LIMITED ENTRY FIXED GEAR REVIEW—
OUTLINE FOR 2021, INCLUDING UPDATED INFORMATION FROM 2014 REVIEW

This document provides a draft outline for the 2021 limited entry fixed gear (LEFG) review derived from the 2014 LEFG program review ("2014 review"). Key data analyses from the previous review have been updated. Additionally, there are some new analyses that provide augmentations, particularly for sections not included in the previous review. Sections that have not been updated or are to be completed are noted.

The topics for analysis identified in this document are based on National Marine Fisheries Service (NMFS) guidelines for conducting catch share program reviews (NMFS Procedural Guidance 01-121-01). These guidelines recommend a number of analyses that might require substantial expansion of this document if included within the scope of the review. The guidelines identify that as an issue and suggest that some of the considerations requiring more extensive analysis might be conducted in separate efforts outside of the review and summarized within the review. The following are questions for the Council related to some of the larger pieces of analyses the guidelines recommend be included in the review.

2.2 Allocations (NMFS Procedural Guidance 01-121-01, pp 11-12)
Should this review examine the within LEFG allocations (primary, Daily Trip Limit [DTL])?

2.3 Eligibility (NMFS Procedural Guidance 01-121-01, p. 13)
Should the review assess impacts on those who have left the fishery? (If so, consider including in Section 2.10.)

2.6 Accumulation Limits/Caps (NMFS Procedural Guidance 01-121-01, pp 14-15)
Should this review include a detailed assessment of the accumulation limits?

2.7 Cost Recovery (NMFS Procedural Guidance 01-121-01, pp 15-16)
Should cost information be expanded and is a cost recovery program needed (also see 2.8)?

2.8 Data Collection/Reporting, Monitoring, and Enforcement (NMFS Procedural Guidance 01-121-01, pp 16-17)

- *How extensive should be the description of existing data collection, monitoring, and enforcement programs? For example, should the entire catch accounting description for the LEFG fishery be updated (currently in the FMP but out-of-date), the state fish ticket system described, the entire enforcement systems described, etc.?*
- *Should the review include a full assessment of program costs, cost effectiveness, and opportunities for improvement?*
- *Are current data collections adequate to support program evaluations?*

2.10 Entry and Exit, Including New Entrants (NMFS Procedural Guidance 01-121-01, pp 17-18)
Is a more in-depth analysis of market power needed/desired? Is a more in-depth analysis of distributional and intergenerational effects needed/desired?

For the June Council meeting, the Council's task is to provide guidance on the review process and the scope of the review.

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1. INTRODUCTION

The limited entry fixed gear (LEFG) permit stacking program used to manage the primary sablefish fishery is a type of catch share program also known as a limited access privilege program (LAPP). The primary sablefish fishery is allocated 85 percent of the LEFG allocation of northern sablefish. While the program is called a permit stacking program, it was actually the extension of the season length from about a week to months that changed the character of management of the primary fishery from a modified derby to a catch share program. This season extension first occurred in 2001.[1] When the Magnuson Stevens Act (MSA) was reauthorized in 2007, Section 303A(c) included a number of requirements for LAPP programs. Because this program was implemented prior to the 2007 reauthorization, Section 303A(i)(1) specifies that the requirements of Section 303A do not apply to this program with the exception of Section 303A(c)(i)(G) which requires this review. Additionally, 303A(i)(1) specifies that Section 303(d) of the previous version of the MSA applies to programs implemented prior to 2007. Section 303(d) of the prior version of the MSA included the following relevant provisions: limiting the scope of the privileges created by a catch share program (but not limiting the duration to ten years); authorizing the charging of fees to finance individual fishing quota (IFQ) purchases; requiring that programs include provisions for review and revision of the program; requiring effective enforcement and management; requiring fees to recover actual costs directly related to enforcement and management (304(d)(2)[2]); and a number of initial allocation criteria.

The first LEFG permit stacking program review was completed in June 2014 and the program was generally found to have met it objectives (see Section 1.2 for further discussion). This second review of the program was initiated by the Council at its September 2020 meeting. As with the previous review, any potential actions identified as a result of the review would be the subject of a regulatory process to fully develop alternatives, analyze expected effects, and determine whether action should be recommended.

1.1. Description of the Current Permit Stacking Program

The sablefish fishery primary season occurs north of 36º N. latitude from April 1-October 31. Vessels in this fishery must be registered to at least one LEFG permit with a sablefish endorsement. Each of these permits has a gear endorsement for either longline or trap (pot). Such vessels are eligible to fish in the daily trip limit (DTL) fishery before the primary season

[1] In 2001 the season ran from August 15 through October 31 and since that time has run from April 1 through October 31.

[2] MSA, **Public Law 94-265, As amended through October 11, 1996**
304(d) ESTABLISHMENT OF FEES.--
(1) The Secretary shall by regulation establish the level of any fees which are authorized to be charged pursuant to section 303(b)(1). The Secretary may enter into a cooperative agreement with the States concerned under which the States administer the permit system and the agreement may provide that all or part of the fees collected under the system shall accrue to the States. The level of fees charged under this subsection shall not exceed the administrative costs incurred in issuing the permits.
(2)(A) Notwithstanding paragraph (1), the Secretary is authorized and shall collect a fee to recover the actual costs directly related to the management and enforcement of any--
(i) individual fishing quota program; and
(ii) community development quota program that allocates a percentage of the total allowable catch of a fishery to such program.

(i.e., January through March) and after the vessel has reached its aggregate tier limit, or the season has ended, whichever comes first.

Under the permit stacking program, each sablefish endorsed LEFG permit is assigned to one of three tiers. The permit's tier level determines the poundage of sablefish which can be landed by that permit each season while participating in the primary sablefish fishery. Sablefish endorsements and their tiers may not be transferred separately from the limited entry (LE) permits. For sablefish endorsed LE permits, tier limits are determined based on the allocation of sablefish north to the LEFG primary sablefish fishery (85 percent of the total sablefish allocated to the LEFG sector). The size of the cumulative landing limit for each of the three tiers associated with the sablefish endorsement is such that the ratio of limits between the tiers is approximately 1:1.75:3.85 for Tier 3, Tier 2, and Tier 1, respectively. Up to three permits can be stacked onto a single vessel, allowing that vessel to land up to the sum of the three tier limits in aggregate.

1.2. Prior Program Review and Subsequent Management Actions

The Council initiated the prior program review in September 2013 and approved the review at its June 2014 Council meeting. The 2014 review "supports the conclusion that the LEFG sablefish permit stacking program, adopted under Groundfish FMP [Fishery Management Plan] Amendment 14 [A-14], has been mostly successful in achieving a significant majority of the goals and objectives intended by the Council." Of the ten objectives of A-14, there were eight that were classified as "significantly achieved" while the remaining two objectives could not be adequately assessed due to lack of information. Based on the data available and anecdotal information available, the 2014 review suggests that Council actions related to these latter two objectives have been "neutral." Table 1 is a reproduction of Table 5-1 from the 2014 review and is a summary of the conclusions on the ten objectives.

Table 1. Reproduction of Table 5-1 from the 2014 review detailing conclusions on the success of the Council's LEFG sablefish permit stacking program.

