

NATIONAL MARINE FISHERIES SERVICE (NMFS) REPORT
ON THE SWORDFISH MANAGEMENT AND MONITORING PLAN (SMMP)

In anticipation of Council discussion on the utility of and potential revisions to the SMMP, NMFS provides its view on the relevance of the plan to ongoing work to support Council considerations for the U.S. West Coast swordfish fishery and to implement Council-recommended actions. We also provide updates on swordfish landings to the U.S. West Coast by gear type. Lastly, similar to the report that NMFS prepared in June 2018 ([Agenda Item G.7](#)), NMFS provides updates for the Council on activities related to “Actions to be taken” and “Measures” listed in Section 4 of the Council’s 2018 draft of the SMMP.

1. GOALS AND UTILITY OF THE SMMP

Section 3 of the 2018 draft SMMP outlines three goals to guide Council actions for the fishery: (1) minimize protected species bycatch to the extent practicable in the swordfish fishery through mitigation, gear innovation, and individual accountability,

(2) minimize unmarketable and prohibited finfish catch to the extent practicable in the swordfish fishery through mitigation, gear innovation, and individual accountability,

(3) support the economic viability of the swordfish fishery so that it can meet demand for a fresh, high-quality, locally-caught product and reduce reliance on imported seafood, and

(4) promote and support a wide range of harvest strategies for swordfish off the West Coast.

In NMFS’ view, these are compatible, but not replaceable with those in the HMS FMP. The SMMP goals are more specific and involve elements of strategies, like “through mitigation, gear innovation, and individual accountability, and objectives, like “meet demand for fresh high quality, locally-caught product” and “reduce reliance on imported seafood.” These particular aspects provide NMFS with information on the Council’s scope of interests with respect to action alternatives and reasonably foreseeable future actions for the swordfish fishery off the West Coast. They also provide general criteria by which the Council or NMFS or both could measure performance in the fishery.

The SMMP goals are integral to NMFS’ work to carry out multiple Council-recommended actions concerning the U.S. West Coast swordfish fishery. The goals capture a broader purpose and need for individual actions and Council-recommended actions in total. For example, they have been particularly relevant to administrative records in support of Council recommendations to NMFS to approve EFPs, individually and cumulatively. In the case of EFPs, the process for Council recommendations is truncated (e.g., no scoping or ROA). However, NMFS is still obligated to fulfill these federal review requirements under the MSA and other applicable laws and has relied on the SMMP and other Council records for such information.

In Section 3 of this report, NMFS provides an update on each of the “Measures” listed under each “Action to be taken” in Section 4 of the SMMP. This approach is similar to that taken by NMFS in 2018 upon review of the 2015 draft SMMP at that time. In this way, the SMMP agenda item has served as a means to provide a progress report on the various analyses, rulemakings, and tools

applicable to the management of the West Coast swordfish fishery. While in the past there has been Council discussion of finalizing the SMMP at a future point, NMFS sees value in using the SMMP as a living document where progress is updated and future actions of interest can be clarified or modified on an ongoing basis. As has been the case, NMFS regards a period of 2 to 3 years as an appropriate interval of time for reporting on progress made towards actions in the SMMP, given that some Council actions can take multiple years to implement.

During the September 2018 meeting, the Council outlined a schedule for considering a suite of actions in the SMMP. This work to prioritize and schedule actions across the Year-At-A-Glance provided useful direction to NMFS for setting its implementation plans and identifying resources needed to support Council interests over time. Following completion of that schedule came the onset of the pandemic and associated scheduling delays. Since, discussions concerning prioritization of agenda items have occurred under the Future Council Meeting Agenda and Workload Planning item. This meeting-to-meeting reprioritization, while necessary at times, has posed planning challenges, and overburdened resources needed to sustain routine work while accommodating new priorities. Therefore, NMFS encourages the Council to fully consider the value of the SMMP as a workload planning tool.

2. U.S. WEST COAST SWORDFISH FISHERY OVERVIEW

Below, NMFS presents an update on the status and performance of the U.S. West Coast swordfish fishery, based on landings data for all gear types.

From 2008 to 2021, average annual landings of swordfish to the U.S. West Coast by all gear types totaled 412 metric tons (mt) per year. However, annual landings in the last three years were 200-300 mt less than the 15-year average (see Appendix 1, Table 1)¹. The share of landings by deep-set buoy gear (DSBG) rose significantly as the exempted fishing permit (EFP) program for this gear type expanded from its inception in 2015. DSBG landings rose from 7.9 mt in 2015 to a high of 85.5 mt in 2020. Meanwhile, landings by the DGN fishery, historically a relatively high-volume supplier of domestic swordfish, fell significantly, from a high of 406.1 mt in 2008 to 9.5 mt in 2021. It is worth noting that 2021 was a uniquely unproductive year for domestic swordfish in general, with only 137.7 mt landed to West Coast ports (i.e., only a third of the fifteen-year annual average).

