Scoping Information Document for Council Action to Authorize the Use of Shallow-Set Longline Gear outside the West Coast Exclusive Economic Zone under the Fishery Management Plan for West Coast Fisheries for Highly Migratory Species

Prepared by Council Staff

1.0 Introduction

During and subsequent to the development of the Fishery Management Plan for West Coast Fisheries for Highly Migratory Species (HMS FMP) the Council has considered authorizing a pelagic longline fishery targeting swordfish. The conventional method for targeting swordfish involves setting the gear at night at shallower depths; this technique is commonly referred to as shallow-set longline (SSLL).[1] Currently, the use of SSLL is prohibited except when fishing under a western Pacific longline limited entry permit issued pursuant to 50 CFR 660.21, and authorized under the Western Pacific Fishery Management Council's (WPFMC) Pelagic Fishery Ecosystem Plan. In addition, the use of longline gear to target HMS is prohibited within the West Coast Exclusive Economic Zone (EEZ) (50 CFR 660.712(a)).

The Council has again decided to revisit the question of authorizing a West Coast SSLL fishery outside the West Coast EEZ. This scoping paper provides information on the background and current status of this issue in the following sections:

Sections 2-7 provide a history of the issue and an overview of different aspects of a potential proposed action. The last section poses several question to stimulate discussion about the proposed action.

2.0 History of the Pelagic Longline Fishery on the West Coast

A significant California-based shallow-set longline (SSLL) fishery began in 1993 with the arrival of vessels from the Gulf of Mexico. An active pelagic longline fishery based out of Hawaii already existed at that

[1] In Federal regulations, shallow-set is defined as setting gear so the deepest point of the mainline between any two floats is 100 meters or less (c.f. 50 CFR 660.705(pp)).

time. However, in 1991 the WPFMC implemented a moratorium on new entrants followed by a license limitation (limited entry) program in 1994, because the fishery had rapidly expanded in the late 1980s and early 1990s and it was concerned about the negative effects of gear and market competition. This limited the ability of the Gulf longliners to enter that fishery. At the same time California state law prohibited landing fish caught with pelagic longline gear in the West Coast EEZ in California ports. By 1994, 31 vessels comprised this California-based fishery, fishing the grounds beyond the EEZ, and landing swordfish and tunas in California ports. These vessels fished alongside Hawaiian vessels in the area around 135° W. longitude in the months from September through January. Historically, vessels from Hawaii had the option of returning to Hawaii to land their catch or landing their catch on the West Coast.

The California fishery declined from its peak in the mid-1990s, because the Gulf vessels either acquired the permits necessary to enter the Hawaii fishery or returned to the Gulf. But the fishery demonstrated that swordfish were seasonally available, in the fall and winter, farther east than the Hawaii fleet had traditionally operated.

As a result of the verdict in the case *Center for Marine Conservation vs. NMFS* (D. Haw. Civ. No. 99-00152 DAE), restrictions were imposed in 2001 to protect loggerhead sea turtles from being taken, effectively eliminating the Hawaii swordfish fishery. At that time, some Hawaiian longline permit holders deregistered their vessels from the permit, and proceeded to fish from California ports, as was their custom during fall and winter months.

A West Coast longline fishery operated between 2001 and 2004 based mainly on the activities of these deregistered Hawaiian vessels. In 2004, two events occurred that caused the West Coast fishery to close and the Hawaii fishery to reopen. As discussed below, the implementation of the HMS FMP effectively closed the West Coast fishery. At almost the same time, in response to litigation (*Hawaii Longline Association v. NMFS*, No. 1:01cv00765:CKK (D.D.C.)), the Hawaii fishery was proposed to be reopened with a variety of gear and effort restrictions to reduce impacts on sea turtles.

The HMS FMP, as submitted to NMFS for approval by the Council in August 2003, would have authorized a West Coast-based SSLL fishery on the high seas outside the EEZ, east of 150° W longitude, and north of the equator; however, on February 4, 2004, NMFS informed the Council that it had approved the HMS FMP with the exception of the provision that would have allowed SSLL fishing by West Coast-based vessels targeting swordfish east of 150° W. longitude. The disapproval was based on the ESA section 7 consultation for the HMS FMP, which concluded that allowing shallow sets for swordfish with traditional gear and no effort limits east of 150° W. longitude would appreciably reduce the likelihood of survival and recovery of threatened loggerhead sea turtles (i.e., jeopardize their continued existence).

Section 204(a)(3) of the MSA requires NMFS, if an FMP is disapproved in part or in whole, to advise the Council of actions it can take to address the disapproved FMP provisions. In the February 4, 2004, letter NMFS indicated to the Council that alternative gear and bait options (e.g., circle hooks and mackerel-type bait[2]) then being tested in the U.S. Atlantic pelagic longline swordfish fishery had proven successful in significantly reducing sea turtle interactions and consequent injury to and mortality of sea turtles. NMFS advised the Council that possible use of alternative gear and bait requirements, effort limits, time/area limits, turtle take limits, or other measures that would limit sea turtle mortality to low levels by any future West-Coast-based SSLL fishery might provide the necessary conservation and management measures to operate a fishery without jeopardizing the continued existence of ESA-listed sea turtles.

Since that time, the alternate gear and bait modifications have proven successful in existing domestic (e.g., western Atlantic Ocean and Hawaii-based) and foreign (e.g., Italy, Brazil, Ecuador, and Uruguay) shallow-

[2] The term "mackerel-type bait" refers to mackerel and similar fish species used for bait.

set longline fisheries in reducing sea turtle interactions[3] and mortalities[4] as compared to traditional J-hooks and squid (*Illex* spp.) bait while maintaining an economically viable fishery (Boggs and Swimmer 2007; Gilman, *et al.* 2006; Largacha, *et al.* 2005; Lewison and Crowder 2007; Watson and Kerstetter 2006; Watson, *et al.* 2005). In the Hawaii-based SSLL swordfish fishery, the overall marine turtle interactions have been reduced by 89 percent, and there has been a significant increase in the proportion of turtles released alive after removal of all terminal tackle, which may increase the likelihood of turtles surviving post-hooking mortality (Gilman and Kobayashi 2007). As a result of these successful gear innovations, at the April 2007 Council meeting NMFS again recommended that the Council revisit the disapproved portion of the HMS FMP.

In April 2009 the Council considered Amendment 2 to the HMS FMP, which would have authorized a shallow-set longline fishery outside of the West Coast EEZ. At that time the Council decided not to move forward with the FMP amendment. The proposed action would have imposed gear requirements equivalent to those used by the Hawaii fishery, and caps on sea turtle interactions. Alternatives were also proposed that would have authorized an open access fishery or established a limited entry permit program allowing up to 20 vessels in the fishery (see Agenda Item D.2 Attachment 1, Preliminary Draft Environmental Impact Statement, April 2009). Under the proposed limited entry program qualification for a permit would have been based on a documented history of swordfish landings on the West Coast.

3.0 Operation of the Hawaii Shallow-Set Longline Fishery since 2004

The Hawaii shallow-set longline swordfish fishery reopened on April 2, 2004, as a limited "model" fishery using large (18/0) circle hooks with up to a 10° offset and mackerel-type bait.[5] As described above, this gear has been demonstrated to substantially reduce the incidental take of sea turtles in comparison to traditional SSLL gear employing J-hooks and squid bait. This model fishery was restricted to 2,120 sets annually and hard caps that limit the number of sea turtle interactions with fishing gear in any one year, which were set at 16 leatherbacks and 17 loggerheads. The Hawaii SSLL fishery is subject to 100 percent observer coverage, which allows monitoring of takes and strict enforcement of the take caps. As a result, Hawaii-permitted vessels may fish in the entire north Pacific, including seaward of the U.S. West Coast EEZ and east of 150° W. longitude and land in Hawaii or U.S. West Coast ports if in compliance with existing state and Federal requirements, including possession of a valid HMS FMP permit.

In 2008 the WPFMC adopted Amendment 18 to the Pelagics FMP, which removed the limit of 2,120 sets. NMFS reinitiated ESA Section 7 and published a biological opinion on October 15, 2008. Based on the incidental take estimate of 46 loggerheads and a conclusion that this level of take would not cause jeopardy, the loggerhead cap was increased to 46. However, On December 16, 2009, plaintiffs Turtle Island Restoration Network, Center for Biological Diversity, and KAHEA filed a lawsuit in the U.S. District Court in Hawaii to challenge this increase in the cap. A settlement agreement was reached in 2011 which returned the loggerhead cap to 17.

The most recent biological opinion was published on January 30, 2012.[6] The incidental take statement in this BO resulted in a regulatory change increasing the hard caps to 26 leatherback turtles and 34 loggerhead turtles on November 5, 2012. Table 1 shows the annual interactions, interactions per 1,000 hooks set, and cap levels since the fishery reopened in 2004 through 2014. Figure 1 displays the interaction rates during

[3] "Interactions" are defined as hooking, entanglement, or a combination of both in the fishing gear.
[4] Mortalities are defined here as turtles that were either observed or estimated to have suffered mortality as a result of interaction with fishing gear.
[5] The action reopening the fishery was the WPFMC's Regulatory Amendment 3 and the final rule at 69 FR 17329.
[6] Subsequent technical corrections were filed on May 22 and 29, 2013.

this period. To date, the interaction caps have been reached twice: In 2006 17 loggerhead interactions occurred and in 2011 16 leatherback interactions occurred.