Objective	2014 Assessment Summary and Preliminary Conclusions
1. Rationalize Fleet and Promote Efficiency (Significantly Achieved)	Significantly lengthened seasons and ended derby fishery Reduced number of participating vessels while: • Improving the ability of the fleet to achieve, without exceeding, the overall harvest allocation; • Allowing appropriate flexibility in how permits are stacked and fished; and • Allowing a similar concentration of landings as the original fishery.
2. Maintain or Direct Benefits toward Fishing Communities (Limited Assessment; Likely Neutral Effect)	Appears to be a possible decrease in involvement of Puget Sound in recent years and an increase in Brookings and Morro Bay. Landings data are extremely variable and program effects cannot be clearly separated from other sources of variation

3. Prevent Excessive Concentration of Harvest Privileges (Significantly Achieved)	Comparison of annual Gini coefficients indicate little change in the concentration of permit and vessels ownership after implementation of the permit stacking program. Comparing the averages of the years prior to the program with the averages of the years post-program indicates increases of less than 5 percent and 10 percent in permit and vessel ownership concentrations, respectively
4. Mitigate the Reallocational Effects of Policies in place just prior to this Program (Significantly Achieved)	Maintained a similar concentration of landings as the original fishery
5. Promote Equity (Significantly Achieved)	Maintained a similar concentration of landings as the original fishery. Estimates of landings exceeding tier quota limits are very small and there does not appear to be a consistent pattern of offending permits over time.
6. Resolve or Prevent New Allocation Issues from Arising (Significantly Achieved)	Few calls for any changes to the allocations within the fixed gear sector. During formal consideration of groundfish allocations for Amendment 21, Council decided that there was not a sufficient need to examine reallocations of sablefish among sectors.
7. Promote Safety (Significantly Achieved)	Significantly lengthen season and eliminated the derby fishery USCG incident data and estimates of trip starts under high wind conditions indicate generally safer vessel operations
8. Improve Product Quality and Value (Limited Assessment)	Changes in ex-vessel prices do not indicate a significant change in product value and are driven by numerous variables outside the scope of this study. However, since the inception of the program there may have been stabilization in the relative price differential between fixed gear and trawl-caught sablefish
9. Avoid Creating New Disruptive Effects (Significantly Achieved)	Allowed season of reasonable length without changing allocations, by creating flexibility with permit stacking.
10. Capability to Readily Transition to a Multi-Month IQ Program (Significantly Achieved)	Allocations are already established (a difficult first step in an IQ program) and could be transitioned to a more typical IQ program (with divisible quota freely transferable separate from the limited entry permits) if the need arises. Thus far the program is working well enough that there has been no call for such a transition.

After approving the review in June 2014, the Council made five recommendations to be included in the groundfish workload prioritization process (formerly "omnibus") at the September 2014 Council meeting. These recommendations are shown in Table 2 with a status description of the item in the right-hand column.

Table 2. Council recommendations from June 2014 program review and status of those management measures.

Recommendation	Status
Include tracking of permit price upon the transfer of permits in future data collection;	Currently on groundfish workload prioritization list[3] (see Section 3 for more details)
Require that all pot gear be returned to shore at the end of each fishing trip;	This item was brought forward in the June 2014 Council action for approval of the review and was focused on the shorebased individual fishing quota (IFQ) sector and potential conflicts. Ultimately, it was removed from consideration in June 2016 as it conflicted with the Council Vessel Movement Monitoring rulemaking (Agenda Item G.6, Attachment 2, June 2016)
Convert daily trip limits to a tier endorsement;	These two items were initially included as part of the "Phase 2" actions from the LEFG review along with the LEFG permit price reporting (first item in table). However, these items were removed from the groundfish workload list in November 2018 based on recommendations from the GAP and GMT (Agenda Item G.4.a, GMT Report 1, November 2018)
Combine longline and pot gear limited entry gear endorsements into a single fixed gear endorsement; and	
Move the seaward line of the Rockfish Conservation Area (RCA) closer to shore for pot vessels.	This item was encompassed within the broader consideration of "Non-Trawl RCA Modifications" which is currently proposed for selection of range of alternatives in November 2021.

Additionally, at the June 2014 meeting, the Council adopted a series of actions to implement electronic fish ticket (e-ticket) requirements and providing exemptions to permit ownership limits for permit owners with less than 20 percent interests in vessels participating in both Alaska and West Coast. These regulations in addition to other clarifying regulations[4] and joint registration of a trawl endorsed and fixed gear endorsed permit on a single vessel at the same time (recommended as a trawl catch share trailing action) were implemented on November 23, 2016 (81 FR 84419).

Since implementation of the regulatory package following from the 2014 review of the LEFG primary fishery (LEFG follow-on package, 81 FR 84419), the only action relevant to the management of the primary tier fishery was taken in September 2020 when the Council recommended that NMFS take emergency action to extend the sablefish primary season until December 31. This action was taken due to an assessment that fishery conditions due to the COVID-19 pandemic resulted in vessels delaying their primary season harvest and it was believed that would prevent them from fully attaining their tier limits by the October 31 season end date. NMFS implemented the emergency rule on October 27, 2020 (85 FR 68001).

[3] Most recent groundfish workload prioritization list as of the drafting of this document is Agenda Item G.2.a, GMT Report 1, March 2021.

[4] Other actions included the prohibition of processing sablefish at-sea in the shorebased IFQ program for those LEFG vessels with exemptions; clarifies that sablefish catch in incidental open access counts against the open access allocation; required any vessel with Vessel Monitoring System (VMS) registered with NOAA Office of Law Enforcement (OLE) to submit a declaration report with OLE; updated and simplified equipment requirements for e-tickets; clarified existing regulatory language prohibiting retention in the LEFG fishery beyond allowable quota.

2. AMENDMENT 14 PROGRAM PERFORMANCE AND REVIEW

2.1. Goals and Objectives

The primary goal of a review is to assess progress in meeting goals and objectives of the program and MSA. The NMFS policy states that the goals and objectives to be covered in the review include those of the program (A-14), the groundfish FMP, the Catch Share Policy, and the MSA, but the primary focus should be on those identified in the implementing FMP amendment (A-14).

Many of the goals and objectives from these different sources are overlapping. The LEFG permit stacking program was expected to help the Council address objectives related to National Standards (NS) 4 (fair and equitable allocation), 5 (consider efficiency), 6 (take into account variations and contingencies), 8 (take communities into account), 9 (minimize bycatch and bycatch mortality), and 10 (promote safety). With respect to the FMP, it was expected to affect achievement of Groundfish FMP Goals 2 (maximize the value of the resource as a whole) and 3 (achieve maximum biological yield) through impacts related to Objectives 6 (achieve greatest net benefit), 9 (reduce wastage), 11 (minimize bycatch), 12 (equitable sharing of the conservation burden), 13 (minimize gear conflicts), and 14 (accomplish changes with minimum disruption). Key objectives of A-14 and the permit stacking program and their relation to the MSA and FMP goals and objectives were further defined as provided in the following table (reproduced from the previous A-14 review).

Table 3. Objectives from A-14 and their consistency with management objectives of the groundfish FMP and MSA.

