

COASTAL PELAGIC SPECIES MANAGEMENT TEAM REPORT ON AMENDMENT 17:  
LIVE BAIT FISHERY ALLOWANCE FINAL ACTION

At the September 2018 Council meeting, the Coastal Pelagic Species Management Team (CPSMT) submitted a report (Agenda Item C.1.a, CPSMT Report 1, September 2018) with a range of alternatives for a possible Coastal Pelagic Species (CPS) Fishery Management Plan (FMP) amendment regarding live bait fishing when a CPS stock is overfished, as well as a supplemental report describing live bait operations (Agenda Item C.1.a, Supplemental CPSMT Report 2, September 2018). Based on Council discussion and guidance from the September meeting, the alternatives are as follows:

**No Action Alternative 1, Status quo:** This alternative would maintain the current regulatory approach for live bait fishing, including the FMP provision that restricts live bait fishing to a 15 percent incidental allowance when a stock is in an overfished condition. Live bait landings would still be accounted for and would count against the annual catch limit (ACL). The live bait industry would be able to target pure or mixed loads as they wish, unless a stock were to be declared overfished. In that case, the 15 percent incidental landing limit would apply to all CPS live bait fishing. The Council and the National Marine Fisheries Service (NMFS) would still have the authority to apply management measures as needed, when a stock is overfished and when it is not.

**Alternative 2, Remove the prescribed incidental allowance for live bait fisheries to allow the potential for directed take and amend the FMP accordingly:** This alternative would remove the predetermined incidental allowance for live bait fishing when a CPS stock is in an overfished condition. FMP sections 4.6.2.1 and 5.1.4 would be amended as indicated in underlined/ strikethrough text in Attachment 1. Landing limits and other management measures would be established by the Council and NMFS as part of a rebuilding plan and/or when setting annual management measures when a stock is overfished. The process to determine appropriate catch levels and associated management measures would be similar to how the Council has set catch levels for the past four years for sardine while it has been below the CUTOFF value of 150,000 metric tons. The proposed change to Section 4.6.2.1 is intended to comport with Alternative 2 to allow Council consideration of a directed sardine live bait fishery when sardine is overfished. A prohibition on directed commercial fishing of a CPS stock when overfished remains in place under Section 5.1.1 of the FMP.

The CPSMT recommends selection of Alternative 2. The CPSMT developed proposed amendatory language to the CPS FMP in order to provide the Council the ability to either set incidental catch allowances or allow directed fishing in the live bait fishery when a CPS stock is overfished. This action would allow future management measures on live bait fishing to be based on the consideration of variables such as stock status, stock mixing, and fishery priorities during each management cycle or under a developed rebuilding plan without being restricted to predetermined limits. The CPSMT recommends the FMP language revisions in Attachment 1 for Council consideration.

The impacts of either Alternative are difficult to predict, although the CPSMT anticipates that the biological impacts would remain generally the same regardless of which Alternative is selected.

Landings of any given stock would still be subject to an ACL. Attachment 2 of this report includes a qualitative discussion of potential economic impacts, which are also difficult to predict with certainty.

The CPSMT recognizes that Alternative 2 does not imply that allowing directed harvest by the live bait fishery would be an appropriate management measure under all scenarios with current state and Federal reporting requirements and catch monitoring. Although the Council has been able to account for the existing management uncertainty associated with the catch in this sector to date, certain stock sizes or calculated overfishing limit (OFL) and acceptable biological catch (ABC) levels may not make directed harvest a feasible option. Therefore the proposed revised language in this statement does not preclude the Council from disallowing directed harvest, or setting an incidental limit or other harvest restrictions. However, as stated in the September 2018 CPSMT report (Agenda Item C.1.a, Supplemental CPSMT Report 3, September 2018), the CPSMT does see scenarios where management measures could continue to appropriately account for directed harvest when a stock is in an overfished condition and allow for rebuilding, such as in the last four years. Under current management, the sustainable take for a CPS stock is set by a stock-specific OFL, ABC, and ACL. It is likely that the same control rules for calculating these for Pacific sardine would be used whether the stock is overfished or not. For example, a 2019 sardine biomass estimate of 35,000 mt (compared to the 2018 estimate of 52,065 mt) would produce an OFL value of 7,613 mt and a corresponding ABC ( $P^*=0.40$ ) value of 6,343 mt. Based on existing management uncertainty and the recent catch from the various sectors, this ABC may very well be sufficient to allow a directed live bait fishery to proceed, even as the stock is in an overfished status.