Table 1. Leatherback and loggerhead annual interactions, interaction rate, and hard caps, 2004-2014. (Source: http://www.fpir.noaa.gov/SFD/SFD_turtleint.html). The fishery closed on March 20, 2006, as a result of reaching annual loggerhead interaction limit of 17 and again on November 18, 2011, as a result of reaching annual interaction leatherback limit of 16 (interaction indicated in red).

Year	Leatherback Interactions	Leatherback Cap	Interactions / 1,000 hooks	Loggerhead Interactions	Loggerhead Cap	Interactions / 1,000 hooks
2004	1	16	0.009	1	17	0.009
2005	8	16	0.006	12	17	0.009
2006	1	16	0.001	**17**	17	0.024
2007	5	16	0.004	15	17	0.011
2008	2	16	0.001	0	17	0.000
2009	9	16	0.005	3	17	0.002
2010	8	16	0.004	7	46	0.004
2011	**16**	16	0.011	12	17	0.008
2012	7	26	0.005	6	34	0.004
2013	11	26	0.010	6	34	0.006
2014	16	26	0.011	15	34	0.010

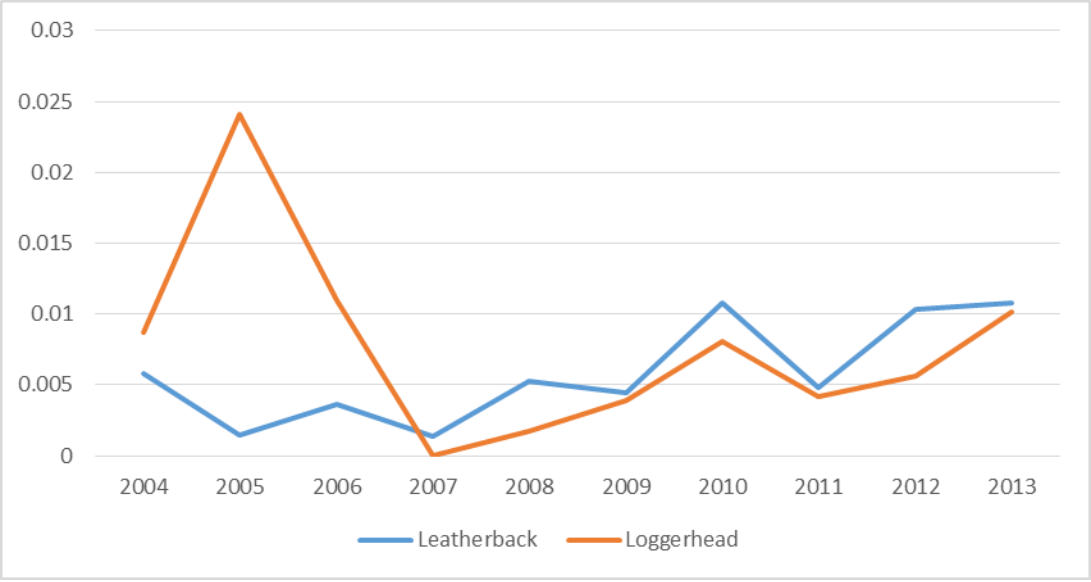

Figure 1. Interaction rates (interactions / 1,000 hooks set) in the Hawaii SSLL fishery for leatherback and loggerhead sea turtles, 2004-2014.

This estimated incidental take level is based on forecasting "a gradual increase to a maximum of 5,500 sets annually, which represents the approximate maximum annual number of sets that occurred during the period 1994-1999, prior to the fishery's closure due to sea turtle interactions" (NMFS 2012, page 10). However, as shown in Table 2 and Figure 2, the maximum annual number of sets since the fishery reopened in 2004

is 1,833 in 2010. Since then the number of sets has declined below the average number for the time series since 2005 (noting that fishing effort in 2004 is anomalous since the fishery opened late in the second quarter). The total number of hooks set annually shows the same general trend although the average number of hooks per set has increased slightly over the time period. This difference between forecast fishing effort and actual effort partly accounts for the difference between the hard caps and observed interactions.

Table 2 Data on fishing effort in the Hawaii SSLL fishery, 2004-2014. "Annual summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived for NMFS Western Pacific Daily Longline Fishing Log records." (Source: Hawaii Longline Fishery Logbook Summary Reports, http://www.pifsc.noaa.gov/fmb/reports.php.)

Year	Number of active vessels	Number of trips	Number of sets	Number of hooks set
2004	7	11	135	113,318
2005	33	109	1,645	1,385,457
2006	35	57	850	705,446
2007	28	88	1,570	1,371,949
2008	27	93	1,597	1,496,298
2009	28	112	1,762	1,721,346
2010	28	108	1,833	1,803,432
2011	20	82	1,468	1,489,243
2012	18	81	1,355	1,453,234
2013	15	58	962	1,060,341
2014	20	81	1,338	1,483,809

Figure 2. Annual number sets (left axis) and active vessels (right axis) in the Hawaii SSLL fishery, 2004-2012. Source: Hawaii Longline Fishery Logbook Summary Reports, http://www.pifsc.noaa.gov/fmb/reports.php.

4.0 Swordfish Landings on the West Coast

On the West Coast Hawaii longline vessels now account for a larger share of swordfish landings and revenue than West Coast fisheries managed under the HMS FMP (see Figure 3). Since 1990 swordfish landings in both Hawaii and the West Coast (from all gear types) have declined substantially so that in 2014 there was a relatively small difference between the two regions, 759 mt in Hawaii and 533 mt on the West Coast (see Figure 4). Table 5 shows the top 50 ranked vessels in terms of swordfish landings by gear type, 2011-2014. It can be seen that 18 out of the top 20 are Hawaii SSLL vessels while only 2 are California large mesh drift gillnet (DGN) vessels, which is the largest swordfish fishery (by landings volume) managed under the HMS FMP.

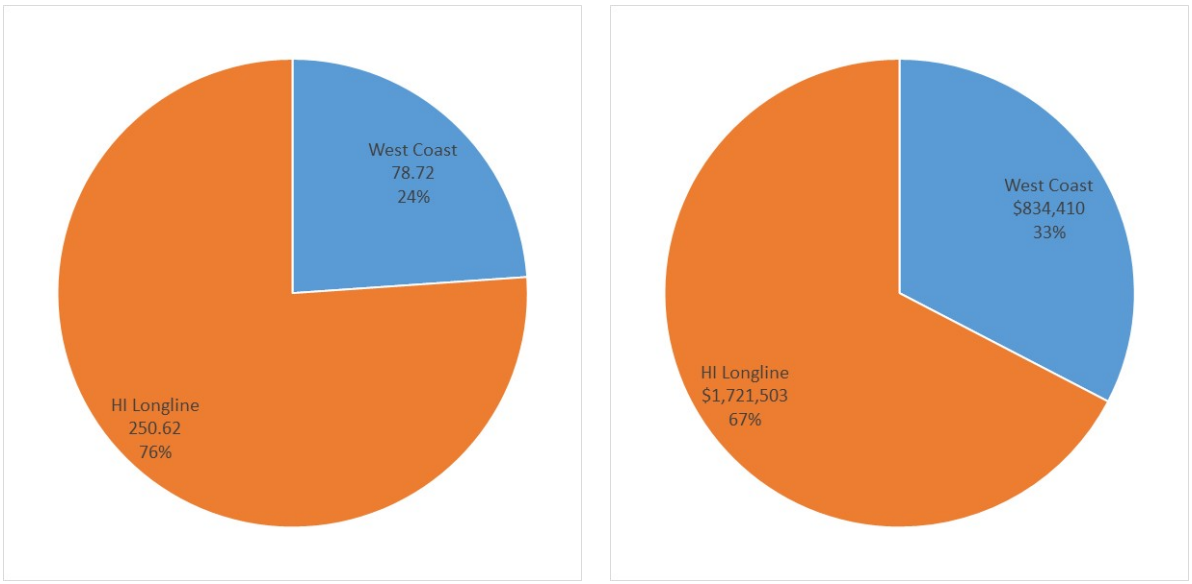

Figure 3. Average annual swordfish landings (left), metric tons, and nominal revenue (right) for Hawaii longline vessels and West Coast fisheries landing in West Coast ports, 2010-2014. (Source: PacFIN, 6/26/15)