Key Objective	Consistency with Management Objectives of the FMP and MSA
1. Rationalize the fleet and promote efficiency	Capacity reduction is one of the key elements of the Council's strategic plan. The strategic plan generally approaches capacity reduction by reducing the number of fishing vessels. This reduction does not of itself imply the rationalization of the fleet or increased efficiency. It is possible that the most efficient fixed gear sablefish harvest could involve a greater number of vessels taking sablefish as bycatch in other fisheries. However, given the high degree of overcapitalization in the fishery, it is believed that a reduction in capacity will generally move the fishery toward greater efficiency, addressing National Standard (NS) 5 and FMP Objective 6 on net national benefits.
2. Maintain or direct benefits toward fishing communities	This objective relates to NS 8 on fishing communities and FMP Objective 16 on fishing communities.
3. Prevent excessive concentration of harvest privileges	This objective relates to NS 4 on allocation, NS 8 on fishing communities, and FMP Objective 15 on avoiding adverse impacts to small entities.
4. Mitigate the reallocational effects of recent policies (3-tier system and equal limits)	This objective relates to NS 4 on allocation and FMP Objectives 12 on equitable allocation and 14 on minimizing disruption.
5. Promote equity	This objective relates to NS 4 on allocation and FMP Objective 12 on equitable sharing.
6. Resolve or prevent new allocation issues from arising	This objective relates to NS 4 on allocation and FMP Objectives 12 on equitable sharing and 14 on minimizing disruption.
7. Promote safety	This objective relates to NS 10 and FMP Objective 17 on safety.
8. Improve product quality and value	This objective relates to NS 5 on efficiency and FMP Objective 6 on net national benefits.
9. Take action without creating substantial new disruptive effects.	This objective relates to FMP Objective 14 on minimizing disruption.
10. Create a program that will readily transition to a multi-month IQ program.	This objective relates to capacity reduction recommendations in the strategic plan. Where individual quotas are transferable and divisible, they address NS 6 by providing the fleet with substantial flexibility to respond to changing conditions in the fishery and NS 5 by taking efficiency into account. FMP Objective 6 is also addressed.

2.1.1. Rationalize the fleet and promote efficiency

Rationalizing the fleet and promoting efficiency, primarily through reducing the number of participating vessels (capacity reduction) and lengthening the season, was a key objective of A-14. In considering how to reduce the fleet, the Council also had to balance that reduction with its other objective of preventing excessive concentration of harvest privileges (also see Section 2.1.3). At the time A-14 was adopted, the Council had just completed the Groundfish Strategic Plan (PFMC, 2000) for which capacity reduction was one of the goals. A-14 was designed to allow the fleet to achieve some balance between too little and too much capacity reduction, without quantitative criteria for what constituted "too little" or "too much." Too little capacity reduction could mean that commercial fishermen intending to make a career of fishing would have to rely on sablefish landings providing a smaller proportion of their incomes and require more reliance on other fisheries. Too much capacity reduction, while improving vessel efficiency and profits, could mean that the fleet would be reduced and concentrated to such a small number of vessels that harvest benefits from the fishery would be channeled to relatively few individuals, coastal communities, and processors. A-14 was explicitly not designed to reduce

the fleet numbers to as few vessels as possible. The Council's judgment on whether the fleet's capacity has been reduced by too much or by too little, and whether excessive concentration of harvest privileges has occurred, will be necessarily qualitative, since the Council did not set an explicit capacity reduction goal with A-14.

The 2014 review concluded that this objective was significantly achieved as it ended the previous derby fishery by lengthening the season to seven months and reduced the number of vessels while improving the ability for the fleet to attain the allocation in a flexible manner yet allowing a distribution of landings across vessels similar to the original fishery (discussed further below).

Season Extension

The season extension by itself (from about a week to seven months) would have allowed individual vessels to scale their capacity to the amount of sablefish available. Permit stacking provided flexibility in that scaling, allowing that capacity to be distributed among a variety of different possible fleet configurations determined by the number of permits, the limits associated with each tier, and the permit stacking limit. Since 2002, there have been no changes in the season dates (with the exception of the 2020 emergency rule). For 2020, the season was extended to allow the fleet to increase its overall attainment. Under the original season end date of October 31, the fleet was projected to harvest only 64 percent (SIR for Emergency Action to Temporarily Extend the Primary Sablefish Season). This would have resulted in ~$2 million in lost exvessel revenue to the fleet, relative to full attainment of the allocation. However, with the extension, the fleet was able to harvest an estimated 75.5 percent (Table 4), taking 15.9 percent of the catch associated with ~$660,000 in exvessel revenue in November-December.

Fleet Participation and Attainment

Since the last review in 2014, the primary tier fishery has averaged 94.4 percent attainment of its allocation from 2015-2019 (Table 4). In 2020, attainment of the trawl allocation appears to have been impacted by the pandemic. Thus, with the inclusion of 2020 preliminary data, average attainment since 2015 is approximately 91.3 percent.

With the implementation of the tier program, participation in the primary fishery declined by 40 percent from 1996-2000 (average of 146 vessels) to 2002-2020 (average of 87 vessels). Overall participation since program implementation has ranged from a high of 100 vessels in 2002 to a low of 73 in 2020. Participation since the last review, with the exception of 2020, has stabilized at ~85 vessels (Figure 1).

Table 4. Annual total primary sablefish fishery mortality (mt), allocation (mt) and percent attainment, 2011-2020. Source: West Coast Groundfish Observer Program (WCGOP) GEMM, PacFIN

Year	Mortality	Allocation	Percent Attainment
2011	1,571	1,598	98.3
2012	1,406	1,549	90.7
2013	1,058	1,156	91.5
2014	1,100	1,254	87.8
2015	1,367	1,385	98.7
2016	1,471	1,515	97.1
2017	1,470	1,518	96.8
2018	1,475	1,583	93.2
2019	1,400	1,620	86.4
2020[a/]	1,249	1,654	75.5

a/ Mortality is estimated based on the landings and assumed discard mortality rate (23 percent observed discard rate with 20 percent discard mortality).