Since 2010, the proportion of swordfish landings to the U.S. West Coast from the DGN and harpoon fleets have decreased. The share of total landings by DGN fell from an average of about 50 percent annually from 2008 through 2010, to an average of 9 percent from 2019 through 2021. The share of landings by harpoon fell from an average of 10 percent annually from 2008 through 2010, to an average of 2.5 percent from 2019 through 2021. The proportion of landings by DSBG fleets has increased from 2 percent in 2015 to about 25 percent each year from 2019-2021. The number of vessels fishing with DGN and harpoon also fell in recent years, while the number of vessels fishing with DSBG increased (see Appendix 1, Table 2).

¹ Appendix 1 of this report contains tables that summarize swordfish landings, vessels, revenues, and price per pound by gear type from 2008-2017; these. These tables are also found in the June 2018 Briefing Book: G.7 Attachment 2.

As noted in our previous report, pelagic longline vessels have continued to make the majority of swordfish landings to the West Coast every year since 2009. The lowest proportion of annual landings contributed by longline vessels since 2009 was 41 percent (see Appendix 1, Table 1), with all other years ranging from 60 to 80 percent. Most of these landings are made by vessels fishing under Hawaii permits authorized under the Pelagics Fishery Ecosystem Plan², and landing to West Coast ports under possession of HMS permits under the HMS FMP. A small proportion of West Coast landings are coming from deep-set (DSLL) longline vessels fishing solely under the HMS FMP. These vessels also carry High Seas Fishing Compliance Act permits to fish on the high seas. From 2008 to 2018, fewer than three longline vessels landing swordfish to U.S. West Coast ports fished subject to the provisions of the HMS FMP permit; the rest of the vessels carried permits issued under the Pelagics FEP. While more than three longline vessels fished subject to the HMS FMP in 2019, only three fished under the FMP each year from 2020 through 2022.

Ex-vessel revenues from landings to the U.S. West Coast have generally tracked along with trends in landings. Revenues have increased in recent years for DSBG, decreased for DGN and harpoon, and remained fairly stable for longline (see Appendix 1, Table 3). 2021 was an anomalously low-productivity year for all gear types, with associated low revenues. Harpoon and DSBG-caught swordfish tend to fetch a higher average price per pound than DGN and longline-caught swordfish (See Appendix 1, Table 4).

Lastly, the timing of fishing by the various fleets is likely to have some effect on pricing (and, potentially, gear selection by individual fishermen). The harpoon fleet typically fishes in the summer months, before landings from the DGN and longline fleet begin to arrive to the U.S. West Coast. The DSBG fleet also fishes in late summer months and into early winter months. Both the DGN and longline fleets generally fish in the fall and winter months. The timing of fishing is an important aspect to consider when developing a U.S. West Coast swordfish fishery that can meet local demand through a more constant supply, reducing dependence on imports.

3. UPDATES ON DRAFT SMMP ACTIONS

Section 4 of the SMMP identifies five “Actions to be taken” with a bulleted list of mitigation and management “Measures” under each Action. Many of these measures are an outgrowth of ideas expressed during the [2011](#) and [2015](#) NMFS-hosted stakeholder workshops, which were further revised or refined in 2018 when the Council reviewed progress toward the 2015 SMMP.

Below, NMFS provides a summary update on each of those five Actions and highlights relevant tools for Council consideration.

ACTION A: Reduce bycatch in the DGN fishery through hard caps and performance standards

In 2018, NMFS reported detailed observer data on catch of non-target finfish, as well as bycatch of protected species, in the DGN fishery. More recently, the Council has reviewed DGN bycatch trends against performance metrics, considered and recommended the adoption of hard caps for

² By obtaining longline permits under the Pelagics FEP, vessels are able to fish in areas otherwise prohibited to longline fishing under the HMS FMP.

certain protected species, and provided incentives in the form of qualifying criteria for DGN fishermen to obtain limited entry (LE) DSBG permits.

- *MEASURE 1: Consider hard caps to limit takes of loggerhead and leatherback sea turtles in the DGN fishery. For example, if a hard cap is reached or exceeded during a fishing season, or during a specified period, a specified time-area closure could go into effect.*

NMFS has both promulgated and withdrawn regulations implementing protected species hard caps for the DGN fishery, and subsequent decisions by the Courts ultimately vacated regulations. The Council took final action in September 2015 on a proposal that included rolling 2-year hard caps on interactions with fin whales, humpback whales, sperm whales, short-finned pilot whales, bottlenose dolphins, and four sea turtle species (loggerhead, leatherback, olive ridley, and green sea turtles). NMFS drafted and published regulations based on the Council's final preferred alternative (FPA); however, NMFS later withdrew the regulations based on an economic analysis indicating that the hard caps regulations were inconsistent with National Standard 7 in the MSA, which states that "conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication." Subsequent litigation forced NMFS to implement the regulations in February 2020 (85 FR 7246). Then, further litigation resulted in an Opinion (Burke, et al. v. Coggins) and Order from the Federal District Court for the District of Columbia that vacated the regulations on February 18, 2021.

The Council is currently revisiting DGN hard caps as part of its 2022 meeting agendas. NMFS is working to support the Council-directed tasks to complete an economic analysis for a new range of alternatives for DGN hard caps.