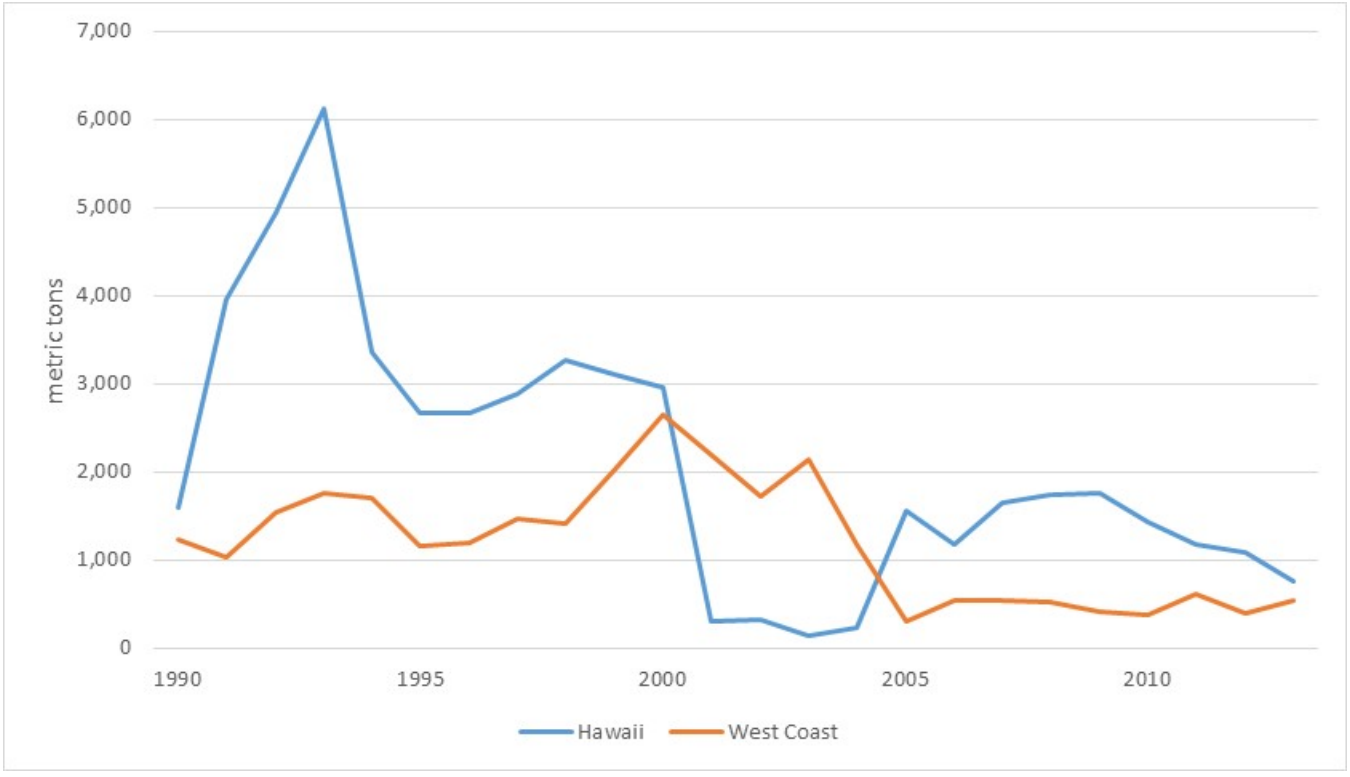

Figure 4. Swordfish landings (mt) to the West Coast and Hawaii, 1990-2013. (Source: NMFS OST Commercial Fishery Statistics).

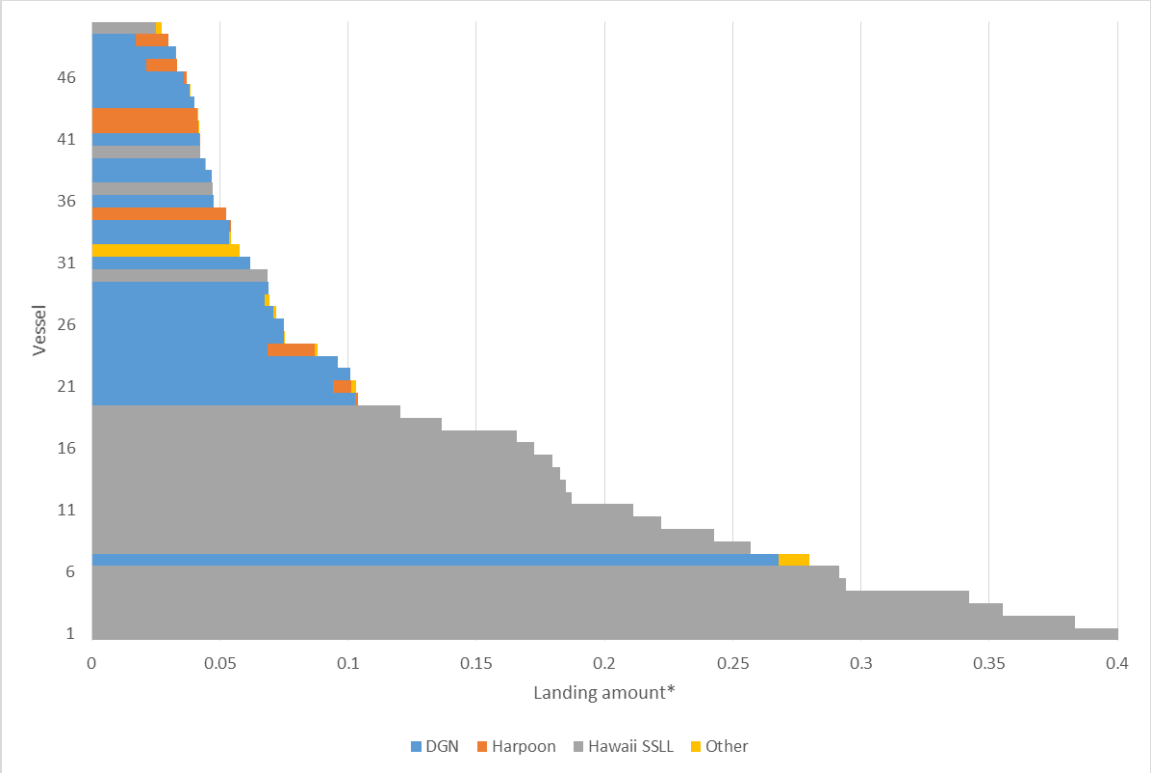

Figure 5. Vessels with highest West Coast swordfish landings, 2010-2014. *Actual landing amounts multiplied by a random number to preserve data confidentiality. Note: The "Other" category may include miscoded landings. (Source: PacFIN, 6/26/15)

5.0 Action Area for a Potential West Coast SSLL Fishery

As originally proposed, the HMS FMP would have only authorized an SSLL fishery east of 150°W longitude (50 CFR 660.712(a)(2)). Table 3 is excerpted from the 2012 BO for the Hawaii SSLL fishery (NMFS 2012) with the potential area of operation of a West Coast fishery superimposed based on measures originally proposed in the HMS FMP. It is reasonable to assume that a West Coast fishery would operate in the portion of the area within which the Hawaii fishery operates east of 150°W longitude. Although the level of fishing effort would depend on the number of vessels authorized to participate in the fishery (among other factors such as other management measures, resource availability, and market conditions), the distribution of effort is likely to be similar. If so, most fishing effort would occur between 30°N and 40°N latitude.

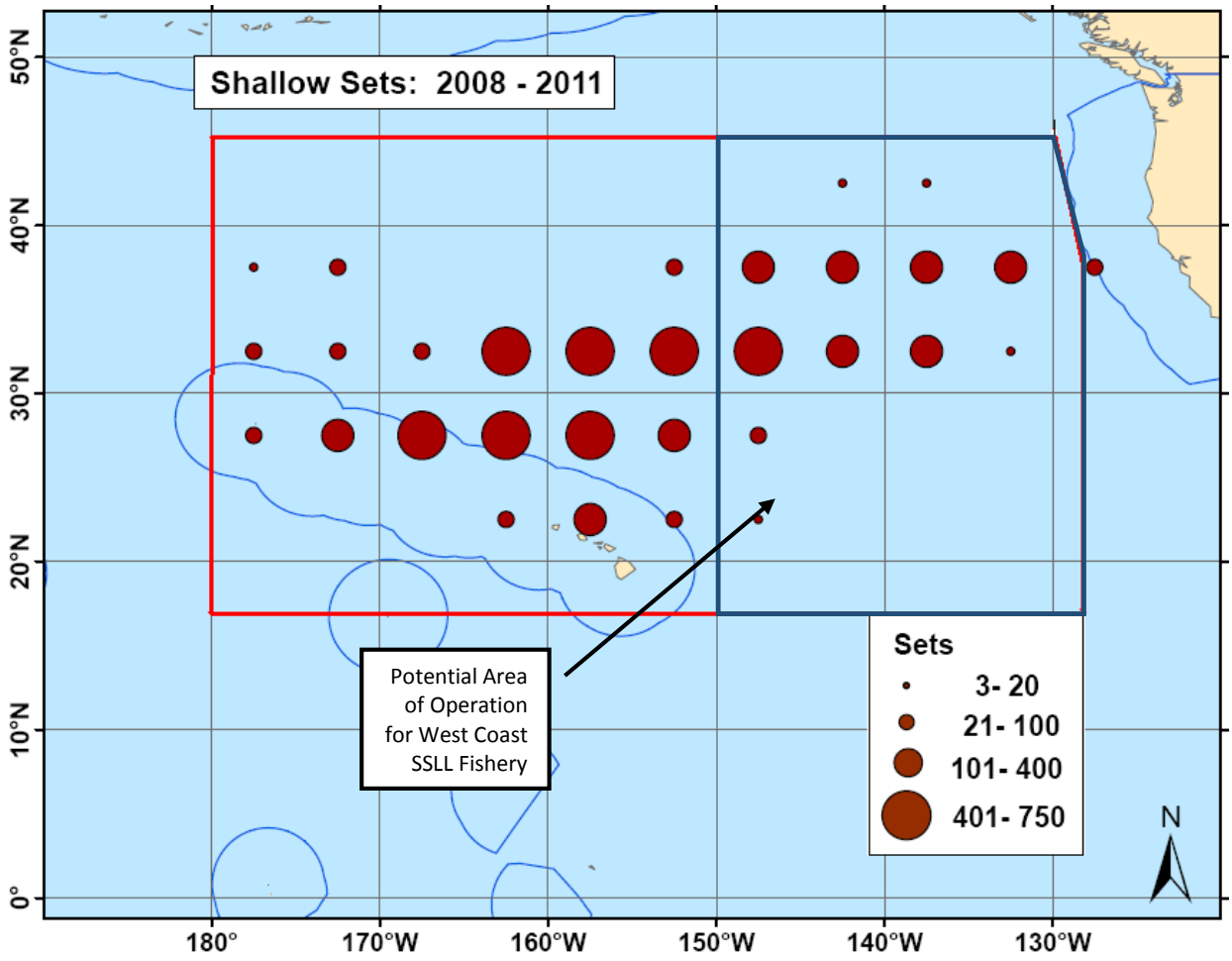

Figure 6. Location of shallow sets made by the Hawaii shallow-set longline fishery from 2008-2011. Some sets do not appear on the map due to confidentiality rules. Action Area is in the red polygon. No sets were made in the California EEZ; circle appears there due to the application of the data confidentiality rules. (Source: NMFS 2012)

6.0 Protected Species Impacts

Given the likely overlap in the area where a West Coast SSLL fishery is likely to operate and the Hawaii SSLL fishery action area, the most recent ESA section 7 consultations and biological opinions for the Hawaii fishery prepared by NMFS and the USFWS (for short-tailed albatross) likely give an accurate account of ESA-listed species potentially adversely affected by a West Coast fishery. Table 3 is excerpted from the 2012 NMFS biological opinion (NMFS 2012) and lists the ESA listed species affected by the proposed action. Of these, humpback whales, the North Pacific DPS of loggerhead sea turtles, leatherback sea turtles, olive ridley sea turtles, and green sea turtles are identified as being potentially adversely affected.