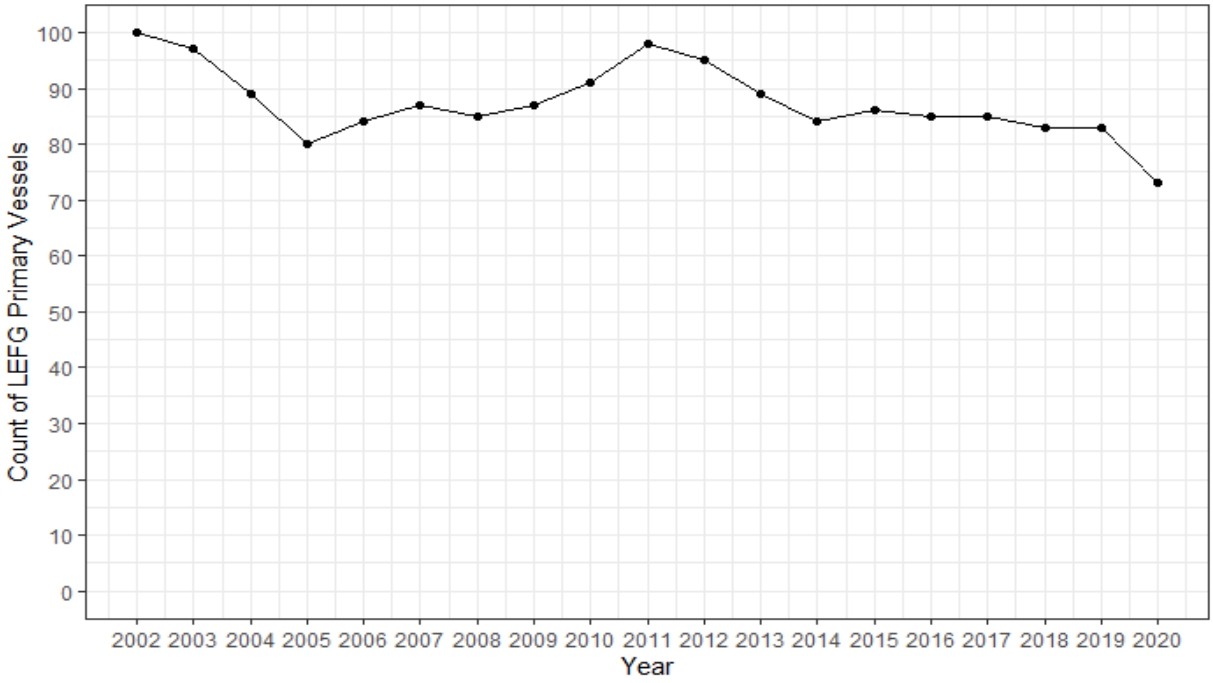


Figure 1. Count of participating LEFG primary vessels, 2002-2020.

In general, catch in the primary fishery has a linear trend over the season, with the most recent six years shown in Figure 2 below. However, in the last three years, the average percent of total harvest in the last months of the season has increased (by eight and nine percent in August and October, respectively, compared to the previous three years; Table 5). Differences for these months are approximately ten percent if 2020 is excluded. This could be a result of some vessels prioritizing other fisheries earlier in the year before transitioning to the primary tier fisheries and/or price differentials between the spring and fall might be driving effort later in the year (Section 2.1.8).

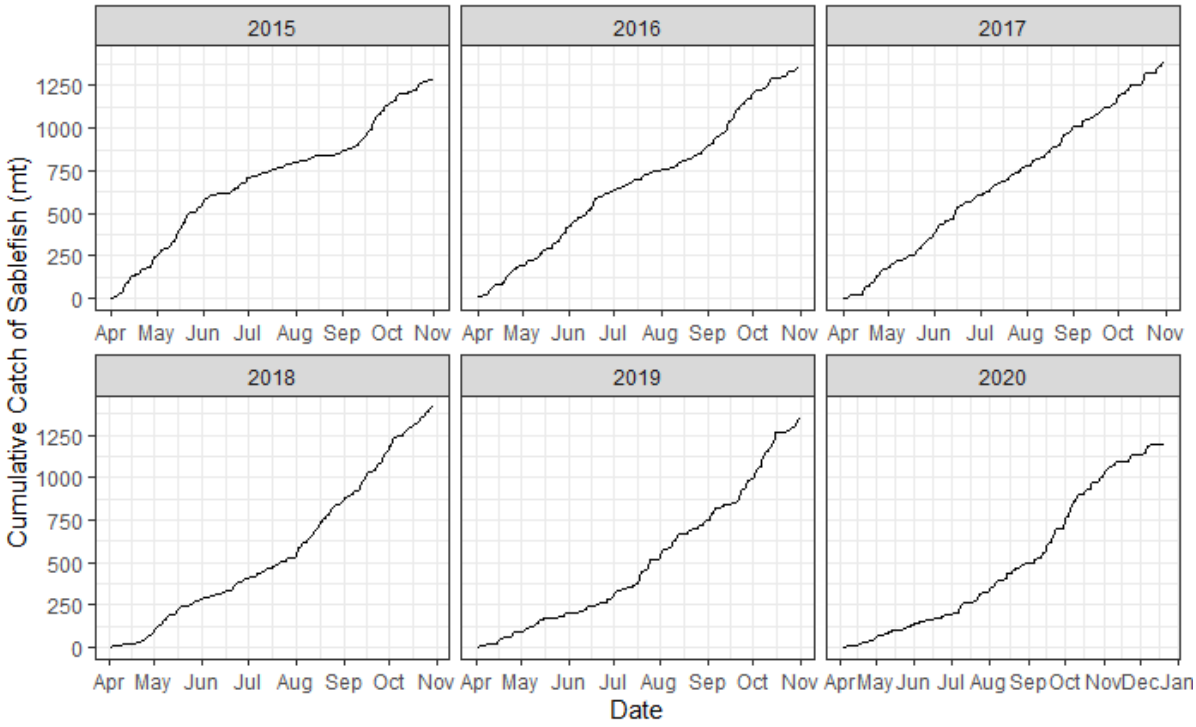


Figure 2. Cumulative catch of sablefish in the primary tier fishery, 2015-2020. Source: PacFIN

Table 5. Percentage of total catch by month for 2015-2020, average percent of total catch over 2015-2020, 2015-2017, and 2018-2020 by month. Source: PacFIN

Month	2015	2016	2017	2018	2019	2020	Average (2015-2020)	Average (2015-2017)	Average (2018-2020)
April	18.9%	14.1%	12.5%	6.5%	6.7%	4.5%	10.5%	15.2%	5.9%
May	23.4%	16.5%	13.9%	12.8%	8.1%	6.5%	13.5%	17.9%	9.1%
June	12.8%	16.3%	16.8%	9.1%	6.7%	5.6%	11.2%	15.3%	7.1%
July	7.2%	8.6%	12.5%	9.2%	16.9%	11.7%	11.0%	9.4%	12.6%
August	5.2%	10.0%	14.9%	23.6%	16.9%	13.0%	13.9%	10.0%	17.8%
September	20.8%	22.3%	14.5%	20.8%	18.3%	21.1%	19.6%	19.2%	20.1%
October	11.7%	12.1%	15.0%	17.9%	26.3%	21.8%	17.5%	13.0%	22.0%
November -December						15.9%			

Vessel-Level Attainment

Vessels participating in the primary tier fishery have cumulative landing limits that are determined based on the number and designated tier of the permits assigned to the vessel. There are 164 sablefish endorsed permits composed of 28 Tier 1, 42 Tier 2, and 94 Tier 3 permits.

Table 6 below shows the number of vessels registered to the stacking combinations of permits by year from 2015-2020. Note that as vessels can register different permits throughout the year, this table only shows the largest cumulative limit combination that a vessel had during that year's

season. For example, if a vessel were registered for one month to a Tier 1 and a Tier 2 permit, but for the remainder of the year only had the Tier 2 permit, it would show up in the 1 Tier 1, 1 Tier 2, and 0 Tier 3 strata for that year. Further, a vessel could have been registered to a permit, but not used it to harvest fish against the tier allocation (e.g. the tier was utilized by a different vessel and then the vessel leased it to fish DTL prior to October 31 or the vessel with the permit chose to not fish).