- *MEASURE 2: Continue to review bycatch estimates against performance standards for specified marine mammals, sea turtles, and finfish. The Council may periodically review the efficacy of bycatch estimation methods used to judge performance, and the species for which performance standards are set. Based on trends of bycatch compared to specified performance standards, the Council may recommend additional management measures, as appropriate.*

In September 2015, the Council recommended monitoring the DGN fishery according to performance metrics for finfish bycatch and non-ESA-listed marine mammal interactions. Establishing these performance metrics did not require regulations. Rather, since 2015, the Highly Migratory Species Management Team (HMSMT) has annually updated the Council on the DGN fishery's observed takes of non-target finfish and protected species relative to performance metrics (except for in 2020 due to the pandemic, and in 2022 due to a prioritization of hard caps). The most recent update on performance metrics occurred in 2021 (see, [Agenda Item F.4.a.](#), [HMSMT Report 1](#) and [Report 2](#)). To date, the Council has not recommended any management measures for the DGN fishery as a result of these performance reviews.

- *MEASURE 3: Work with NMFS to increase fishery monitoring with the goal of monitoring all vessels by means of either human observers or electronic monitoring technology.*

The Council recommended that NMFS increase DGN monitoring, through the use of on-board observers or electronic monitoring (EM). Appendix 2, Table 4 summarizes observer coverage for the DGN fleet from 2013-2021. Over this period, average observer coverage was 23.5 percent per season. At the March 2018 meeting, NMFS submitted a report ([March 2018, I.1.a Supp. NMFS Report 3](#), reposted as [June 2018 G.7, Attachment 3](#)) evaluating the potential impacts of increased monitoring alternatives ranging from 50-100 percent coverage, using observers or EM or both. This preliminary analysis indicated that the economic impacts to the fleet (assuming that the fleet would be responsible for funding increased monitoring) may be prohibitive to implementing the alternatives evaluated.

NMFS has continued to seek funding to test EM for the purposes of monitoring the DGN fleet, in particular for unobservable vessels. However, ongoing attrition in this fleet has made it difficult to compete for EM funding. Nonetheless, NMFS staff have offered support to an industry-sponsored effort to work with Flywire to test EM for the DGN fishery.

- *MEASURE 4: In the absence of 100% monitoring, use the best available statistical methods to estimate rare event bycatch.*

NMFS has developed statistical methods to estimate rare-event bycatch in the absence of 100 percent monitoring. The Council recently moved to utilize regression tree methods over ratio estimates for reviewing and analyzing bycatch in the DGN fishery, which should provide more accurate and reliable estimates. NMFS has also made progress on integrating HMS datasets to allow more detailed analyses of observer bias and DGN fleet activities. At the June 2021 Council meeting, NMFS submitted a report on a project led by staff at the Pacific States Marine Fisheries Commission (PSMFC) to analyze and compare the characteristics of observed and unobserved DGN fishing trips ([Agenda Item F.1a, NMFS Report 2](#)). One purpose of this analysis was to assess the presence of an “observer effect,” wherein fishing behavior and associated catch composition are different when an observer is on board versus on unobserved trips. The report found “there were few statistically significant differences in fishing metrics between observed and unobserved trips on periodically observed vessels, or between unobservable and periodically observed vessels.”

- *MEASURE 5: Explore the use of dynamic ocean modeling tools, such as EcoCast, as part of an individual accountability-based management strategy.*

NMFS continues to invest in testing the development of dynamic ocean modeling tools to evaluate their potential use in protected species hotspots, like the PLCA. EcoCast is one such tool that can assist in decisions about how to allocate fishing effort across space and time, to maximize target catch while minimizing bycatch. NMFS has encouraged new EFP holders to use EcoCast and assist in validating its predictions. As usability of the tool improves, NMFS will consider whether to require its use as a term and condition of EFPs.

ACTION B: Develop deep-set buoy gear

- *MEASURE 1: Evaluate the results of fishing under EFPs, including deep-set linked buoy gear, recommended by the Council and issued by NMFS.*

The Council has recommended and NMFS has issued DSBG EFPs since 2015. Currently 35 standard and 15 linked DSBG EFPs are issued through December 31, 2022. Many of these EFPs have been active for more than one year. Several EFPs issued for 2022 have yet to be signed by the captains or owners and are not yet effective. Approximately three to five standard DSBG and one additional linked DSBG EFP may be potentially issued in 2022 when and if final qualifications are met. One Night-Set Buoy Gear EFP for 2022 is pending issuance following a completed ESA consultation.

NMFS has analyzed both the biological and socioeconomic performance of DSBG EFPs. The most complete presentation of these analyses can be found in the [Draft EIS \(DEIS\) for authorization of DSBG](#). Overall, DSBG EFP vessels have selectively caught swordfish with an average catch per unit effort (CPUE) of roughly 1.5 swordfish per day fished. Catch of non-target fish species has been infrequent, with the most commonly caught non-target species including bigeye thresher shark, escolar, mako shark, and opah. The only documented protected species interactions with DSBG, in over 3200 days fished, have been with four northern elephant seals and one loggerhead sea turtle. None of these interactions resulted in death or serious injury.