Table 3. ESA-listed marine species affected by the Hawaii SSLL fishery has identified in the NMFS biological opinion (Table 1 in NMFS 2012).

Species	Scientific Name	ESA Status	Listing Date	Federal Register Reference
a. Species not likely to be adversely affected by the proposed action.				
Hawaiian Monk Seal	*Monachus schauinslandi*	Endangered	11/23/1976	41 FR 51612
Blue Whale	*Balaenoptera musculus*	Endangered	12/02/1970	35 FR 18319
Fin Whale	*B. physalus*	Endangered	12/02/1970	35 FR 18319
Sei Whale	*B. borealis*	Endangered	12/02/1970	35 FR 18319
Sperm Whale	*Physeter macrocephalus*	Endangered	12/02/1970	35 FR 18319
N. Pacific Right Whale	*Eubalaena japonica*	Endangered	12/27/2006	71 FR 77694
Hawksbill Sea Turtle	*Eretmochelys imbricata*	Endangered	7/28/1978	43 FR 32800
b. Species likely to be adversely affected by the proposed action.				
Humpback Whale	*Megaptera novaeangliae*	Endangered	12/02/1970	35 FR 18319
North Pacific DPS Loggerhead Sea Turtle	*Caretta caretta*	Endangered	9/22/2011	76 FR 58868
Leatherback Sea Turtle	*Dermochelys coriacea*	Endangered	06/02/1970	35 FR 8491
Olive Ridley Sea Turtle	*Lepidochelys olivacea*			
Nesting aggregations on Pacific coast of Mexico		Endangered	7/28/1978	43 FR 32800
All other Olive Ridley turtles		Threatened	7/28/1978	43 FR 32800
Green Sea Turtle	*Chelonia mydas*		7/28/1978	43 FR 32800
Nesting aggregations, Pacific coast Mexico, Florida		Endangered	7/28/1978	43 FR 32800
All other Green turtles		Threatened	7/28/1978	43 FR 32800

Table 4 excerpts the expected number of interactions of the adversely affected species from the 2012 biological opinion. As noted above, these estimates are based on an assumed fishing effort level of 5,500 sets per year while through 2014 the annual number of sets in the Hawaii SSLL fishery has not exceeded 2,000 sets. The two-year estimates, rather than one-year, are used as criteria for reinitiation of consultation, because "Annual take estimates can have high variability because of natural variation" (NMFS 2012, p. 125). Note that the sea turtle hard caps discussed above are not a condition specified in the BO. Rather, they were implemented as a mitigation measure to reduce the likelihood that interactions in the fishery would trigger reinitiation.

Table 4. The number of humpback whale and turtle interactions expected from the proposed action during 1 calendar year, and 2 consecutive calendar years. Also shown are the total mortalities (males and females, adults and juveniles) expected to result from this number of interactions. (Excerpted from Table 12 NMFS 2012) (The table in the 2012 biological opinion was updated by a May 22, 2013, memo to file to correct the calculation of humpback whale interactions.)

	1-year		2-year	
Species	Interactions	Total mortalities	Interactions	Total mortalities
Humpback whales	2	0.40	4	0.80
N. Pacific Loggerhead	34	7	68	14
Leatherback turtles	26	6	52	12
Olive ridley turtles	2	1	4	2
Green turtles	3	1	6	2

In 2012 the USWFS consulted with NMFS on the effects of both the Hawaii SSLL and deep-set fisheries on short-tailed albatross (USFWS 2012). Formal consultation for the Hawaii pelagic longline fishery (both shallow-set and deep-set segments) was first completed in 2000. Formal consultation was reinitiated in

2002 for the deep-set fishery and in 2004 for the shallow-set fishery. An informal consultation was completed in 2008 on the effects of Amendment 18 to the WPFMC Pelagics FMP. The 2012 consultation consolidates and updates information from these and other sources into a single biological opinion covering both fishery segments. The 2012 BO explains the basis for reinitiation:

> Since 1994 when NMFS began its onboard observer program for the fisheries, there have been no observed interactions with the short-tailed albatross. However, there have been observed interactions (hooking or entanglement) between these fisheries and other albatross species including the black-footed albatross (*P. nigripes*) and Laysan albatross (*P. immutabilis*). The short-tailed albatross population is growing at a rate of 5% to 8% per year [citation omitted] and successfully nested on Midway Island National Wildlife Refuge in 2010 and 2011. As the population continues to grow and expand its range there is increased potential for interaction by the Hawaii-based pelagic longline fisheries with this listed species. (p. 1)

Seabird mitigation measures for the Hawaii pelagic longline fishery are described at 50 CFR 665.815. The regulations require vessels to either side set with a bird curtain deployed or employ various other measures such as managing the discharge of offal and using thawed, blue-dyed bait. These regulations also require SSLL vessels to deploy and retrieve gear after sunset and before sunrise.

The USFWS biological opinion concludes that one short-tailed albatross may be taken every five years in the form of injury or death as a result interactions with fishing activity in the Hawaii SSLL fishery. This level of take was found not to jeopardize the continued existence of the species.

Figure 7 shows the observed seabird interactions by species in the SSLL since 2004. Laysan albatross accounted for 68% of interactions and blackfooted albatross for 31%; other bird species observed interacting in small numbers include northern fulmar and shearwaters.

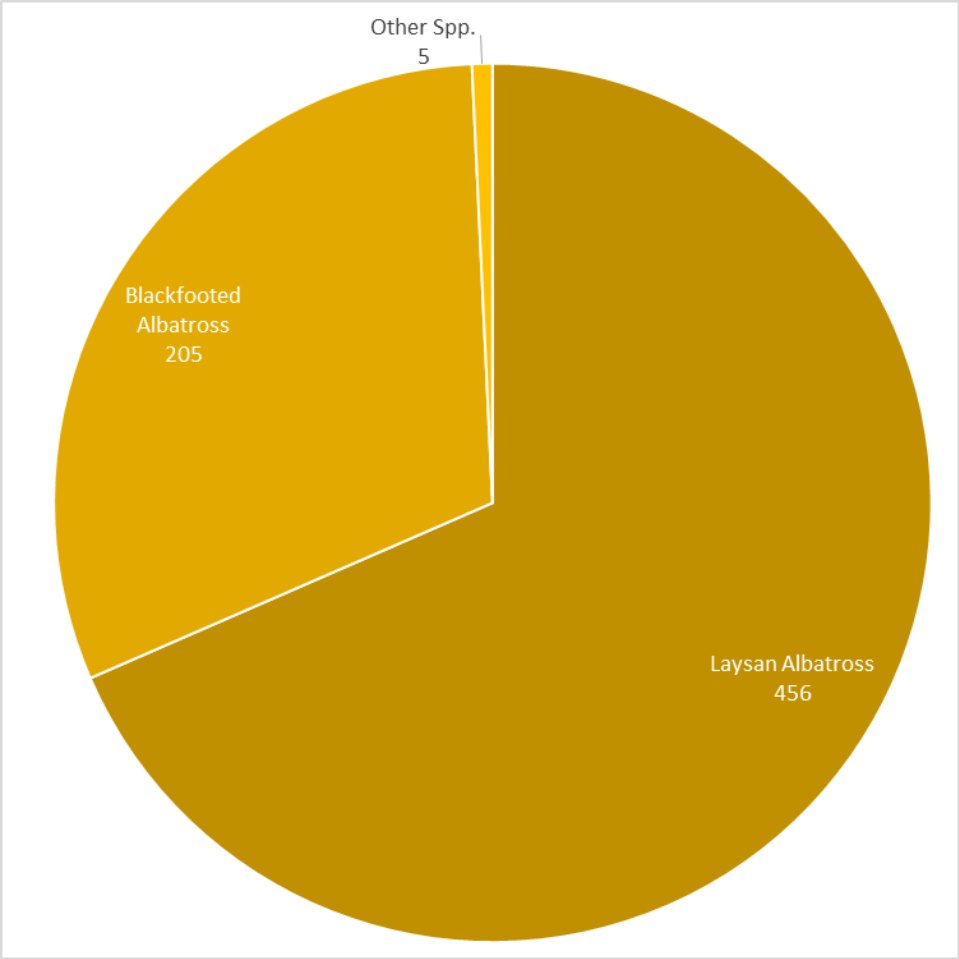

Figure 7. Observed seabird encounters in the SSLL fishery, number by species, 2004-2014. (Source: Hawaii Longline Shallow Set Quarterly and Annual Status Reports)

Table 5 shows the observed condition upon release for seabirds, drawn from the same data set. Twenty-three percent were observed released dead; the remainder were released either injured or alive.

