

HIGHLY MIGRATORY SPECIES MANAGEMENT TEAM REPORT  
ON STANDARDIZED BYCATCH REPORTING METHODOLOGY

The Highly Migratory Species Management Team (HMSMT) reviewed the HMS fishery management plan (FMP) and considers that the Standardized Bycatch Reporting Methodology (SBRM) in the FMP and implementing regulations meets the purpose of an SBRM, but that the HMS FMP lacked adequate descriptions of an SBRM. The HMSMT reviewed the draft Amendment language in Attachment 1 and discussed the four factors when establishing or reviewing an SBRM: 1) bycatch characteristics, 2) feasibility, 3) data uncertainty, and 4) use of resulting data. The HMSMT conducted a fishery-specific analysis of the descriptions in the HMS FMP and offers revisions to the draft Amendment language in Attachment 1 that describe the four factors. The proposed revisions to the Amendment are in Appendix A of this HMSMT report. HMSMT proposed changes are shown in red: deletions by ~~strikeout~~, insertions by underline, and moves by ~~double strikeout~~/underline.

The HMSMT also considered that the Council recently adopted the amendment to authorize deep-set buoy gear (DSBG) and it may be implemented after an amendment to clarify the SBRM for fisheries in the HMS FMP. In Appendix B of this report, the HMSMT offers draft Amendment language for section 6.3.1 to describe an SBRM for a DSBG fishery.

## Appendix A

### DRAFT AMENDMENT TO THE FISHERY MANAGEMENT PLAN (FMP) FOR WEST COAST FISHERIES FOR HIGHLY MIGRATORY SPECIES (HMS) TO ADDRESS REQUIREMENTS FOR FMPS TO ESTABLISH A STANDARDIZED BYCATCH REPORTING METHODOLOGY

The document excerpts Section 6.3 in the HMS FMP to show proposed changes to the FMP text addressing requirements to establish a standardized bycatch reporting methodology as described at 50 CFR Subpart R. Deletions are shown with ~~strikeout~~ and insertions with underline.

#### 6.3 Bycatch Monitoring and Minimization

The MSA requires that bycatch in fisheries be assessed, and that the bycatch and bycatch mortality be reduced to the extent practicable. Specifically, National Standard 9 states that an FMP shall establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery and include conservation and management measures to the extent practicable and in the following priority: 1) minimize bycatch; and 2) minimize the mortality of bycatch which cannot be avoided.

~~Bycatch has been identified as a concern in HMS drift gillnet and longline fisheries and large vessel purse seine fisheries (see Appendix C). Anecdotal accounts indicate bycatch in the small vessel HMS purse seine and albacore troll fishery is relatively low, but these fisheries have not had formal observer programs. The harpoon fishery is thought to have little, if any, bycatch due to the selective nature of the gear.~~

##### 6.3.1 Standardized Bycatch Reporting Methodology

MSA Section 303(a)(11) requires that FMPS establish a standardized **bycatch** reporting methodology (SBRM) to assess the amount and type of bycatch occurring in any fishery managed under the FMP. An SBRM is an established, consistent procedure or procedures used to collect, record, and report bycatch data in these managed fisheries, and the methods may vary from one fishery to another. The SBRM is used to estimate bycatch as its defined by the MSA and includes fish which are harvested in a fishery, but which are not sold or kept for personal use and includes economic discards and regulatory discards. SBRMs, as described in the FMP, focus on reporting methods and inform procedures to assess bycatch and the development of measures to minimize bycatch or bycatch mortality (section 6.3.2).

~~This FMP requires that a SBRM be used to estimate bycatch in each of the fisheries managed under the FMP.~~

When developing this FMP, the Council examined existing bycatch reporting methodologies, and found that current logbook requirements for the various fisheries (states, NMFS and IATTC), together with periodic recreational fishing surveys and port sampling, have provided an important source of information on catch and bycatch for all HMS fisheries (Appendix C, section 5). Nonetheless, certain additional measures were considered to provide improved standardization of logbook reporting and better ground-truthing of the logbook data through pilot observer programs for some of the presently unobserved fisheries. Observer programs are authorized consistent with observer sampling plans prepared by NMFS (Section 6.2.3). All commercial and recreational party or charter/CPFV fishing vessels must maintain and submit to NMFS logbook records containing catch and effort statistics, including bycatch (Section 6.2.2). ~~These measures, together with existing reporting requirements, should provide for a comprehensive standardized bycatch reporting system. The framework procedure described in Section 5.1 may be used to implement additional bycatch monitoring measures as part of the SBRMs described in this FMP.~~