The socioeconomic outlook of DSBG fishing overall remains an open question. DSBG caught swordfish tends to fetch a relatively high price per pound, and annual revenues have increased since the gear was first pioneered. Profitability of the gear is dependent on many factors, and can be impacted by low swordfish CPUE, weather, increasing cost of fishing, or better opportunities for DSBG fishermen to participate in fisheries elsewhere. Several EFP holders have indicated (e.g., in their [2021 activity reports](#) to the Council) that profitability is a serious constraint on their participation in DSBG fishing. Current and pending EFP applications have proposed testing setting the gear at nighttime and/or using a larger amount of gear than is currently allowed. Results of these trials may inform future consideration of DSBG regulations and the economic viability of the gear.

The large majority of DSBG EFP effort to date has been with the standard configuration within the Southern California Bight (SCB). Approximately 3 percent of effort has been with linked buoy gear, and fewer than 1 percent of sets have occurred north of Point Conception.

NMFS has presented summaries of observer data for DSBG EFPs for the past several years. This year, management of our integrated database of DSBG observer, logbook, and landings data has been transferred to staff at the PSMFC, with the database now hosted as part of the PacFIN system. Validation and quality control of the updated database are ongoing, and a formal report on observer data is not available at this time. The preliminary data suggest that 2021 saw between 650 and 700 days fished, the vast majority of which was fished with the standard buoy gear configuration rather than the linked configuration. The catch composition appears to be over 95 percent swordfish, with the typical rare bycatch of bigeye thresher sharks. Swordfish catch was quite low relative to

previous years, with a CPUE of less than 1 fish per day. No protected species interactions are indicated in the preliminary data for 2021.

- *MEASURE 2: Complete HMS FMP amendment and regulatory processes to authorize a DSBG fishery.*

Since our previous SMMP report in 2018, the Council adopted its FPA for authorizing DSBG in September 2019, recommending that NMFS permit an open access fishery outside of the SCB and a LE fishery inside the SCB, with a maximum of 300 LE permits to be issued. The LE management regime includes tiered qualifying criteria intended to prioritize participants with demonstrated swordfish fishing experience, as a means to authorize DSBG use in the SCB with a precautionary, “phased-in” approach. At its March 2021 meeting, the Council modified the tiered criteria by which applicants must qualify to receive LE permits, and clarified some of the terminology used in its earlier September 2019 recommendation.

NMFS has worked to complete all the necessary regulatory and analytical prerequisites to authorize DSBG as a legal gear type under the HMS FMP, including Council final action and subsequent revisions, finalization of HMS FMP amendment language, publication of a DEIS, consultation under Section 7 of the Endangered Species Act, and development of the necessary infrastructure to qualify applicants for LE permits. The proposed rule package is in review, and is expected to publish in fall of 2022. Pending public comment, NMFS is planning to publish a final rule to authorize DSBG shortly thereafter and in keeping with MSA timelines. If and when regulations become effective, the first LE permits are expected to be issued within a year of the date of the final rule. NMFS anticipates allowing DSBG fishing to continue under EFPs until EFP holders obtain a LE permit.

- *MEASURE 3: Consider a Federal limited entry program for DSBG taking into account current participation in the West Coast swordfish fishery.*

The Council’s FPA for authorizing DSBG includes qualification criteria for obtaining a LE DSBG permit. The criteria considered current and past swordfish fishery participation. On August 19, 2021, NMFS published a DEIS comparing the expected impacts of the Council’s preferred alternative with a LE program to both a no-action alternative and an alternative where DSBG would be authorized on an open-access basis within the SCB as well as outside. NMFS received five public comments on the DEIS, which generally focused on socioeconomic projections.

ACTION C: Limit fishing effort in the DGN fishery

As seen in Table 6 in Appendix 3, between 1996 and 2022, the number of LE DGN permits (active or inactive) declined from 167 to 33. The percentage of permits that were inactive (i.e., latent) increased over this time.

Additionally, the state of California’s ongoing transition program (under SB1017), which enables permit holders to obtain a state permit buy-out in exchange for agreeing to no longer fish with DGN gear, has increased the rate of attrition in the fishery in recent years. That is, many federal LE permit holders that already completed the state program have let their federal permits expire.

Recent data shared by the California Department of Fish and Wildlife regarding which permit holders are eligible for the program indicates that there may be as few as two federal permit holders remaining of the recently active vessels (i.e., if all permit holders eligible to complete the program do so).

- *MEASURE 1 : Determine the appropriate number of Federal limited entry permits based on the fishery management goals within this SMMP. Explore mechanisms to retire excess permits, including compensating holders for retiring permits.*

In 2018, NMFS reported tools, such as permit pools or a license limitation permit (LLP)³, as mechanisms for reducing latent permits. When the federal LE DGN permitting program was established, all active DGN fishermen in possession of a valid state permit qualified for a federal permit. To date, the Council has not considered this measure or development of a federal permit buyback program.

While latent federal permits remain in the fishery, neither the Council nor NMFS has determined a bycatch reduction goal by which to ascertain the appropriate number of federal LE DGN permits. NMFS continues to monitor participation in the DGN fishery, and notes, above, ongoing attrition and reduction in fishing effort, bycatch, and swordfish landings in recent years. In 2021, a few permits became active that were not active in the recently preceding years. Despite this, overall participation in the fishery has continued to decline.