The prior review noted that it was difficult to discern any consistent direction of change of consolidation of permits on a per-vessel basis. Compared to 2012 (see Table 3-2 in the 2014 review), there has been an increase in the number of vessels with three stacked permits (21 compared to 27 on average from 2014-2020) while the number of vessels registered to three Tier 1 permits has been stable at two. Given the increase in the number of vessels with three stacked permits and that the number has been stable in the last five years, it may suggest a consolidation of permits during or just prior to the last review. However, this increase is not a net change when considering the full program history, as there were 26 vessels in 2008 with three stacked permits (Table 3-3 of the 2014 review). Similar to the 2014 review, the majority of vessels during the primary season are registered to a single permit. The greatest change during the period covered by this review (2014-2020) has been a general downward decline in the number of vessels that have only a single Tier 3 permit (second to last row of Table 6); however, these values are still greater than that in 2004 and 2008 (29 and 22, respectively, Table 3-2 of the 2014 review). *Further investigation is needed to assess actual changes in consolidation.*

Table 6. Number of vessels by permit stacking combinations for the primary sablefish tier fishery from 2014-2020. Vessels with multiple combinations within a year are classified by the combination with the largest cumulative limit. Source: NMFS Public Permit Database.

Number of…			Number of Vessels with Permit Stacking Combination						
Tier 1	**Tier 2**	**Tier 3**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
3	0	0	2	2	2	2	2	2	2
2	1	0	5	5	5	5	5	5	4
	0	1	1	1	1	1	1	1	2
		0	0	1	1	1	0	0	1
1	2	0	3	2	3	3	3	3	3
	1	1	2	3	2	2	2	2	2
		0	2	2	0	0	0	0	0
	0	1	1	0	2	2	2	2	1
		0	2	1	1	1	1	2	3
0	3	0	0	1	1	3	2	2	2
	2	1	2	2	2	2	1	1	0
		0	4	3	3	2	2	2	2
	1	2	6	6	6	5	6	6	6
		1	3	3	4	5	4	4	4
		0	8	7	8	8	8	7	9
	0	3	4	4	5	7	5	5	4
		2	13	15	12	12	12	13	13
		1	42	38	36	37	36	33	34
Total Vessels Registered to Permits During the Primary Season			100	96	94	98	92	90	92

Overall with the exception of 2020, over 80 percent of vessels that have fished in the primary tier fishery since 2015 have harvested the majority of their tiers as shown in Table 7. However, there are between nine and 13 vessels in 2015-2019 that have historically harvested no sablefish against their tier(s). Even with the season extension in 2020, 22 vessels that had registered tiers at some point during the season harvested no sablefish and the number of vessels with landings but less than 50 percent attainment increased by over five times the average of the previous four years (i.e. three vessels).

Table 7. Count of vessels by percent attainment of registered tiers, 2015-2020. Source: PacFIN.

Year	0	0-50%	51-75%	76-90%	91-99%	99%+
2015	10	3	2	9	23	49
2016	9	3	9	8	18	47
2017	13	3	2	3	12	65
2018	10	1	4	5	9	64
2019	10	5	6	8	9	54
2020	22	16	3	4	7	44

Internal Reference: LEFG Review/Code.rmd and ENF006 reports

Concentration of Harvest

Figure 3 displays how the participating vessels and concentration of landings in the LEFG primary sablefish fishery has changed since 2011. While there has been a reduction in participation since immediately prior to the last review, the concentration of landings among vessels was generally stable with the exception of 2020. This trend is more clearly captured in Figure 4 which normalizes the curves by comparing the share of harvest to the percent of the fleet rather than to the number of vessels (Figure 3). In Figure 4, an equal distribution line has been added which indicates the shape of the curve in the event that each vessel had landed exactly the same amount in a given year. Greater deviations from the equal distribution line indicate relatively greater concentration of landings among fewer vessels. The overlap of the 2011-2019 lines represent that there is a fairly consistent concentration in landings.

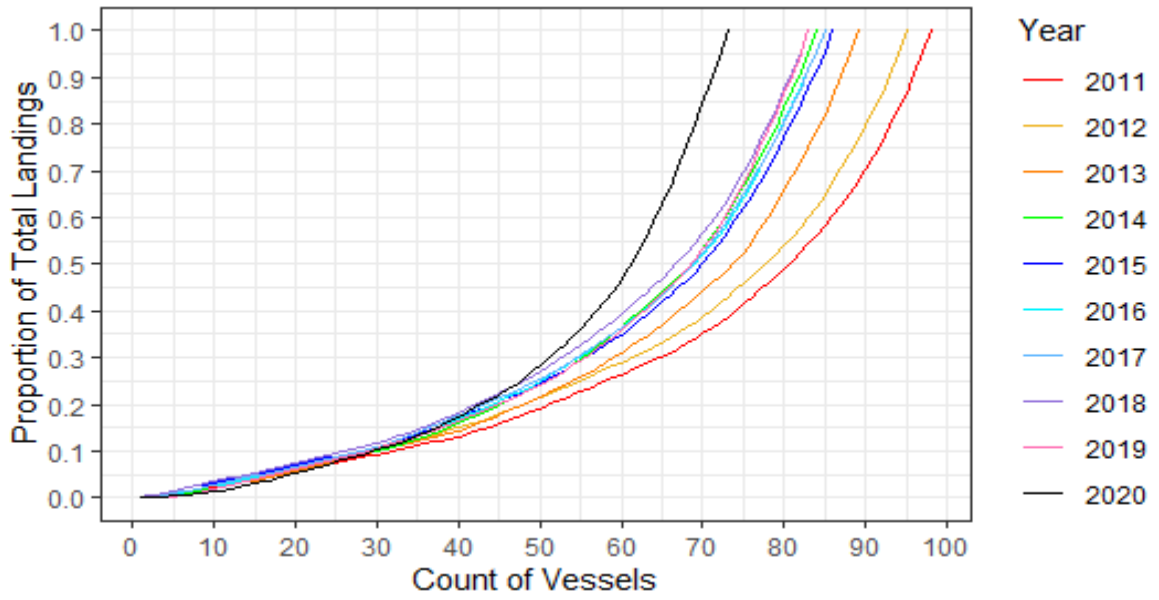


Figure 3. Cumulative distribution of landings by participating primary tier vessels, 2011-2020. Source: PacFIN