With the closure of the directed sardine fishery since 2015, the CPSMT has annually provided the Council with recommendations on ACLs based on projections and needs of the various fishery sectors, including live bait and incidental catch limits for other commercial CPS fisheries so as to ensure that the catch does not exceed the OFL or ABC. These recommendations considered current fishery operations and potential levels of stock mixing, and have allowed other commercial CPS fisheries to continue while still limiting the harvest of sardine well below the levels necessary to prevent exceeding the overfishing limit, and therefore presumably allowing rebuilding to occur when ocean conditions become favorable. The CPSMT foresees a similar process should a CPS stock become overfished – evaluating fishery sector needs and providing recommendations to the Council for setting landing limits.

The CPSMT has stated in previous reports and reiterates that the live bait fishery (primarily California) relies on directed take to satisfy the demand from the recreational fishery. This practice reflects the market demand for pure loads of either anchovies or sardines, based on use of either species for specific target species, durability of sardine for longer trips, and survivability and quality of bait.

In the course of reviewing the CPS FMP for how to make the appropriate amendatory changes, the CPSMT recognized that other changes could potentially be made to provide for greater clarity and consistency in the future. For example, references to live bait harvest within Chapters 4 and 5 of the FMP could be revised and reorganized to better describe fishery allowances under CPS stock status conditions. The CPSMT sees value in making these changes as part of a larger FMP housekeeping task in the future.

## **Attachment 1: Proposed FMP Language**

### **4.6.2.1 Definition for Overfished Stock for Sardine**

An overfished sardine population is one with a 1+ stock biomass on July 1 of 50,000 mt or less. ~~No directed fishing is allowed in any year or season while the stock is overfished.~~ The Council is required to minimize fishing mortality on an overfished stock to the extent practicable and to undertake a rebuilding program which may be implicit to the harvest control rule or explicit.

### **5.1.4 Incidental Catch Allowances for Live Bait When Stocks are Overfished**

When a stock is overfished according to the definition of overfishing in the FMP, incidental catch allowances for live bait fishing may ~~shall be set to no more than 15 percent of landed weight,~~ as determined by the Council. Allowing a directed live bait fishery when a stock is overfished is contingent on Council consideration of biological, environmental, and socio-economic factors. The Council is required to minimize fishing mortality on an overfished stock to the extent practicable and to undertake a rebuilding program, which may be implicit to the harvest control rule or explicit.

## **Attachment 2: Discussion of Potential Economic Impacts**

The economic impacts of the Amendment 17 alternatives under consideration are difficult to assess because changes in fishing behavior are unknown, and the live bait fishery has never been subject to incidental-only landings before. However, if we assume that live bait fishing on an overfished stock would cease or be severely curtailed, we can speculate how that might affect the live bait, recreational, and commercial albacore fisheries. This discussion is focused on the California live bait fishery, although the underlying assumptions, impacts, and decisions could be similar in the Oregon and Washington live bait fisheries.

### **Potential Economic Impacts on the California Recreational Fishery from Restrictions on the California Live Bait Fishery**

California boat-based saltwater recreational fishing activity typically utilizes live bait in the targeting and catch of a myriad of target species. The degree of live bait utilization and the preferred live bait species are expected to vary by target species, target species preferred prey, and live bait availability. These factors vary both spatially and temporally – both on an inter- and intra-annual basis. Data gaps exist in catch and economic data for live bait harvest and use, and further analysis would benefit from increased data coverage. However, with the information available, we can make some general statements about economic behavior and potential impacts.

Although live bait is utilized throughout California, its use is spatially concentrated south of Point Conception (Southern California). This is due to a variety of factors, including target species availability and the corresponding recreational opportunities which are also dependent on external factors such as sea-state, live bait, and business factors. In Southern California, boat-based recreational anglers take part in a variety of marine sportfishing trips. These trips are commonly classified as offshore - targeting highly migratory species, such as bluefin tuna; nearshore - targeting species such as white sea bass; and groundfish trips - targeting rockfish. Offshore trips typically utilize sardine and anchovy live bait; nearshore trips utilize squid live bait in addition to sardine and anchovy; groundfish utilize dead bait in addition to live bait of all three species. Recreational anglers have a variety of bait options to select from; these include several species of live bait, several species of dead bait, and artificial bait. Recreational bait selection is driven by a variety of factors including: what the target sportfish species responds to, longevity / durability on a fishing trip, availability, established fishing methods and equipment, and cost.