- *MEASURE 2: Explore the use of the Federal limited entry permit to encourage DGN fishery participants to utilize other gear types. For example, the Federal limited entry permit regulations could be amended to include permit endorsements for other gear types such as pelagic longline and/or DSBG (if managed through limited entry) or to encourage swapping a DGN permit for a limited entry permit for another fishery/gear type.*

In its recommendation to authorize DSBG with a LE permit program for the SCB, the Council specified tiered criteria by which DGN fishermen who participated in a gear transition program could qualify before other applicants. NMFS has been working with the PSMFC to develop the necessary infrastructure to qualify applicants according to the tiered criteria and to implement this Council recommendation.

ACTION D: Allow DGN vessels to access the Pacific Leatherback Conservation Area (PLCA)

A 2017 study by Eguchi et al.⁴ on the overlap between leatherbacks and DGN fishing showed that the current PLCA parameters are effective. The study presented statistical models of leatherbacks in the PLCA to determine whether the current timing and area were still based on the best available

³ Amendment 92 to the BSAI FMP and Amendment 82 to the GOA FMP (Groundfish trawl gear recency): [Council/NMFS analysis document](#) and [Final rule to implement amendments 92/82](#). Amendment 86 to the GOA GMP (Pacific cod fixed gear recency): [Council/NMFS analysis document](#) and [Final rule to implement amendment 86](#).

⁴ P. Santidrián Tomillo, N. J. Robinson, A. Sanz-Aguilar, J. R. Spotila, F. V. Paladino and G. Tavecchia, High and variable mortality of leatherback turtles reveal possible anthropogenic impacts, *Ecology*, 98, 8, (2170-2179), (2017).

science. The results showed that the PLCA is still the shortest and most effective closure to balance sea turtle interactions and fishing.

The PLCA is an area of historically high swordfish production. Regaining access to this area has long been an interest of fishery participants. Thus, this action could incentivize additional participation in the fishery.

- *MEASURE 1: The PLCA was implemented in 2001 to mitigate takes of endangered Pacific leatherback sea turtles. It covers an area of the EEZ from Monterey Bay in California to the central Oregon coast and is closed to DGN fishing each year from August 15 to November 15. Based on exempted fishing permit (EFP) performance within the PLCA, consider allowing access to the PLCA with individual vessel and/or fishery accountability for bycatch using limits such as hard caps on leatherback sea turtles.*

In February 2015, consistent with discussions around the draft SMMP, the Alliance for Sustainable Fisheries (ACSF) submitted an EFP application to fish with modified DGN gear in time/area zones, including in the PLCA, when concentration of swordfish is high and concentration of bycatch species is low. The Council recommended approval of the EFP application to NMFS, but suggested further adjustments be made to the fishing activities proposed in the application. NMFS subsequently published a Federal Register Notice ([81 FR 10593](#)) requesting public comment on this EFP.

A component of that EFP application is contingent on the use of an ocean dynamic model - [EcoCast](#). Though, the EcoCast tool is available for use, work is still needed to validate its predictions. NMFS has been in communication with the applicants regarding their continued interest in pursuing the application, if and when proposed fishing modifications become more feasible. NMFS will keep the Council briefed prior to issuance of this EFP to ensure its consistency with SMMP goals.

- *MEASURE 2: Explore the use of dynamic ocean modeling tools, such as EcoCast, as part of an individual accountability based management regime that would allow DGN vessels to fish in specified areas within the boundaries of the current PLCA.*

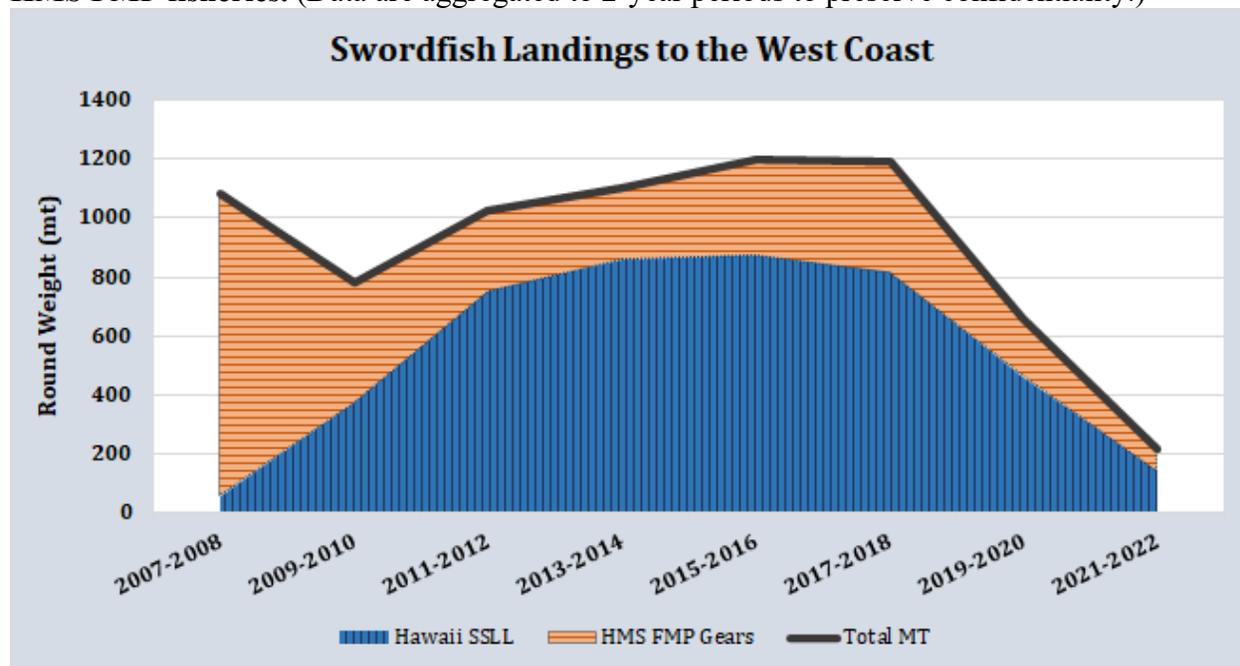
As mentioned above, NMFS continues to invest in testing the development of dynamic ocean modeling tools to evaluate their potential use in protected species hotspots, like the PLCA.

