen contest this conclusion.

The CPSAS agrees with the CPSMT that the harvest control rule has the flexibility to reduce harvest as the population declines and also provides the Council the flexibility to restrict fishing when the stock is overfished if the Council chooses.

At the SSC webinar, we heard that the Rebuilder tool takes into consideration the current environment and that the analysis will be updated when more information is obtained – nothing is set in stone. The National Marine Fisheries Service (NMFS) is required to review rebuilding plans every two years. In light of the uncertainties expressed in this modeling exercise, and considering that the full coastwide Acoustic Trawl survey was cancelled in 2020 due to COVID-19 restrictions, we recommend the rebuilding plan be reviewed as soon as possible after the next survey and stock assessment are conducted, which is anticipated to include a coastwide assessment of the nearshore biomass.

Lack of recent recruitment in the model concerns California fishermen who drive by school after school of sardines (in waters below 62° F, northern stock) on a nearly daily basis and find it increasingly difficult to avoid them. The time series used in the Rebuilder model and analysis was limited to relatively recent data, primarily years when the fishery and the stock were declining; in effect modeling long-term projections based on short-term observations. While we understand the modelers followed the Terms of Reference and that models should represent current environment conditions, the CPSAS also recommend that future reviews of the rebuilding plan include Rebuilder model runs that are based on a full time series of recruitments for all management alternatives.

## Alternatives

A majority of the CPSAS support Alternative 1, “status quo,” which provides the Council the opportunity to retain harvest rates at least equal to catches made in the past five years, while providing the flexibility to adjust the harvest rate in response to rebuilding progress.

One member of the CPSAS recommends the Council adopt Alternative 3 (5 percent US harvest rate).

### Rationale for Alternative 1 as recommended by a majority of the CPSAS:

Alternative 1 (status quo), as modeled, assumes full attainment of the allowable biological catch (ABC) although actual catch levels over the past 5 years have been less and represent less than one percent of the northern subpopulation of sardines which approaches assumptions modeled in Alternative 2 (zero US harvest rate). (Agenda Item G.1, Attachment 1, September 2020)

We note that true status quo includes the flexibility to adjust harvest limits by setting annual catch targets below the annual catch limit (ACL) and the ABC and set accountability measures to maintain catches below the ACL. We point out that the 20 percent incidental harvest rate is the bare minimum that the fishery can live with and survive because this low rate already restricts catches of CPS and market squid. Fishermen in California increasingly report having to forego catches of anchovy, mackerel, and squid because there are too many sardines in the set. This problem was noted in the CPSMT Environmental Analysis 3.2.4 [p.11]. The average ex-vessel value of the California squid fishery in 2012-2016 was \$54.7 million. ([CDFW Commercial Landings Data](#)). The 2012-2016 ex-vessel value of the Pacific whiting fishery, which also takes sardines incidentally, was \$51.5 million. In addition, the multiplied value of the live bait fishery, whose direct catch landings represent the bulk of the sardine harvest, is an estimated \$1.3 billion. (Agenda Item G.1, Attachment 1, September 2020)

In addition to the flexibility afforded the Council under Alternative 1, the CPSMT Environmental Analysis noted: “the fishery is already heavily restricted under status quo, and it is unclear if reductions in annual catch in Alternative 3, would allow the stock to actually rebuild any faster.”

A majority of the CPSAS agree, in light of the uncertainty of rebuild model projections, reducing catch further (i.e. 1,400 mt that would be required by Alternative 3 at current biomass levels vs. 2,300 mt average catch under status quo) would not guarantee rebuilding any faster than status quo management, but the sharp reduction would likely create economic hardship, threatening the viability of all the fisheries that interact with sardine. In addition, a static 5 percent catch limit until the stock is declared rebuilt would limit catches when the stock becomes more productive. Thus Alternative 3 would not achieve Optimum Yield. It is also important to consider that most of the catch in southern California may be southern stock, which is counted as northern stock for the sake of management, although that biomass is excluded from the “northern” sardine assessment. Southern stock sardines are not declared overfished and fishermen should not be restricted from catching them.

The rationale for Alternative 3 as recommended by one member of the CPSAS:

One member of the CPSAS recommends the Council adopt Alternative 3 (5 percent US harvest rate) with the following rationale: Under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), NMFS must ensure the catch limits it authorizes end overfishing and rebuild the population. If the rationale is that the fishery is going to catch something lower than the ACL and that number will successfully rebuild, NMFS must use that lower number as the ACL in the rebuilding plan. Allowing flexibility for the Council set catch limits higher than the level that will allow successful rebuilding is inconsistent with MSA rebuilding requirements. Furthermore, Alternative 1 underestimates catch levels allowed under status quo management and thus underestimates the impacts on rebuilding. Alternative 1 sets allowable catch at an ABC rate of 12.16 percent of B1+ biomass, whereas in the last 5 years, the actual ABC rate has been over 16 percent of B1+ biomass (Agenda Item G.1.a. September 2020, NMFS Report 1 Table 1).

The CPSMT economic analysis, based on the Rebuilder model output, found that Alternative 3 results in higher projected catch value streams, shorter rebuilding times, and lower reductions in catch than Alternative 1 (status quo). Alternative 3 provides for continued incidental catch and live bait fisheries, while reducing the risk of further declines and delayed rebuilding. As stated in CPSMT Report 3, contrary to all other alternatives, *“under Alternative 1 the Pacific sardine is not projected to rebuild at a 50 percent probability by the end of the reporting period in 2050.”* And further, *“median projected catch under Alternative 1 falls to 43 percent of the benchmark, whereas under Alternative 3 it falls to 88 percent of benchmark”*. The CPSMT Report 3 states that *“By both measures [present value of stream of value and time the fishery is in an unconstrained status], the fisheries under Alternative 3 are projected to have a higher value than under Alternative 1”*. Relative to Alternative 1, Alternative 3 better prevents further declines in the sardine population, thereby reducing the time to rebuild when the stock becomes highly productive. Alternative 3 also reduces risk to fishing communities, as it reduces the chance of further declines that lead to more severe catch restrictions. Alternative 3 is consistent with the original intent of the CPS Fishery Management Plan to set sardine catch limits at 5 percent during periods of low sardine productivity.

In conclusion, the CPSAS encourages the Council and NMFS, working through the U.S. State Department, to continue efforts to achieve coordinated research and management with Mexico for all CPS, including both the northern and southern sardine subpopulations.

PFMC  
09/14/20