When designing and developing monitoring **data collection** programs ~~that constitute~~ under the SBRM, the Council and NMFS, in consultation with the states, considered the feasibility and need for various

monitoring methods in light of the level of bycatch in each fishery and the risk that such bycatch poses to affected fish stocks. ~~If conditions in a fishery change such that the amount or nature of bycatch changes~~Catch and bycatch characteristics for the fisheries managed under this FMP are addressed in this Section, and in further detail in Appendix C of the FMP and the Stock Assessment and Fishery Evaluation (SAFE) reports, which are updated annually. In addition to reporting catch and bycatch in Appendix C and the yearly SAFE reports, logbook data is used to report aggregated catch (including bycatch) and effort to the respective RFMOs and RFMO science providers, which use the information to produce stock assessments for HMS. SBRM for some HMS fisheries incorporates state-run programs sufficient for meeting federal requirements. ~~If conditions in a fishery change such that the amount or nature of bycatch changes, or a state-run program is no longer sufficient for meeting federal requirements,~~ the Council could use the framework procedures described in Section 5.1 to implement additional bycatch monitoring and reporting methodologies.

The authorized gear types enumerated in Section 6.1 define the following fisheries to which SBRMs apply:

- Surface hook-and-line fishery targeting albacore tuna
- Harpoon fishery
- Coastal purse seine fishery when targeting HMS MUS
- California large mesh drift gillnet fishery
- Pelagic longline fishery
- Recreational party/charter boat fishery
- Private recreational boat fishery

Appendix C also describes bycatch monitoring measures for the tropical tuna purse seine fishery. However, this fishery is not ~~currently~~actively managed under the HMS FMP, because no vessels in the fishery make landings on the West Coast. Conservation measures for the fishery are adopted by the IATTC and applied to U.S. vessels by regulations pursuant to the Tuna Conventions Act and the High Seas Fishing Compliance Act, rather than the MSA.

~~The components of SBRMs for the fisheries managed under this FMP, enumerated above, are briefly described in the following sections, which supplement the information provided in Appendix C (compiled during the original development of the FMP in the early 2000s). These sections also summarize the amount of bycatch in each fishery in support of the components of the SBRMs. The HMS SAFE may also incorporate related information such as bycatch estimates, bycatch assessment methods, and current mitigation measures, as appropriate.~~

### **Surface hook-and-line fishery targeting albacore tuna**

NMFS began collecting data from the fishery in 1974. Each year the SWFSC publishes a summary of the fishery and its associated statistics in an administrative report. Discard rates of non-marketable albacore are not known definitively, but limited observer sample data from the North Pacific albacore troll fishery during the 1990s indicated that these rates are likely low and if accounted for, would not substantially inflate the estimates of the landed catch. Typically, the troll fishery discards fish that are smaller than roughly 4.1 kg (58 cm or 2-year-old fish). According to information in Appendix C (Section C.3.2) small amounts of skipjack tuna, bluefin tuna, dorado, and billfish were observed as incidental catch and are generally sold according to data from the limited observer program run by NMFS (27 trips in 8 years) in the 1990s and in 2006, and from commercial landings data.

According to information compiled in Appendix C (Section C.3.2), the live bait boat component of this fishery is very selective in catching larger fish, so discards are low.

~~The SBRM Data collection for this fishery consists of under the SBRM includes a mandatory Federal logbook program. Logbooks provide information about bycatch through self-reporting. Given that available information does not indicate a concern for the amount or type of bycatch in the fishery, which can be characterized by type with reasonable certainty, logbooks represent the most feasible SBRM, given its data collection method for this fishery, as they are relatively low in cost compared to other methods such as onboard observers. Bycatch information is periodically presented in the aforementioned administrative reports prepared by the SWFSC, and any uncertainty arising from use of data collected by logbooks can be qualitatively described and considered in relevant analyses.~~