ACTION E: Develop longline fisheries

Longline fishing is currently prohibited inside the U.S. West Coast Exclusive Economic Zone (EEZ). A small number of West Coast-based vessels currently fish DSLL outside the EEZ, and incidentally catch and land swordfish. Landings by Hawaii-based vessels account for the majority of domestic swordfish supply to the U.S. West Coast. In our 2018 report, we compared the share of swordfish landings to the West Coast by Hawaii-permitted longline vessels versus HMS FMP gears. An update to this comparison is presented below. Note that data points are aggregated to two-year periods to avoid confidentiality issues.

In our [2018 report](#) (page 10), we reference a suite of measures that have proven effective in mitigating interactions with protected species in U.S. longline fisheries. NMFS staff continue to coordinate with the Pacific Islands Regional Office and Fisheries Science Center to keep abreast of experiments and EFPs underway in the Hawaii fleet, as such measures may be applicable or advantageous to the Council’s ongoing efforts to consider EFPs in the swordfish fishery.

Figure 1. Swordfish landings to the West Coast: Hawaii Longline relative to all West Coast HMS FMP fisheries. (Data are aggregated to 2-year periods to preserve confidentiality.)



- *MEASURE 1: Revisit the 2009 proposed action to authorize a SSL fishery outside the west coast EEZ in light of current conditions including west coast landings by Hawaii-permitted SSL vessels.*

The Council scoped authorization of a shallow-set longline (SSL) fishery in November 2019. The Council elected not to schedule consideration of a range of alternatives, but as a next step instead tasked the HMSMT to:

1. Analyze effort, catch, and bycatch in subsets of Hawaii SSL observer data for potential action area delineations.
2. Document all sources of swordfish supply to the U.S. West Coast, including both foreign and domestic (west coast and Hawaii) caught.
3. Estimate related conservation impacts to characterize the relationship between domestic and foreign sources of swordfish supply and the potential to mitigate conservation impacts and reduce the Nation’s seafood trade deficit through increased west coast production.

The Council requested these analyses be reported under the next SMMP agenda item. NMFS has invested staff time in producing these analyses. However, Council focus on essential business

during the onset of the pandemic and a prioritization of HMSMT time on an analysis to support DGN hard caps has stalled further work.

The Council has not scheduled an agenda item related to these issues since the November 2019 meeting. NMFS supports the continued analysis of trends related to the swordfish supply mix and options for additional domestic gear type options, with the goal of reducing reliance on foreign imports to meet domestic swordfish demand.

- *MEASURE 2: Revisit the current FMP prohibition on the use of pelagic longline gear inside the west coast EEZ.*

The Council has yet to discuss this measure.

- *MEASURE 3: Consider qualification criteria for a federal limited entry SSLL permit in the context of federal permitting for other swordfish gear types.*

This Measure should be considered during discussions on the authorization of longline gear. Gear endorsements are currently provided on HMS permits. In the event that a longline fishery were to be authorized under the HMS FMP, LE permits could be required in addition to these endorsements.

- *MEASURE 4: Explore the feasibility of, through exempted fishing permits, new pelagic longline gear designs or management strategies.*

In 2015, the Council recommended NMFS' issuance of an EFP application to fish with modified longline gear inside the EEZ. The modifications were premised on lessons learned with mitigation measures in the Hawaii fisheries, as well as for other fisheries operating inside the West Coast EEZ. In 2019, NMFS issued an EFP to two vessels to test longline gear inside the EEZ. The terms and conditions of the EFP required 100 percent observer coverage, mitigation measures to reduce protected species interactions, and hard caps on interactions with loggerhead and leatherback sea turtles.