Table 5. Observed condition of seabirds in the SSLL fishery, 2004-2014. (Source: Hawaii Longline Shallow Set Quarterly and Annual Status Reports)

Release Condition	Number	Percent
Alive	53	7%
Injured	440	59%
Dead	173	23%

Figure 8 displays the annual observed seabird interaction rates since 2004 through 2014. Seabird interactions show an upward trend.

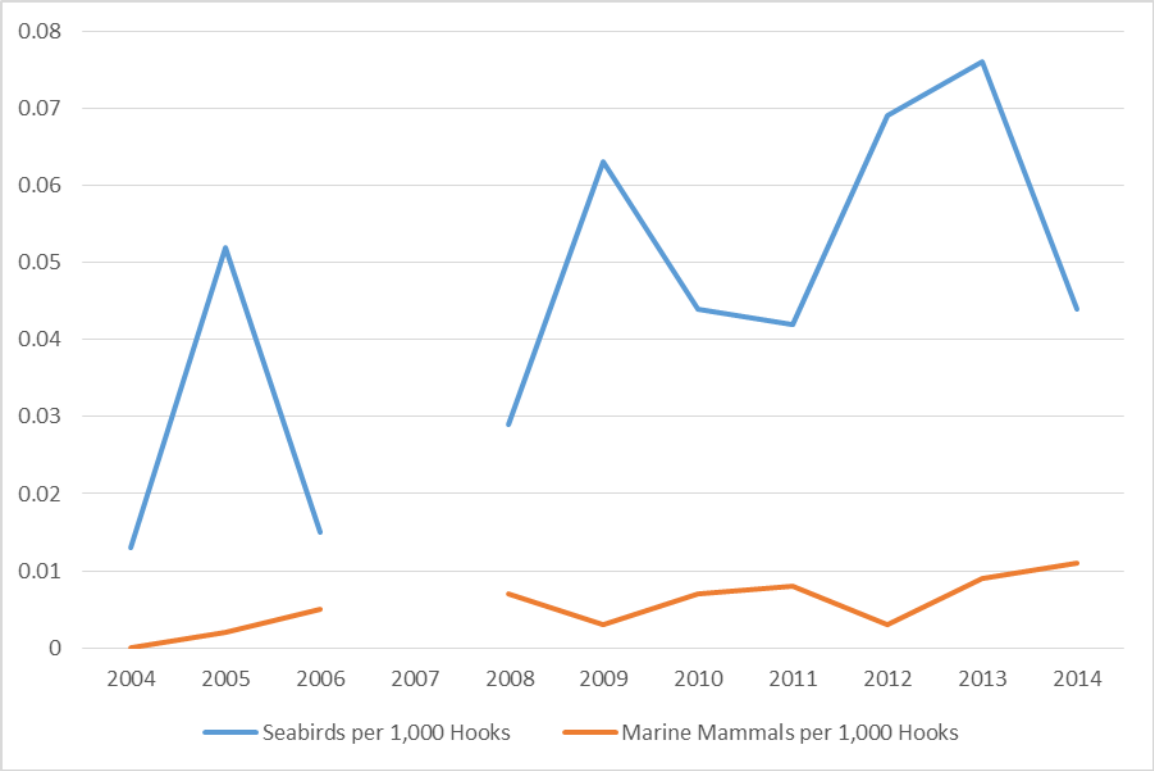

Figure 8. Annual observed interaction rates for seabirds and marine mammals in the Hawaii SSLL fishery. (Annual estimates for 2007 unavailable for confidentiality reasons.) (Source: Hawaii Longline Shallow Set Quarterly and Annual Status Reports)

Under the MMPA, the Hawaii SSLL fishery is listed as a Category II fishery, meaning that it causes occasional incidental mortality or serious injury of marine mammals. Because of this level of impact a Take Reduction Plan has not been prepared for the fishery. Figure 9 shows observed marine mammal interactions by species and number since 2004. Risso's dolphin is the most common species, accounting for 41% of interactions, followed by bottlenose dolphin with 19%. Seventy-three out of 81 observed marine mammals, or 90%, were released injured versus 10% released dead. Figure 8 shows marine mammal interaction rates since 2004. The rate appears to have varied without trend over this period although 2014 shows the highest interaction rate at 0.011 marine mammals per 1,000 hooks set.

Note that humpback whale is the only ESA-listed marine mammal species observed taken in the Hawaii SSLL fishery and the impacts to the species were evaluated in the 2012 biological opinion. Three North Pacific stocks have been identified: 1) California/Oregon/Washington and Mexico; 2) central North Pacific

(CNP), which migrates between the Hawaiian Islands and northern British Columbia/Southeast Alaska, Gulf of Alaska, and the Bering Sea/Aleutian Islands; and 3) western north Pacific. The Hawaii SSLL fishery interacts with the CNP stock. The North Pacific population is recovering; according to the opinion:

> Based on whaling statistics, before 1905 the north Pacific population(s) was estimated to be 15,000 and was reduced by whaling to approximately 1,000 before it was placed under international protection in 1965 (NMFS 1991). Protection from whaling was effective, resulting in the north Pacific population rebounding to approximately 21,000 individuals by 2010 (NMFS 2011).

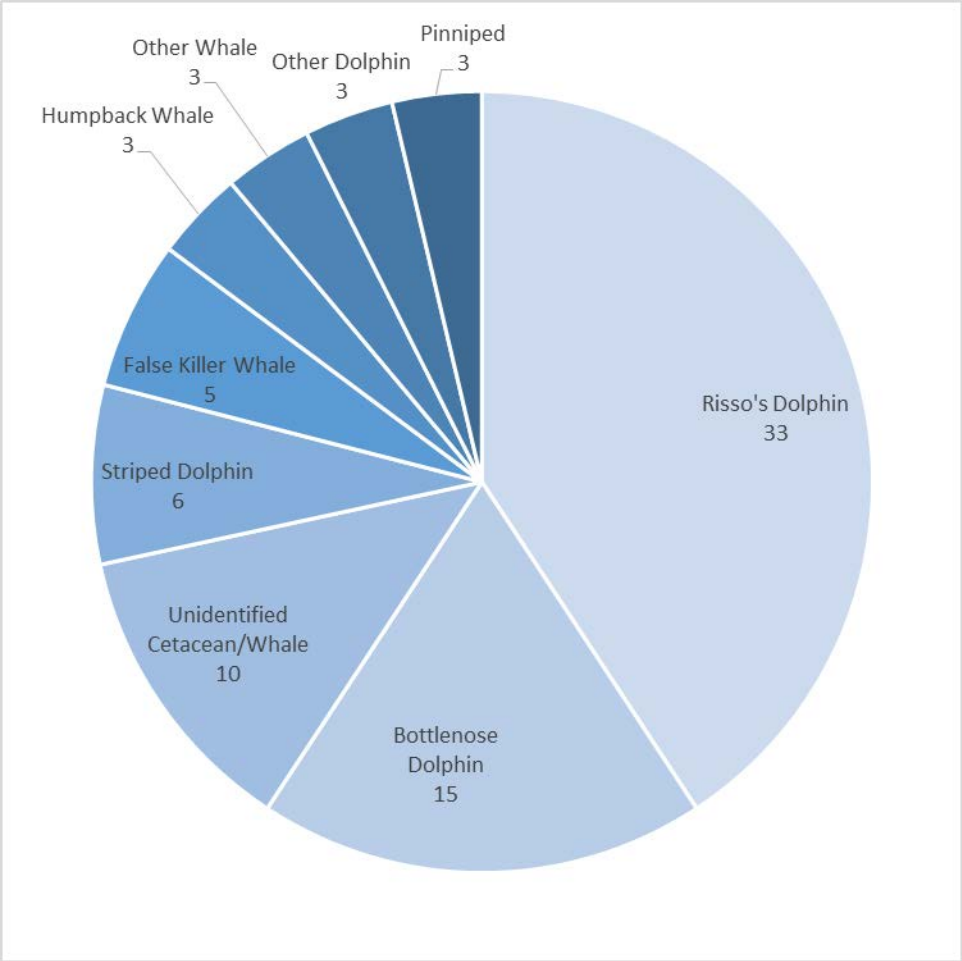

Figure 9. Observed marine mammal interactions in the Hawaii SSLL fishery, 2004-2014. (Source: Hawaii Longline Shallow Set Quarterly and Annual Status Reports)

7.0 Catch and Bycatch

Figure 10, Figure 11, and Table 6 summarize data on finfish catch since 2004 from Hawaii longline logbook summary reports for the SSLL fishery. Swordfish, the target, accounts for 43% of total catch in numbers followed by blue shark at 28%. As a group sharks account for 31% of the catch (Figure 10) and are mostly discarded with a bycatch rate (number released divided by number caught) of 99% (Table 6).