### **Harpoon fishery**

~~This gear is highly selective and it is likely that a bycatch in this fishery would be economic discards of swordfish or shark species, or fish not successfully harpooned and landed due to the highly selective nature of the gear. SBRM. Data collection consists of a self-reported logbook and commercial landing receipts are required for all participants to characterize effort, and catch, including bycatch. There is no observer requirement for the harpoon fishery. Due to the year to year variability in availability of swordfish in surface waters and the open access structure of the permits, the number of harpoon participants varies; but has remained relatively low and generally stable over time. The combination of all of these characteristics makes in the absence of comprehensive direct observation, it cannot be confirmed that absolutely no bycatch in this fishery of very little concern for the overall health of any stocks occurs. There are anecdotal accounts of individuals targeting unmarketable species such as blue shark with harpoon as “practice” for catching swordfish. However, these reports are not common or verified. Given the selective nature of this fishing gear to target one fish at a time and the status of the blue shark stock available off the U.S. West Coast, impacts of “harpoon practice” would have minimal impact to the blue shark population. Ultimately, the available information and the characteristics of the fishery indicate that bycatch is extremely low in the harpoon fishery. However, in the absence of comprehensive direct observation, it cannot be confirmed that absolutely no bycatch occurs. Due to the year-to-year variability in availability of swordfish in surface waters and the open access structure of the permits, the number of harpoon participants varies; but has remained relatively low and generally stable over time. Given that bycatch in this fishery is of very little concern for the overall health of any stocks, logbooks are the most feasible data collection method due to low cost, compared to other methods, such as observers.~~

### **Coastal purse seine fishery when targeting HMS MUS**

~~As documented in the HMS SAFE Report, the fishery only targets tunas, largely Pacific bluefin tuna, when available. Anecdotal accounts indicate bycatch in the small-vessel HMS coastal purse seine fishery is relatively low, but this fishery has not been subject to a formal observer program under the MSA or MMPA authority. This fishery is classified on the MMPA List of Fisheries as a Category III fishery with remote likelihood of and no known incidental death or serious injury of marine mammals. Bycatch that may occur would likely consist of tuna species (e.g., skipjack) discarded, although in the absence of comprehensive direct observations, bycatch estimates may be uncertain. This fishery is required to submit logbooks when targeting HMS MUS that provide information on kept and discarded catch by species. As described in Appendix C, Section C.3.6, the fishery only targets tunas, largely Pacific bluefin tuna, when available. Given that available information does not indicate a concern for the amount or type of bycatch in the fishery, which can be characterized by type with reasonable certainty, logbooks represent the most feasible data collection method. Logbooks are relatively low in cost compared to other methods such as onboard observers. Bycatch that may occur would likely consist of tuna species (e.g., skipjack).~~

### **California large-mesh drift gillnet fishery**

~~Bycatch has been identified as a concern in this fishery (see Appendix C), although the majority of non-target finfish catch is marketable and usually retained. The most common bycatch species are mola mola~~

and blue shark, with observer data indicating that the vast majority of mola and a large proportion of blue shark are returned alive. While the post-release mortality rate of both is unknown, mola ~~is~~are believed to have a very high survival rate. Striped marlin, bigeye thresher shark, smooth hammerhead shark, pelagic stingray, and bat ray also occur as bycatch in this fishery.

The SBRM for this fishery includes 20-30 percent observer coverage annually. The data contains catch, effort, bycatch, and biological data collected by NMFS observers aboard California-based large-mesh drift gillnet vessels fishing off the California coast. The main objective of this program is to monitor marine mammal interactions and mortality as required under the MMPA; ~~however, finfish bycatch data are also collected. At the inception of the observer program, a minimum 20 percent observer coverage level was recommended in MMPA legislation for monitoring of marine mammal mortality in “Category 1” fisheries (Barlow 1989); this is the level that was adopted for use in the DGN observer program. Given that monitoring finfish bycatch is fundamentally similar to monitoring marine mammal bycatch, the 20 percent coverage level standard is considered sufficient for SBRM purposes.~~

~~Subsequently, NMFS evaluated the costs relative to revenues and variable profits of the fleet and reported on the feasibility of industry funding to cover costs of onboard observers or electronic monitoring (Agenda Item G.7 Attachment 3, June 2018). Additionally, NMFS funded a study to consider the potential uncertainty for reliably estimating bycatch when some vessels in the fleet were unobservable (Agenda Item F.1.a NMFS Report 2- Size data are collected ancillary to their marine mammal observations. Data gathered from this fishery is used in assessments and analyses of the status of swordfish and shark stocks., June 2021). The results did not detect any observer bias and support current observer coverage levels as sufficient and practicable to estimate finfish bycatch.~~

Under the HMS FMP, the DGN fishery also has a logbook requirement. Until 2019, this requirement was met using a logbook distributed by the state of California for all gillnet fisheries. In 2019, CDFW removed the state requirement for the ~~large-mesh~~ DGN fishery to complete these logs, and NMFS developed a Federal logbook specific to ~~the DGN~~this fishery. The Federal logbooks are used to collect information on catch by species, effort, and disposition by date and area of catch (CDFG block).