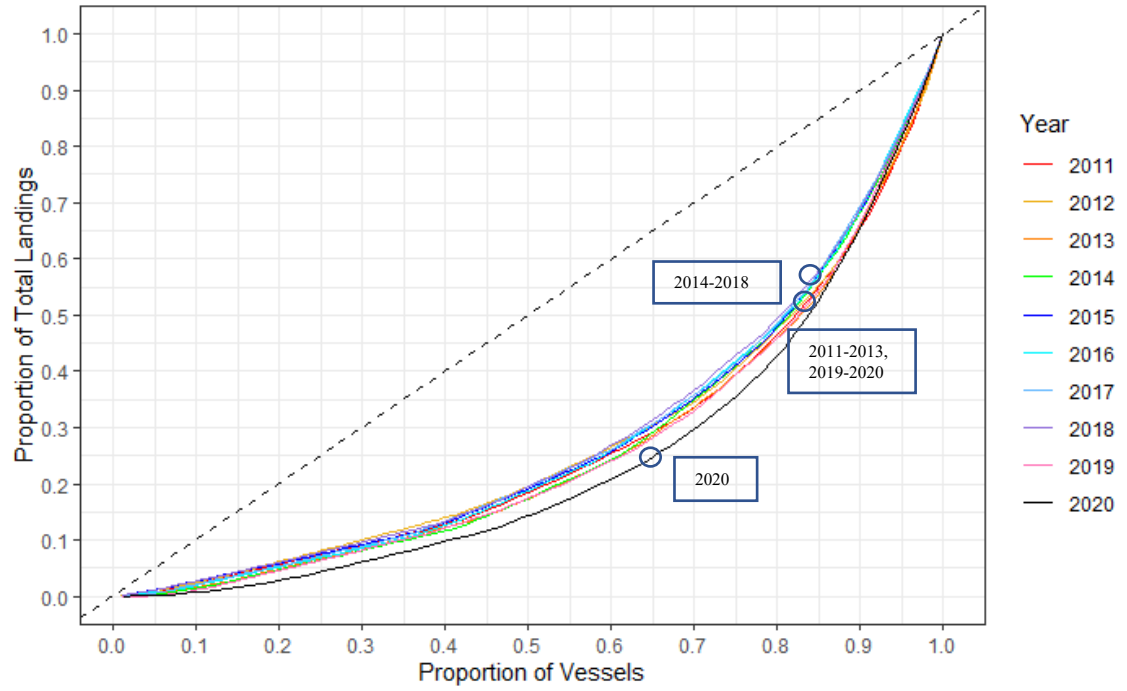


Figure 4. Concentration of landings by the cumulative share of vessels participating in the LEFG primary sablefish fishery from 2011-2020. Source: PacFIN

Changes in harvest distribution among vessels could indicate the possibility of shifts in equitable management outcomes. In terms of harvest distribution, there appears to have been no significant shift in the distribution of harvest since the last review or since the program was

implemented. Using the Gini coefficient, which demonstrates the concentration of landings amongst vessels, Figure 5 shows the Gini coefficient from 2002-2020. A Gini coefficient of zero indicates an equal distribution of landings, while a value of 1 indicates that a single vessel made all the landings (i.e., the most concentrated distribution). As Gini coefficient values increase from zero to one it indicates increasingly concentrated landings distributions. Starting in 2009, there has been little variation in the concentration of landings since the last review, with the exception of 2020. Prior to 2009, there was a greater dispersion of landings (shown by the lower Gini coefficient) from 2005-2008.

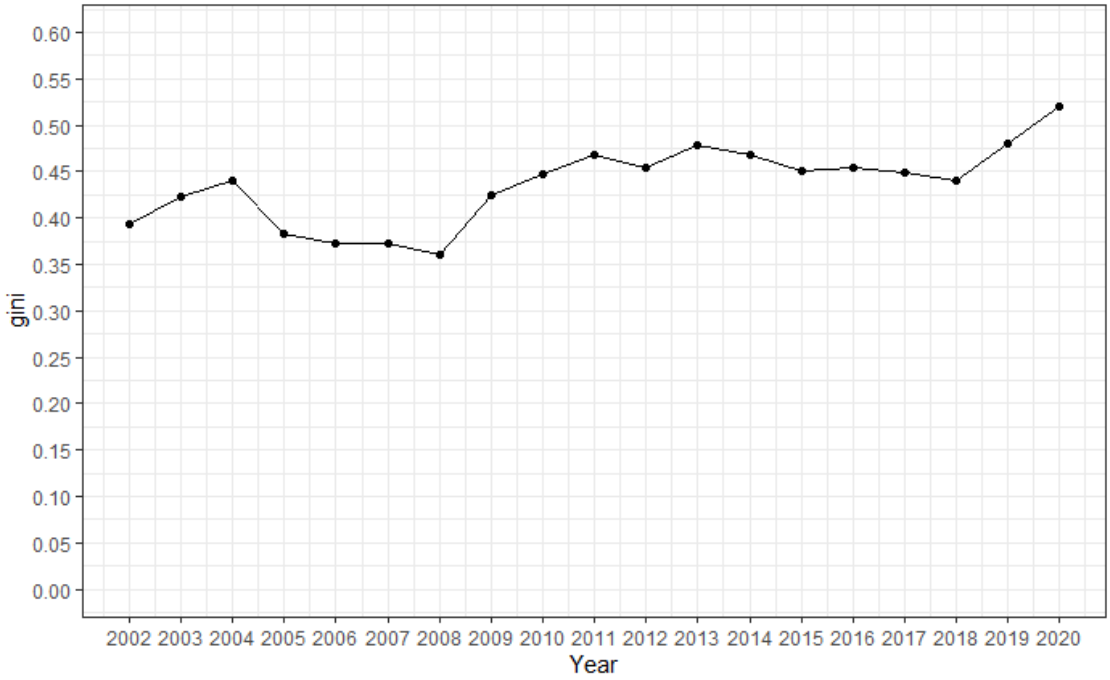


Figure 5. Gini coefficient of the distribution of landings by primary tier vessels, 2002-2020

Fleet Consolidation

One mechanism by which the fleet rationalizes is through the stacking of multiple permits onto single vessels. The size of the fleet may also be reduced by the combination of permits to generate a single permit with a larger size endorsement; though, in the case of permit combination, the new larger permit theoretically allows the same physical capacity in the fishery as the two smaller permits. However, if two tier permits are combined, the resulting permit receives only the largest of the tier endorsement. The loss of a tier limit, likely inhibits the combination of fixed gear permits with tiers in favor of the combination of tier permits (sablefish endorsed permits) with non-sablefish endorsed permits.

Table 8 shows the distribution of length endorsements for sablefish permits by tier and also by gear endorsement in 2020. Note that from 2014-2020 there were no permit combinations and therefore no changes in the distribution amongst gear or tier groups. The table shows the average length endorsement for Tier 1 permits (66.6 feet) is longer than the average for both Tier 2 permits (52.6 feet) and Tier 3 permits (47 feet). The minimum length endorsements follow the

same pattern, with the minimum Tier 1 permit length endorsement (40 feet) exceeding those for both Tier 2 (32 feet) and Tier 3 permits (18 feet). However, the same is not true for the maximum length endorsements. While the longest Tier 3 permit (97.3 feet) is shorter than the longest Tier 1 permit (138 feet), it is longer than the longest Tier 2 permit (73.3 feet). This is the same pattern as was shown in the previous review, with changes only appearing in the Tier 2 category for maximum and average lengths (decrease of 14.7 ft and 0.5 ft respectively). There are no changes in the endorsement length statistics by gear endorsement since the last review. From this table, it is difficult to discern any meaningful patterns regarding permit length and gear endorsements.

Table 8. Number of sablefish endorsed permits by tier and gear endorsement and the average, minimum, and maximum length of those permits.