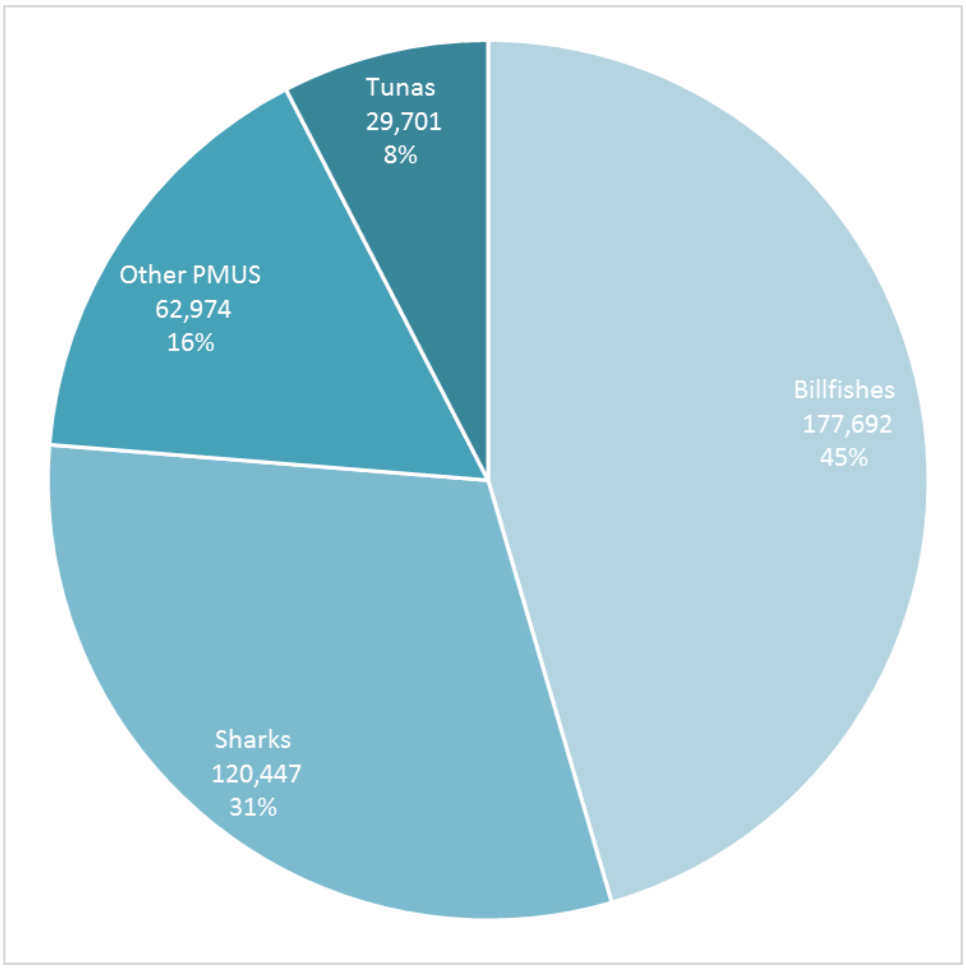

Figure 10. Catch (number of fish) by species category in the Hawaii SSLL fishery, 2004-2014. (Source: Hawaii Longline Fishery Logbook Summary Reports)

Figure 11. Clockwise, species catch (number of fish) of billfish, sharks, tunas, and other species in the Hawaii SSLL fishery, 2004-2014. (Source: Hawaii Longline Fishery Logbook Summary Reports)

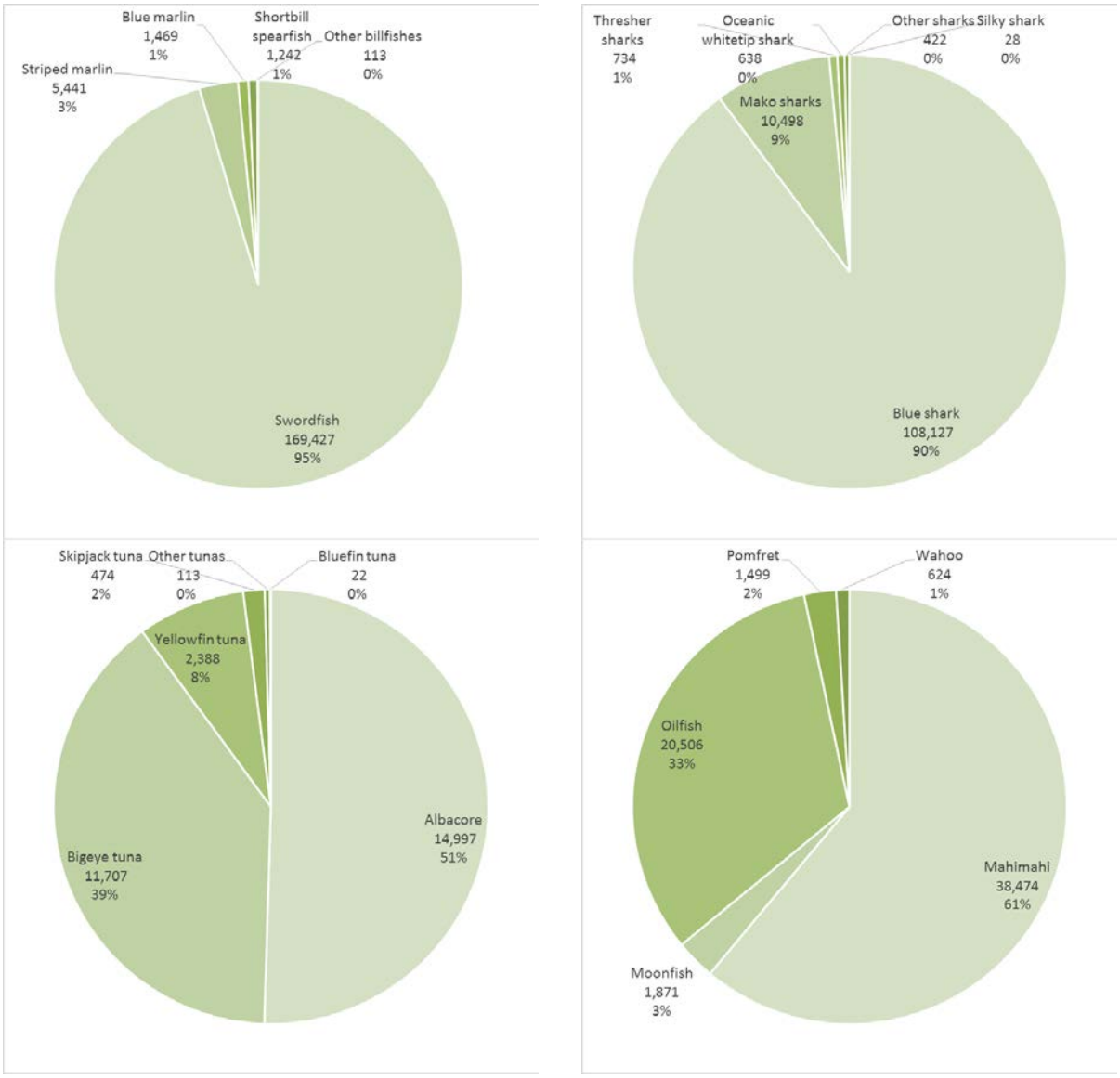

Table 6. Number of fish caught, kept, released and the bycatch rate (number released divided by number caught) by species in the Hawaii SSLL fishery, 2004-2014. (Source: Hawaii Longline Fishery Logbook Summary Reports)

Species	Number Caught	Number Kept	Number Released	Bycatch Rate
Billfishes	**177,692**	**162,333**	**15,359**	**8.6%**
Blue marlin	1,469	1,372	97	6.6%
Other billfishes	113	96	17	15.0%
Shortbill spearfish	1,242	1,014	228	18.4%
Striped marlin	5,441	4,954	487	9.0%
Swordfish	169,427	154,897	14,530	8.6%
Sharks	**120,447**	**1,557**	**118,890**	**98.7%**
Blue shark	108,127	288	107,839	99.7%
Mako sharks	10,498	1,166	9,332	88.9%
Oceanic whitetip shark	638	47	591	92.6%
Other sharks	422	5	417	98.8%
Silky shark	28	0	28	100.0%
Thresher sharks	734	51	683	93.1%
Tunas	**29,701**	**24,514**	**5,187**	**17.5%**
Albacore	14,997	10,970	4,027	26.9%
Bigeye tuna	11,707	10,768	939	8.0%
Bluefin tuna	22	21	1	4.5%
Other tunas	113	53	60	53.1%
Skipjack tuna	474	416	58	12.2%
Yellowfin tuna	2,388	2,286	102	4.3%
Other PMUS	**62,974**	**54,146**	**8,828**	**14.0%**
Mahimahi	38,474	34,976	3,498	9.1%
Moonfish	1,871	1,281	590	31.5%
Oilfish	20,506	16,168	4,338	21.2%
Pomfret	1,499	1,132	367	24.5%
Wahoo	624	589	35	5.6%
All Species	**390,814**	**242,550**	**148,264**	**37.9%**

The most recent stock assessment for swordfish in the North Pacific (Billfish Working Group 2014) identifies two stocks, a Western and Central North Pacific stock and an Eastern Pacific stock. The Western and Central North Pacific stock is healthy while the Eastern Pacific stock is subject to overfishing. Figure 12 shows the stock boundaries used in the assessment. For the Western and Central North Pacific in 2012 (the terminal year of the assessment) the stock relative biomass (B/B_{MSY}) was estimated at 1.20 and the relative harvest rate (H/H_{MSY}) was 0.58; the probability of the annual harvest rate exceeding H_{MSY} was zero. Comparable statistics for the Eastern Pacific stock are 1.87, 1.11, and 0.55. Thus, while stock biomass is well above MSY, overfishing is occurring with greater than a 50% probability. On June 18, 2015, NMFS notified the WPFMC that the EPO stock is subject to overfishing, triggering requirements in the MSA. The notification states "Based on federal logbook records, the 2012 catch of EPO swordfish by the U.S. was four (4) mt and caught by Hawaii longline vessels." This catch estimate was likely made based on the stock boundary identified in the assessment (Figure 12). This boundary is quasi-arbitrary so the actual catch of EPO swordfish by the Hawaii SSLL fishery could be more or less than the amount stated in the notification.