~~Some constituents have voiced concerns about the potential of an “observer effect” in the DGN fishery, where participants fish in a different manner (location, setting in “risky” situations, deployment or retrieval of gear, etc.) when an observer is on board, ultimately reducing the catch of non-marketable or protected species. While scientists and managers did not believe this to be likely due to the nature of the gear, this concern was addressed by an analysis completed by NMFS and PSMFC in 2021. that there was no significant detectable difference in fishing behavior between sets fished with an observer and those fished without.~~

While estimation of bycatch for marine mammals and turtles has been completed for many years by NMFS scientists, with new methodologies being developed to more accurately model the fishery’s catch of protected species, estimated catch of finfish species of concern (such as billfish other than swordfish, prohibited sharks, etc.) had not been produced. To address this, the Council adopted finfish performance metrics, using the regression tree methodology recently developed and applied to estimate marine mammal, sea turtle, and seabird bycatch in the fishery, as described in Carretta et al. (2020). These were first presented to the Council in June 2019 and updated in June 2021.-

### **Pelagic longline fishery**

Almost all pelagic longline (both deep and shallow-set pelagic longline [DSLL, SSLL]) vessels making landings on the West Coast are permitted and managed under the WPFMC Pelagics FEP; fewer than six DSLL vessels are exclusively permitted under this FMP. ~~Considering that swordfish-targeting SSLL gear is not authorized under the HMS FMP,~~ these vessels mainly target bigeye tuna ~~species~~ (and also catch some

~~related species such as opah), because HMS FMP regulations prohibit these vessels from fishing with SSL gear, which is typically used to target swordfish at depth.~~

Bycatch has been identified as a concern in both longline fisheries (see Appendix C). Similar to the DGN fishery, a large proportion of ~~incidental~~ finfish catch in DSL is marketable and often retained and sold. The largest areas of bycatch concern are those of incidentally caught striped marlin, which cannot be legally landed to the West Coast, resulting in regulatory discards, and blue shark bycatch, where economic discards reflect the absence of a West Coast consumer market.

~~The SBRM elements for this fishery includes include 20 percent observer coverage, mandatory logbooks, and mandatory VMS logbooks. The fishery was subject to 100 percent observer coverage for the first decade of its operation under the HMS FMP and higher than 20 percent coverage in years since. As noted above, this level of observer coverage is sufficient to estimate commonly caught finfish bycatch. Observers collect information on catch, effort, and biological data are also used to monitor and manage the fishery and to contribute to stock assessments of billfish and tunas. Therefore, there is a high level of certainty in bycatch estimates for this fishery. Additionally, VMS provides a high level of spatial resolution of fishing activities, allowing changes in the fishery's areas of operation—potentially affecting the composition and level of bycatch—to be detected.~~

### **Recreational party/charter boat Commercial Passenger Fishing Vessel fishery**

Albacore is targeted coastwide in recreational fisheries while catch of other HMS is largely confined to the Southern California Bight.

Bycatch in the ~~party/charter boat~~ (commercial passenger fishing vessel ~~{(CPFV)}~~, or party/charter boat) fleet is minimal when targeting HMS and consists largely of catch and release due to overage on bag limits, or release of striped marlin and large sharks (off Southern California). CPFV trips that target HMS generally fish in areas where other species (such as groundfish) are not present or common, such as far offshore. Most non-target catch is landed as long as it is legal (not prohibited, within bag limits, correct size, etc.). Bycatch on CPFV trips is unlikely to cause any significant impacts to stocks. There is also anecdotal information on size-grading in the fishery, where smaller, often dead fish are thrown back once an angler lands a larger fish of the same species. The degree of this practice is unknown, but it is not believed to be substantial. There is uncertainty about post-release mortality for many species, although studies do exist for some and vary greatly from species to species. ~~Given the nature of the fisheries, that bycatch is not of concern based on the best available information, and the existing CPFV logbook program, additional methods of collecting bycatch data are not feasible considering the costs.~~