Permit Category		**Count of Permits**	**Mean Length (ft)**	**Min Length (ft)**	**Max Length (ft)**
Tier	Tier 1	28	66.6	40	138
	Tier 2	42	52.6	32	73.3
	Tier 3	94	47.0	18	97.3
Gear	Longline and Pot Endorsement	4	49.2	40	55.3
	Longline Endorsement	132	50.1	18	97.3
	Pot Endorsement	28	60.4	32	138

Figure 6 shows the distribution of stacked and unstacked permits by vessel length in 2020. Stacked permits are bifurcated into base and non-base categories (not shown in Figure 6). As described in 50 CFR 660.25, if a vessel is registered to more than one permit, NMFS will designate the permit registered to the vessel for the longest period of time as the "base permit" unless the vessel requests a different permit. The vessel registered to that base permit must also be of a size authorized by that permit's length endorsement. Other "non-base" permits are not required to meet the vessel length requirements- i.e., may be used even if the vessel is more than five feet longer or shorter than the permit's size endorsement. At the time of the publication of this document, the designation of base permits was not available. *Additional analyses looking at the distribution of permits by size endorsement and stacking, utilization of permits by vessels of various lengths, and the utility of the "base" permit designation will be forthcoming.*

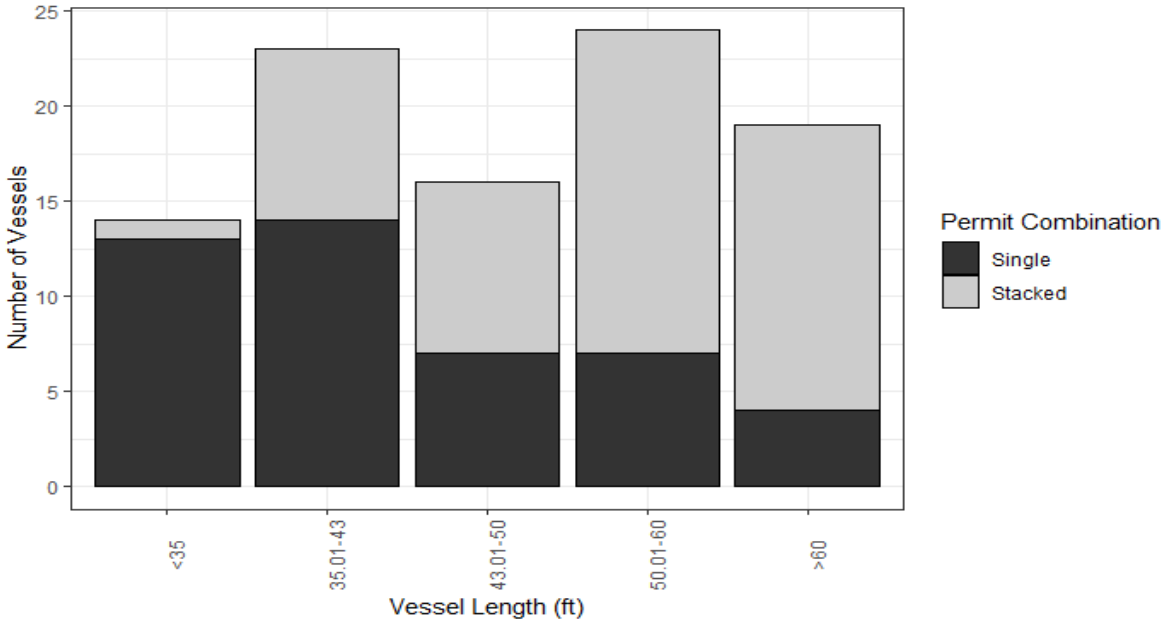


Figure 6. Number of vessels by permit combination (stacked or single permit) and vessel length, 2020. Only includes vessels with permit assigned during primary season.

Permit Prices

There are a number of different influences on permit prices, one of which is improvements in efficiency/profit opportunity. Expectations about efficiency/profit are influenced by factors such as expectations about sablefish prices and annual catch limits (ACL). The 2014 review stated that information on sablefish permit prices was too limited for use in determining any trends in the permit values over time. This remains true as of the drafting of this review— with the Council recommendation to collect LEFG permit prices yet to be prioritized (Table 2). However, some information on permit sale prices is available via Dock Street Brokers. Table 9 shows the recent listings of tier permit prices from Dock Street Brokers, in addition to those presented in the 2014 review (Table 3-7), compared to the associated pounds allowed for that tier permit and the implied price per pound of quota. The price per pound of sablefish allocated to a tier permit has declined since the last review for Tier 3 permits, which is the most common permit listed for sale in the data available from the 2014 review (2012-2014) and in 2020. *Additional analyses on permit prices related to vessel efficiency and landings may be examined as part of future analyses.*

Table 9. LEFG primary tier permit sale prices from Dock Street Brokers and associated price per pound (nominal).

Year	LEFG Primary Allocation (mt)	Permits for Sale			
		Tier	Tier Limit (Pounds)	Listed Price Range	Price per Pound (nominal)
2012	1,549	Tier 1	46,237	$825,000	$17.84
2013	1,156	Tier 3	8,964	$165,000-$208,000	$18.41-$23.20
2014	1,254	Tier 3	9,725	$140,000-$155,000	$14.40-$15.94
2020	1,654	Tier 2	22,111	$325,000-$375,000	$14.70-$16.96
		Tier 3	12,635	$150,000-$170,000	$11.87-$13.94
2021	1,994	Tier 2	26,659	$300,000	$11.25

Net Revenue

In the 2014 review, research by Dr. Carl Lian of the Northwest Fisheries Science Center (NWFSC) was presented on the 2010 total cost net revenues earned by LEFG vessels (both LEFG primary and other LE groundfish fixed gear fisheries). *The NWFSC may be able to be update this analysis, and, if so, it will be presented in a subsequent draft of the review.*

2.1.2. Maintain or direct benefits towards fishing communities

This objective relates most directly to NS-8 and FMP Objective 16 (take socio-economic needs of fishing communities into account). Did the program provide for the sustained participation of fishing communities and, to the extent practicable, minimize adverse economic impacts on such communities?

The last review noted that "for most ports, no consistent trend is obvious… and it is not possible to separate the effects of the program from the many other causes of variation in involvement by the port groups."

To consider how well the sablefish program maintained or directed benefits toward fishing communities requires data on changes in the sablefish landings by West Coast port since the previous review. Additionally, an owner-on-board requirement, intended, in part, to direct benefits toward local fishing communities, can be assessed by evaluating changes in the number of entities subject to the provision. Similar to the 2014 review, the following information was considered or analyzed for this objective:

- Identification of the primary ports where LEFG primary sablefish landings are occurring;
- Calculation of port involvement and dependence ratios; and
- Percent of landings by owner on board versus non-owner on board vessels.

Port Involvement

A port or area's involvement in the LEFG primary sablefish fishery is measured as the exvessel value from the fishery landed in the area as a share of the total ex-vessel value of the entire primary sablefish. Primary sablefish landings typically occur in every port group north of 36° N. lat., with some landings occurring into Morro Bay (south of 36° N. lat.) prior to 2014. Due to confidentiality restrictions for several ports, annual involvement could not be shown on the individual port group level. Therefore, for each of the three states Figure 7 displays involvement in the LEFG primary sablefish fishery for each year from 2002-2019. From 2008-2013, California saw an increasing percentage of revenue coming from the LEFG primary fishery. Starting in 2013 however, Washington began seeing an increase in the proportion of revenue landed into its ports until 2019. Oregon appears to have no clear trends in the year-to-year changes in the proportion of revenue landed.

While confidentiality concerns prevent showing the share of landings and revenue for many ports on an annual basis, annual trends can be described qualitatively and port level information for multiyear periods can be displayed. Qualitatively, on an annual basis, Puget Sound has been increasing its involvement in the fishery since 2011 by a factor of nearly three whereas the Washington Coast proportion of the revenue has declined by over half its 2011 value. In fact, relative to the 2011-2014 period, from 2015-2019 the proportion of average landings and revenue coming into Puget Sound ports has increased the most (6.8 and 8.9 percent, respectively), followed by minor increases into Astoria-Tillamook, Newport, Crescent City-Eureka, and Fort Bragg (Table 10). The largest decrease in terms of average proportion of landings and revenue for the two periods has been in the Washington Coast port group followed by Coos Bay-Brookings. However, qualitatively, Coos Bay-Brookings have shown an increase in their involvement in 2018-2019 compared to 2015-2017, suggesting that the values in Table 10 are likely being down-weighted by those lower years. The opposite is true for Astoria, where the percent of the LEFG primary revenue has been steadily declining since 2016. The peak for California from 2008-2013 was driven primarily by increases in both Fort Bragg and San Francisco. Morro Bay had received some primary sablefish landings prior to 2015, however, none were recorded in the recent era. These data show an opposite conclusion of the trends seen in the prior review, which saw declines in Puget Sound and increases in Brooking and Morro Bay.