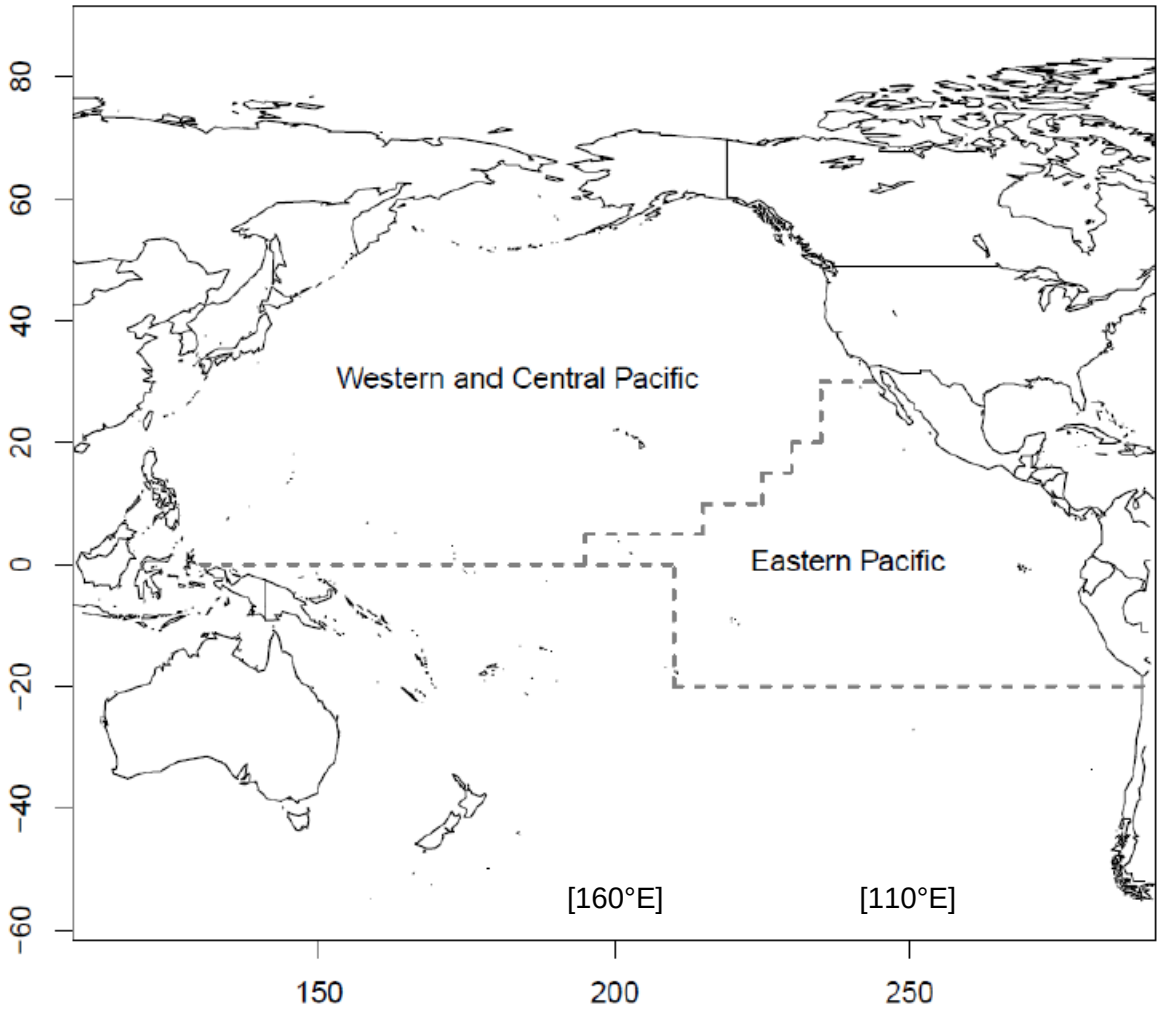

Figure 12. Two-stock structure for swordfish (*Xiphias gladius*) in the North Pacific Ocean, indicating separate stocks in the Western and Central Pacific Ocean and in the Eastern Pacific Ocean. (Figure 1 in Billfish Working Group 2014)

It is important to bear in mind that bycatch survival and species vulnerability should be taken into account when considering the conservation impact of bycatch species. Blue sharks account for 97% of all animals released according to the logbook data. Musyl, et al. (2011) estimate that blue sharks have a 15% post-release mortality rate. Relative to other shark species at least, blue sharks are less vulnerable. Gallagher, et al. (2014) evaluated observed at-vessel hooking survival of 12 shark species caught in the Atlantic pelagic longline fishery against operational (target, soak time and hook depth), environmental (sea surface temperature), and biological variables (animal length) variables. They also considered life history parameters to assess vulnerability of the different species. They estimated that in swordfish targeting sets blue shark mortality was 17.3%. They also gave blue shark the lowest vulnerability ranking (tied with tiger shark) of the 12 species evaluated. According to the most recent ISC stock assessment for blue shark in the North Pacific (ISC Shark Working Group 2014), the stock is healthy. Results from the Bayesian surplus production model show that in 2011 (the terminal year of the assessment) F_{RECENT}/F_{MSY} was 0.38 and B_{RECENT}/B_{MSY} was 1.65.

In considering a West Coast SSLL fishery striped marlin may be a factor, because commercial landing of this species is prohibited under the HMS FMP. According to logbook data, striped marlin has accounted

for 1.4% of total catch to date. The ISC Billfish Working Group conducted a stock assessment for the Western and Central North Pacific Stock in 2011. Based on population genetic studies and empirical patterns in the spatial distribution of fishery catch-per-unit effort it identified a boundary with the Eastern Pacific Stock at 140°W longitude. In 2015 the ISC completed an update assessment for the Western and Central North Pacific striped marlin stock. The ISC concluded "When the status of [Western and Central North Pacific] striped marlin is evaluated relative to MSY-based reference points, the 2013 spawning stock biomass is 61% below SSB_{MSY} (2819 t) and the 2010-2012 fishing mortality exceeds F_{MSY} by 49%. Therefore, overfishing is occurring relative to MSY-based reference points and the stock is overfished." The IATTC conducted an assessment update for the EPO stock in 2010 and concluded that "(1) the stock is not overfished; (2) overfishing is not occurring; (3) the spawning stock biomass has been increasing and is above that expected to support MSY catch; and (4) catches in recent years have remained at about half the MSY catch level."

Figure 13 shows annual CPUE in the Hawaii SSLL since 2004. CPUE for swordfish declined between 2006 and 2010 but has been stable since then.

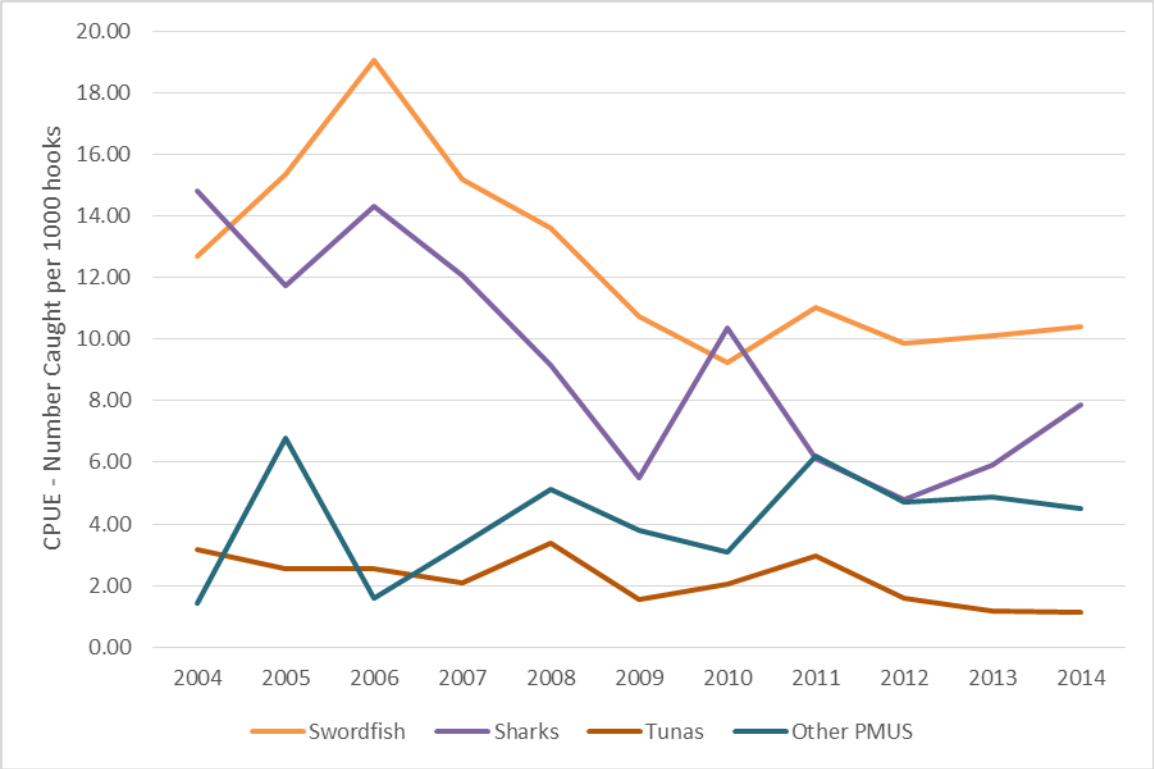

Figure 13. Annual CPUE (number caught per 1000 hooks) for swordfish and other species groups in the Hawaii SSLL fishery, 2004-2014. (Source: Hawaii Longline Fishery Logbook Summary Reports)

As with protected species take, it is important to bear in mind that the actual catch and bycatch in a West Coast SSLL fishery will not be identical to the Hawaii SSLL fishery. The amount of catch will depend on the size of the fishery (and CPUE relative to the Hawaii fishery) while the catch composition may differ, because the West Coast fishery would only operate in the eastern portion of the range of the Hawaii fishery (see Figure 6).