~~The SBRM for this fishery consists of state state-run monitoring programs, with some variation among the three U.S. West Coast states, are sufficient to satisfy federal monitoring requirements for this fishery. In California, SBRM data collection includes onboard observers/samplers for a subset of trips less than 24 hours in length and dockside sampling through the California Recreational Fishing Survey ~~{(CRFS)}~~, and mandatory state daily logbook reporting. Logbooks require information on both kept and released catch, fishing location, number of anglers on board, and other trip characteristics. California has both onboard and dockside sampling, which is expanded to develop estimations for the entire fleet state-wide, and any (see CRFS website)..~~

In Oregon, the Oregon Department of Fish and Wildlife's (ODFW) Ocean Recreational Boat Survey (ORBS) is responsible for estimating the effort and catch of the recreational ocean boat fishery (~~charter~~ CPFV and private). ~~Samplers stationed at recreational fishing ports contact each charter business to gather the requisite data and conduct interviews as necessary. Charter vessels CPFV fishing for HMS must submit daily logbooks reporting the amount of target catch retained species (albacore, yellowfin, and bluefin tunas) caught, incidental catch, and any bycatch. In addition, information on fishing trip dates, fishing area,~~

~~and angler effort is collected. Logbooks are submitted to the SWFSC.~~

~~In Washington, most all anglers access marine waters from just four ports. Washington Department of Fish and Wildlife (WDFW's) Ocean Sampling Program tracks and estimates recreational catch and effort from these ports. These limited access points make it possible for the Ocean Sampling Program to do direct counts of boats instead of needing to estimate effort using a phone survey. Catch and effort are tracked by two segments of the fishery: charter boats that bring members of the public out on the ocean for a fee and then those that fish from privately owned vessels (the "private boat" sector). Washington ports and from both CPFV and privately owned vessels.~~

~~Recreational data for the CPFV fleet in Oregon and Washington is submitted to PSMFC's RecFIN program, and reported in the SAFE. Estimates of California CPFV catch, including discards (bycatch), are reported in the HMS SAFE.~~

### **Private recreational boat fishery**

~~Bycatch characteristics in the private recreational boat fishery for HMS are similar to those in the CPFV fleet. However, incidental catch and post release mortality are likely higher, because participants are often less knowledgeable of the proper handling of fish and applicable regulations. The private fishery mainly operates out of public launch ramps where individuals can utilize vessels of trailerable length. Trips on these vessels tend to be shorter in length due to their smaller size and may often target more than HMS during a single trip. In Southern California, private vessels docked in private marinas are also believed to be a large component of the private fleet targeting HMS. These vessels are generally larger than those used at public launch ramps and often target tunas and billfish. All of these characteristics likely affect the amount and nature of bycatch in this fishery. In Oregon and Washington anglers go on offshore trips targeting albacore with few other species encountered. In general, few fish are reported released on these trips.~~

~~Bycatch characteristics in the private recreational boat fishery for HMS are similar to those in the CPFV fleet. As is the case for the CPFV fishery, state-run monitoring programs, with some variation among the three U.S. West Coast states, are sufficient to satisfy federal monitoring requirements for the private recreational boat fishery.~~

~~In California the SBRM ~~consists of~~includes samplers stationed at public boat ramps and marinas and phone surveys of recreational license holders are also conducted. Since samplers cannot reach anglers returning to private marinas, the phone survey component of CRFS is the only sampling method. However, it is not believed to accurately estimate bycatch from this portion of the fleet, although bycatch is believed to be similar in composition to both the CPFV fleet and other private vessel sectors. Anecdotal information suggests vessels docked at private marinas are larger and can fish farther offshore, targeting HMS that are typically found farther offshore like North Pacific albacore, Pacific bluefin tuna and swordfish. Given the nature of the fisheries, that bycatch is not of concern based on best available information, and the existing data collection, additional methods of collecting bycatch data are not feasible considering the costs.~~

~~Similarly, in Oregon and Washington anglers go on offshore trips targeting North Pacific albacore with few other species encountered. In general, few fish are reported released on these trips. Similar to California, Oregon and Washington samplers monitor private recreational activity in recreational ports and randomly select vessels to conduct interviews including information on released catch, examine landed catch, and collect biological data. Recreational data for the private recreational fleet ~~is~~are submitted to PSMFC's RecFIN program. Estimates of private recreational catch, including discards (bycatch), are reported in the HMS SAFE.~~

### **6.3.2 Minimizing Bycatch and Bycatch Mortality**

Additional actions that will have the effect of reducing bycatch and bycatch mortality are discussed in Appendix C and under the various fishery-specific actions in Sections 6.6.1 (drift gillnet fishery), and 6.6.2 (pelagic longline fishery).