The permitted vessels undertook eight fishing trips in 2019, using both SSLL and DSLL. The eight trips corresponded to 79 sets (59 shallow-sets and 20 deep-sets). On average, fewer hooks were deployed per set than anticipated (roughly 70-75 percent of the average hooks per set in the Hawaii fisheries). Notably, swordfish CPUE was higher than projected based on the use of proxy data from the Hawaii fisheries operating in the EPO, and CPUE was higher inside the PLCA relative to outside. In the eight trips, there were two interactions with protected species: both were California sea lions.

The EFP holders submitted a [preliminary informational report](#) in June 2020. This report indicated the following catch composition: after eight trips corresponding to a total of 79 sets:

- **Target Species**
 - 661 swordfish (634 kept, 24 released alive, 3 discarded dead).
- **Marketable Non-Target Species**
 - 1,033 shortfin mako sharks (379 kept, 615 released alive, 39 discarded dead)

- 5,227 blue sharks (525 kept, 4,615 released alive, 87 discarded dead)
- 45 albacore (40 kept, 1 released alive, 4 discarded dead)
- 20 bigeye tuna (20 kept, none released or discarded)
- 6 yellowfin and skipjack tuna (6 kept, none released or discarded).
- **Non-marketable Bycatch**
 - 255 fish (52 were released alive, 21 kept for personal use, and 70 discarded dead)

Following litigation related to the information used in the ESA analysis, this EFP was rescinded and the vessels ceased fishing. The applicants have since expressed interest in pursuing the EFP.

During its June 2021 meeting, the Council reviewed two EFP applications: (1) proposing to fish from DGN vessels with modified longline gear (using a shortened mainline) and (2) proposing to fish with midwater snap gear. During its September 2021 meeting, the Council recommended both EFPs be issued according to specifications for midwater snap gear, and taking into account a suite of measures for purposes of bycatch mitigation, enforcement, and safety. NMFS subsequently published a Federal Register Notice ([87 FR 1401, January 11, 2022](#)) requesting public comment on the EFP applications and Council recommendations. Federal review of these applications and the Council's recommendations is underway. Unlike for DSBG, where NMFS had access to data from research trials, NMFS will need to rely on proxy fisheries data to examine the potential impacts of new pelagic longline or longline-like gear designs.

APPENDIX 1

Tables below include information from PacFIN regarding swordfish landings to the U.S. West Coast over the period 2008-2021.

Table 1. Landings of swordfish by fishery, 2008-2021 (PacFIN)

Year	Metric Tons						Percent					
	DGN	Harp.	LL	DSB G	Other	Total	DGN	Harp.	LL	DSB G	Other	Total
2008	406.1	48	59.1		17.9	531.1	76.5%	9.0%	11.1%	0.0%	3.4%	100%
2009	252.6	49.8	106		0.2	408.6	61.8%	12.2%	25.9%	0.0%	0.0%	100%
2010	61.6	37.4	270.7		*	369.8	16.7%	10.1%	73.2%	0.0%	*	100%
2011	119	24.3	476.2		*	619.5	19.2%	3.9%	76.9%	0.0%	*	100%
2012	118.2	5.4	279.2			402.7	29.4%	1.3%	69.3%	0.0%	0.0%	100%
2013	101.8	6.4	424.5		0.2	533	19.1%	1.2%	79.6%	0.0%	0.0%	100%
2014	87.2	4.3	300.9	*	*	392.4	22.2%	1.1%	76.7%	*	*	100%
2015	69.5	3.7	349.2	7.9	*	430.3	16.2%	0.9%	81.2%	1.8%	*	100%
2016	127.1	18.0	260.2	28.1	0.4	433.9	29.3%	4.2%	60.0%	6.5%	0.1%	100%
2017	123.8	19.3	299.0	30.2	0.4	472.7	26.2%	4.1%	63.2%	6.4%	0.1%	100%
2018	101.8	6.8	269.2	46.4	0.3	424.5	24.0%	1.6%	63.4%	10.9%	0.1%	100%
2019	35.5	7.7	118.0	72.4	57.0	290.6	12.2%	2.7%	40.6%	24.9%	19.6%	100%
2020	24.1	4.3	205.7	85.5	0.9	320.5	7.5%	1.3%	64.2%	26.7%	0.3%	100%
2021	9.5	4.7	85.4	36.9	1.2	137.7	6.9%	3.4%	62.1%	26.8%	0.8%	100%

*Confidential data (less than 3 vessels or dealers) suppressed. Totals for non-confidential data only.

- LL (pelagic longline) includes both Hawaii and HMS FMP permitted vessels. (Note that only Hawaii permitted vessels may target swordfish but HMS permitted vessels may land swordfish caught incidentally.)

Table 2. Number of vessels landing swordfish by fishery, 2008-2021 (PacFIN).

Year	DGN	Harpoon	Pelagic Longline	DSBG	Other fisheries
2008	37	31	4	0	3
2009	34	27	3	0	3
2010	25	25	7	0	1
2011	20	17	10	0	2
2012	17	10	8	0	0
2013	16	13	8	0	3
2014	21	10	15	2	1
2015	19	12	18	4	2
2016	20	19	18	6	3
2017	18	21	13	5	4
2018	21	15	19	20	3
2019	15	16	20	21	14
2020	12	15	14	25	8
2021	6	11	14	26	7

Table 3. Inflation-adjusted ex-vessel revenue by fishery, 2008-2017 (PacFIN).