8.0 Scoping Questions and Issues

In order to stimulate discussion of the proposed action, several questions are discussed below.

Should the Council authorize a West Coast SSLL Fishery outside the EEZ?

As noted above, the Council last considered authorizing a SSLL fishery in 2009 but ultimately decided not to move forward with the proposed action, which was to amend the HMS FMP to authorize a West Coast based shallow-set longline (SSLL) fishery seaward of the EEZ in the North Pacific Ocean and require the use of innovative longline gear and methodologies (described in more detail in Chapter 2) and be subject to a range of restrictions and mitigation measures designed to minimize impacts to sea turtles, marine mammals, and seabirds. Some of the reasons given for not authorizing the fishery were:

- The proposed action would not sufficiently limit fishing effort when considering both an authorized SSLL fishery and the current DGN fishery given the number of latent permits in the latter
- Cost of observer coverage and the impact on coverage levels in other fisheries
- The proposed fishery would not provide enough swordfish to make any appreciable difference in meeting U.S. demand, especially if foreign providers compensate with lower prices
- Concern about incidental catch / bycatch of vulnerable/overfished finfish
- In light of the current status of bigeye, yellowfin, and albacore tuna, the U.S. should not increase fishing effort on these stocks
- Concern that any increase in protected species takes in the proposed fishery would have to be compensated for by reductions of takes in other fisheries

(Source: Minutes of the April 2009 PFMC meeting, pp. 12-13)

The Council should decide which of these concerns are still relevant and how to address them in developing the proposal.

A starting point for taking action is considering the status quo. As discussed above, the largest source of swordfish landings on the West Coast is the Hawaii SSLL fleet managed by the WPFMC. The Council could either formally defer management of a West Coast SSLL fishery to the WPFMC or develop a management regime in coordination with the WPFMC. This would be premised on facilitating Hawaii longline permit holders to operate full time from the West Coast. There are 164 transferable limited entry permits for the Hawaii pelagic longline fishery (encompassing both vessels targeting tuna and swordfish). In last five years, 2000-2014, the number of active Hawaii permitted vessels (targeting either tuna or swordfish) has ranged from 124 to 140, averaging 134. This suggests there are about 30 latent permits. A fishermen wanting to enter the SSLL fishery could potentially purchase a permit and operate from a West Coast port, although the cost of a permit may be a significant barrier to entry. The Council could work with the WPFMC to develop a regime for a West Coast fishery under these permits and investigate mechanisms to facilitate the transfer of currently unused permits to those interested in landing swordfish on the West Coast. An advantage of this approach is that the current BO assumes a higher level of fishing effort in the Hawaii SSLL fishery than has occurred in recent years. That means that an increase in fishing effort up to the 5,500 set level considered in the 2012 BO is unlikely to trigger a jeopardy conclusion and many other impacts considered when the Hawaii fishery reopened have been evaluated. Observer coverage would be another consideration. The Hawaii SSLL fishery is subject to 100% observer coverage provided by the NMFS Pacific Islands Regional Office Observer Program. An increase in the number of participating vessels could have budgetary implications for that Office.

It should be noted that early in the development of the HMS FMP the concept of a joint FMP with the WPFMC was considered but ultimately rejected. But working on a coordinated regime with the WPFMC may be more feasible.

What measures should be considered when developing the proposed action?

In April 2009 the Council considered, but rejected, a proposal for establishing a West Coast SSLL fishery, which offers a starting point for reconsidering the proposed action. The 2009 proposal contained the following elements:

- Fishery authorized east of 140° W. longitude
- Gear restrictions, consistent with those currently applicable to Hawaii longline limited access permit holders fishing with SSLL gear
- Sea turtle take caps set by the Council following completion of the biological opinion
- Seabird mitigation measures same as or equivalent to Hawaii regulations (60 CFR 665.35)
- 100 percent observer coverage required
- Limited entry program established with a maximum of 10 permits
- Limited entry permits cannot be transferred for the first 2 years and the permit holder must make a minimum of two swordfish landings during that period
- Permit application and appeals processes
- A prohibition on a person (or business entity) using both a West Coast SSLL permit and a Hawaii longline limited access permit or a California DGN to fish for swordfish at the same time

If the Council chooses to move forward with authorizing a SSLL fishery under the HMS FMP this list identifies most of the elements the Council will likely wish to consider.

What should be the objective of a limited entry program?

The 2009 proposal was premised on transitioning current DGN permit holders to another gear type, SSLL. The Council continues to support this objective. The concern about overall participation in both fisheries and the potential for latent DGN permits to be reactivated was one reason the 2009 proposal was rejected. The Council will be considering the creation of a federal limited entry permit for the DGN fishery (choosing a range of alternatives for this action is scheduled for the November 2015 Council meeting). The Council could consider how qualification criteria for a Federal DGN permit could facilitate transitioning permit holders to using SSLL gear. Considering that Hawaii SSLL vessels are delivering larger volumes of swordfish to the West Coast than DGN gear, permit qualification based on recent landings alone would not make sense, because top-ranked vessels are already registered to a Hawaii permit.

One problem with linking a West Coast SSLL permit to the DGN fishery is that participation in that fishery has declined and recent participants may not have the capital to reconfigure their vessels for a SSLL fishery, especially one that operates far offshore. Table 7 shows that the proportion of vessels participating in the DGN fishery greater than 60 feet has not changed appreciably between the 1996-2000 time period and the 2011-2014 time period, but the absolute number has declined. This decline may be partly due to the implementation of the Pacific Leatherback Conservation Area in 2001, closing off northern areas where vessels outfitted for rougher sea conditions would have operated.

Table 7. Length of vessels participating in the DGN fishery (at least one swordfish landing) in two time periods. Note: The reported length of a vessel was in some cases different in different years so an average of these values was used. (Source PacFIN, 6/29/15)

	1996-2000	2011-2014

Total no. of vessels	155	26
Number >60'	16	3
Proportion >60'	10%	12%

Should overall fishing effort be limited either in conjunction with or instead of limiting participation?

Limiting the number of participating vessels can indirectly address impacts such as protected species takes. Limiting fishing effort is another, more direct, way of mitigating impacts on resources and amenities. As noted above, when the Hawaii SSLL fishery reopened in 2004 a system to limit overall fishing effort was imposed as an additional precaution during the "model fishery" phase. A similar limit could be established for a West Coast fishery, especially if impacts would be considered in the context of the 5,500 sets used in the section 7 consultation for the Hawaii SSLL fishery.

What is the relation between the proposed action and the Council's interest in allowing the use of pelagic longline gear inside the West Coast EEZ?

The HMS FMP prohibits pelagic longline gear in the West Coast EEZ. This prohibition reflects prevailing state prohibitions at the time of FMP adoption. The Council considered four alternatives to No Action (continued state prohibitions) when developing the FMP. Aside from the adopted alternative, these included an indefinite moratorium on the activity with potential future reevaluation, allowing a limited entry fishery as an alternative to DGN gear, and exploring impacts through an exempted fishing permit (EFP). The Council has recommended NMFS issue an EFP to test pelagic longline gear inside the EEZ three times, in 2007, 2008, and 2015. To date NMFS has not issued a permit for this activity although the latest application is currently under review. In each instance the California Coastal Commission has requested the Office of Coastal Management to allow it to review the proposal for consistency with California's Coastal Management Program, because of its concern that the activity could adversely affect Pacific leatherback sea turtles, which it argues is a California coastal zone resource. The request for review was denied in 2008 in part because the EFP applicant agreed not to fish within 30 nmi of the coast. The Council recommended the 2015 application with a stipulation that fishing not occur within 50 nmi of the coast.

The ability to fish within the EEZ could be a significant benefit for vessels operating from the West Coast, not least because transit time to fishing grounds and related costs would be lower compared to fishing outside the EEZ. However, it may take some years of experimental fishing to determine whether the risk/reward tradeoff (bycatch impacts versus target species revenue) merits changing the current FMP prohibition. While it is likely that a West Coast SSLL fishery could be implemented sooner than a relaxation of the current prohibition on using pelagic longline gear in the EEZ, some thought should be given to the implication of allowing fishing in the EEZ at some later date. Tying permission to fish in the EEZ to a limited entry permit for SSLL (or both shallow- and deep-set pelagic longline) could confer significant value to the permit. On the other hand, if the Council decided to encourage a West Coast based SSLL fishery based on possession of a Hawaii permit, a requirement that a vessel can only fish inside the EEZ on trips originating and returning to a West Coast port could be a strong incentive for vessels to operate from the West Coast.

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