The FMP provides for a fishery-by-fishery review of measures to reduce bycatch and bycatch mortality (see Appendix C); establishes a framework for implementing bycatch reduction, adopts measures to minimize bycatch in pelagic longline and drift gillnet fisheries (Section 6.6), and adopts a formal voluntary “catch-and-release” program for HMS recreational fisheries. This meets the goals of the MSA and of this FMP and the requirements for estimating bycatch and for establishing measures to reduce bycatch and bycatch mortality in HMS fisheries.

The framework procedure may be used to implement additional bycatch ~~reporting and~~ reduction measures. Potential measures/methods include but are not limited to:

- ~~logbooks~~
- ~~observers~~
- time/area closures
- gear restrictions or modifications, or use of alternative gear
- educational programs
- performance standards
- ~~real time data collection programs (e.g., VMS, electronic logbooks)~~

The voluntary “catch-and-release” program promotes reduction of bycatch mortality and waste by encouraging the live release of unwanted fish. Its rationale and origination for recreational fisheries is explained in Appendix C, Section C.7. The establishment of the catch-and-release program removes live releases in the recreational fisheries from the “bycatch” category as defined in the MSA in Section 3(2) and also promotes the handling and release of fish in a manner that minimizes the risk of incidental mortality, encourages the live release of small fish, and discourages waste.

Shared EC Species, identified in Section 3.3, could continue to be taken incidentally without violating Federal regulations, unless regulated or restricted for other purposes, such as with bycatch minimization regulations. The targeting of Shared EC Species is prohibited.

*Add to Section 8.0, Literature Cited:*

[Barlow, J. 1989. Estimating sample size required to monitor marine mammal mortality in California gillnet fisheries. Southwest Fisheries Science Center Administrative Report LJ-89-08, 8 pp.](#)

## Appendix B

Add a bullet to the list of fisheries in paragraph 4 of 6.3.1, that reads:

- Standard and Linked Deep-set Buoy Gear (DSBG)

Add the following subsection to Section 6.3.1, that reads:

### **Deep-set Buoy Gear**

Prior to authorization of standard and linked DSBG under this FMP, bycatch was characterized by data collected during research and exempted fishing permit (EFP) trials by observers, from fishing reports for each EFP vessel, and landings to West Coast ports. Initially, 100 percent observer coverage was required for DSBG EFPs, consistent with Council recommendations. With 100 percent observer coverage, there was no uncertainty about bycatch in this fishery. Subsequently, the observer coverage was scaled back to less than 100 percent for vessels that completed initial trips with 100 percent coverage. Nonetheless, this data is sufficient to characterize catch and bycatch in the fishery. This data indicates that the fishery is highly selective for swordfish, with minimal bycatch.

The observer, logbook, and landing data from research and EFP DSBG trips was integrated to characterize bycatch occurring in the fishery. Other species caught in DSBG include marketable non-target species such as opah and escolar. Of unmarketable bycatch species, the most commonly caught is bigeye thresher shark. Data indicate the majority of bigeye thresher shark caught in DSBG are released alive. Preliminary post-release mortality studies conducted by the Pflegler Institute of Environmental Science indicate that over 90 percent of bigeye thresher sharks caught and released in DSBG fishing survive the acute effects of capture ([NMFS 2021](#)).

As an authorized fishery under this FMP, vessel logbooks must be submitted to characterize catch and bycatch on fishing trips. Logbook data can be integrated to determine compliance with reporting requirements and to characterize bycatch, despite the lack of observer requirements for the fishery. Without 100 percent observer coverage, there is uncertainty about self-reported bycatch data in logbooks. However, when considering observer and logbook data for EFP trips, catch rates derived from the different data collection types were similar. The selectivity of the fishery and the low volume of target catch indicated in the EFP data indicate that the costs of on-board observers or electronic monitoring may not be necessary from a technical perspective because the fishery is not managed to a catch or bycatch limit. Operationally, the fishery, which primarily operates in the Southern California Bight, is accessible to smaller vessels, some of which may not have the ability to accommodate on-board observers.

*Add the following reference to Section 8.0, Literature Cited:*

NMFS 2021. Draft Environmental Impact Statement for Amendment 6 to the Fishery Management Plan for West Coast Highly Migratory Species Fisheries: Authorization of Deep-set Buoy Gear. August 2021. 175 pages. NMFS, West Coast Region, Long Beach, California.

PFMC  
09/14/21