Year	DGN	Harpoon	Pelagic Longline	DSBG	Other fisheries	Grand Total
2008	\$1,959,165	\$524,045	\$164,303		\$64,555	\$2,712,068
2009	\$1,228,880	\$529,175	\$437,733		\$788	\$2,196,576
2010	\$456,737	\$411,032	\$1,604,166		*	\$2,471,935
2011	\$852,251	\$277,031	\$2,553,351		*	\$3,682,633
2012	\$871,791	\$68,415	\$1,316,904			\$2,257,110
2013	\$723,160	\$89,718	\$2,051,958		\$1,684	\$2,866,520
2014	\$826,889	\$80,078	\$2,106,546	*	*	\$3,013,513
2015	\$606,092	\$72,745	\$2,853,465	\$105,294	*	\$3,637,596
2016	\$1,138,533	\$295,426	\$1,874,689	\$448,252	\$6,087	\$3,762,987
2017	\$915,869	\$311,421	\$2,272,501	\$440,234	\$7,277	\$3,947,302
2018	\$711,542	\$124,697	\$1,825,884	\$614,786	\$4,651	\$3,281,560
2019	\$281,086	\$132,500	\$840,747	\$890,135	\$385,269	\$2,529,737
2020	\$184,204	\$75,329	\$1,422,587	\$1,057,379	\$11,950	\$2,751,449
2021	\$132,907	\$90,997	\$604,046	\$623,356	\$19,706	\$1,471,012

*Confidential data (less than 3 vessels or dealers) suppressed. Totals for non-confidential data only.

- LL (pelagic longline) includes both Hawaii and HMS FMP permitted vessels. (Note that only Hawaii permitted vessels may target swordfish but HMS permitted vessels may land swordfish caught incidentally.)

Table 4. Average price per pound by fishery, 2008-2017 (PacFIN).

Year	DGN	Harpoon	Pelagic Longline	DSBG	Other fisheries
2008	\$3.01	\$6.71	\$2.68		\$4.08
2009	\$2.95	\$6.47	\$3.44		**
2010	\$4.47	\$6.99	\$3.55		*
2011	\$4.54	\$7.57	\$3.58		*
2012	\$4.89	\$7.44	\$3.26		
2013	\$4.63	\$8.68	\$2.99		**
2014	\$4.38	\$8.85	\$2.28	*	*
2015	\$3.95	\$8.76	\$2.20	\$6.60	*
2016	\$3.93	\$8.15	\$2.47	\$7.18	**
2017	\$3.35	\$7.89	\$2.57	\$6.23	**
2018	\$2.98	\$8.58	\$2.34	\$6.23	**
2019	\$3.69	\$8.15	\$2.53	\$5.54	\$4.84
2020	\$3.31	\$7.78	\$2.47	\$5.48	\$6.43
2021	\$5.82	\$8.65	\$3.22	\$7.66	\$8.02

*Confidential data (less than 3 vessels or dealers) suppressed.

**Average price per pound for landings less than 5 mt excluded.

- LL (pelagic longline) includes both Hawaii and HMS FMP permitted vessels. (Note that only Hawaii permitted vessels may target swordfish but HMS permitted vessels may land swordfish caught incidentally.)

APPENDIX 2

Table 5. Summary of estimated total fishing effort (in sets), total number of observed sets, and percent observer coverage for the California/Oregon large-mesh DGN Observer Program from 2013 through 2021 (calendar year January through December).

Calendar Year	Estimated Total Fishing Effort (Sets)	Total Number of Observed Sets	Percent Observer Coverage
2013	470	176	37.4%
2014	379	113	29.8%
2015	361	74	20.5%
2016	737	134	18.2%
2017	618	114	18.4%
2018	473	124	26.2%
2019	321	86	26.8%
2020	147	22	15.0%
2021	195	38	19.5%

APPENDIX 3

Table 6. Annual number of issued permits, and active 2011 DGN permits, 1996-2021.

Year	No. Issued Permits⁵	No. Active Permits⁶	No. Latent Permits
2000	126	69	57
2001	114	60	54
2002	106	51	55
2003	100	43	57
2004	96	35	61
2005	90	38	52
2006	88	39	49
2007	86	40	46
2008	85	39	46
2009	84	35	49
2010	73	26	47
2011	76	21	55
2012	78	17	61
2013	74	18	56
2014	74	21	53
2015	73	19	54
2016	70	21	49
2017	67	18	49
2018	62	21	41
2019	60	16	44
2020	58	12	46
2021	42	6	36
2022	33	-	-

Data Source: CDFW, 2018; NMFS Permits and Monitoring Branch, August 2022; HMS SAFE Report, August 2022

⁵ Permits are issued based on an April 1 to March 31 fishing season as opposed to a calendar year. Numbers represented here indicate the number of permits for the fishing season beginning April 1 of the year listed.

⁶ Active and latent permit counts are summarized by calendar year (Jan 1 - Dec 31) for the year listed.