In Southern California, the live bait fishery has supported the recreational fishery since at least the 1930s; as such, the live bait fishery and both the private vessel and commercial passenger fishing vessel (CPFV) fisheries have developed together. Both private vessel owners and CPFV owners and captains consider live bait to be a necessary input to their private recreational fishing and recreational fishing businesses, respectively.

Evidence of the degree of dependence on live bait of the private vessel and CPFV recreational fleets can be seen in both the development and utilization of fishing technologies, and business relationships with the live bait operators. Live bait-specific technology such as live bait wells with water circulation technology aboard private vessels and CPFVs, and live bait specific sportfishing tackle require financial investment, and utilize space on vessels that would be otherwise used for additional passengers or other uses. In terms of business relationships between the live bait and

CPFV industries, bait expenditures are the third highest business cost for CPFV operations statewide – behind payroll and fuel costs- accounting for an average of 9.3 percent of total vessel annual revenues based on a 2013 survey of CPFV business expenses and revenues (Hilger & Lovell, 2017 <https://doi.org/10.7755/MFR.79.3-4.3>).

**The live bait fishery supports private and CPFV supported sportfishing, which provide economic benefits to recreators, fishing-related businesses, and the general economy.**

Although recreationally caught finfish on California trips cannot legally be sold, participation in recreational fishing generates economic value in the form of consumer and producer surplus, and also generates regional economic impacts. Individual anglers gain economic value through the consumption of goods and services; this value that anglers place on a good or service is defined as their willingness to pay for that good or activity. In general, the presence of positive characteristics – such as high catch-rates – increase willingness to pay for a good or service; conversely, the presence of negative characteristics – such as low catch rates – decrease willingness to pay.

At the same time, private vessel and CPFV trips are made possible by a myriad of businesses across diverse sectors of the economy. These businesses include tackle and equipment manufacturers, tackle shops, restaurants, hotels, fuel docks, marinas, CPFVs, landings, and live bait supplies.

Regulations that limit a firm’s operations or increase costs to a firm will, in general, result in the firm decreasing services and/or raising prices. Regulations that limit an angler’s ability to or expectation of having a successful recreational fishing trip can reduce an angler’s willingness to pay. Either scenario may result in a reduction of the number of trips taken, depending on the degree to which anglers choose to substitute to alternative fishing activities and/ or non-fishing activities. A decrease in the number of CPFV trips taken or prices may also result in a reduction in trip expenditures and attendant multiplier effects of recreational fishing, thereby resulting in negative economic impacts. These economic forces apply to both private vessel and CPFV-based trips.

**Uncertainty in impact of closing live bait fishery.**

There is insufficient data and understanding of fish population and predator-prey dynamics, and recreational catch rate sensitivities to bait species selection to be able to forecast the impact of a change to the incidental catch allowance for Pacific sardine or of a sardine live bait closure on private vessel and CPFV fishing operations and outcomes.

Similarly, there is insufficient data to model the substitution patterns for recreational sportfishing trips due to changes from current and historic conditions to expected conditions under the management actions under consideration.

Additionally, there are examples of recreational fisheries less dependent on live bait targeting highly migratory species, such as tuna sportfishing in the eastern United States and Australia. It should be noted that these fisheries evolved without the live bait infrastructure that co-developed with the California fishery. It is unclear to what degree these alternative methods may be successfully applied in California, and the economic impact of the transition.

Maintaining the current 15 percent incidental landing limit (Status Quo Alternative) may lead to direct and indirect economic costs through decreasing the availability of live bait. The effects of reducing live bait availability on California recreational fisheries and related businesses may be negative, immediate, and potentially substantial depending on: the availability of substitute live bait species; the impact on target species specific catch rates of live bait species substitution; the degree at which anglers substitute away from current fishing practices to alternative fisheries and/or non-fishing activities; the ability of firms to adopt to new fishing practices, technology, capital, and business and marketing practices.

PFMC  
10/10/18