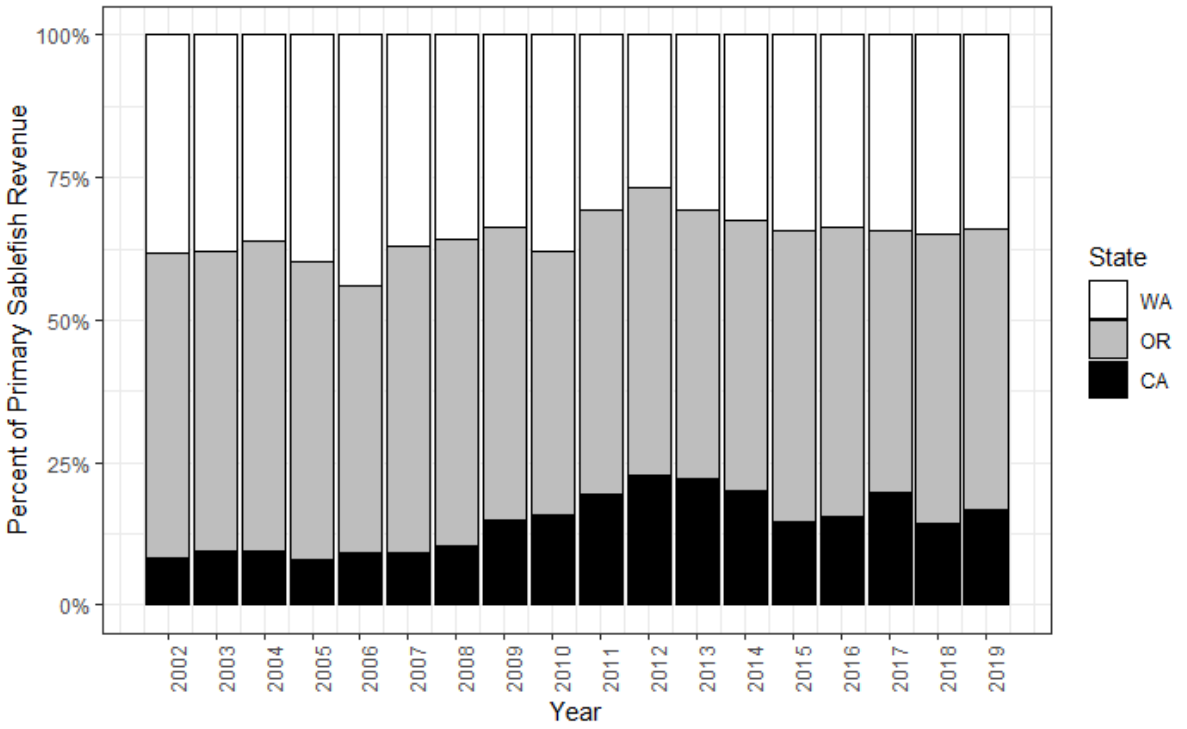


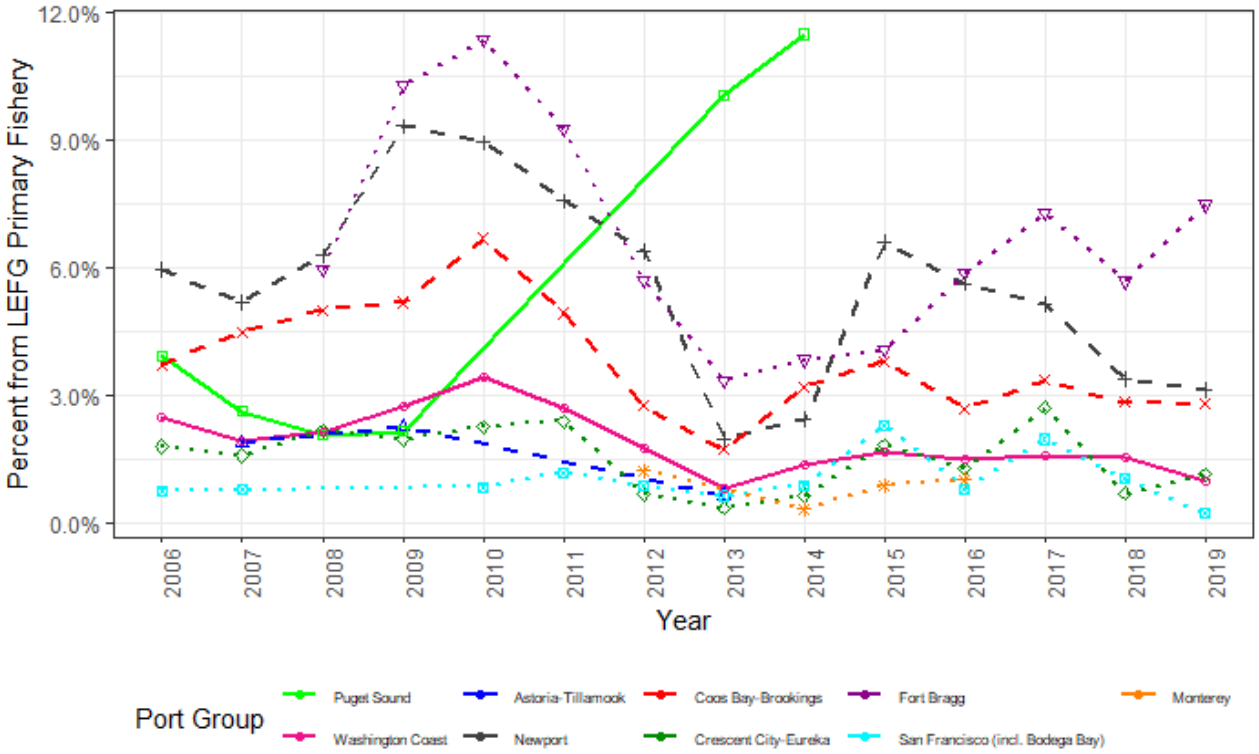
Figure 7. Percent of primary sablefish revenue by state and year, 2002-2019.

Table 10. Primary sablefish average landings, percent of total coastwide landings and average revenue (1,000s of dollars, adjusted for inflation, AFI) and percent of total revenue by IOPAC port group, 2011-2014 and 2015-2019.

	2011-2014						2015-2019					
Port Group	**Avg. Land. (mt)**	**Avg. % of Coastwide Land.**	**Avg. Rev. (AFI 1000s)**	**Avg. % of Coastwide Rev.**	**# of Ves.**	**# of Dealers**	**Avg. Land. (mt)**	**Avg. % of Coastwide Land.**	**Avg. Rev (AFI 1000s)**	**Avg. % of Coastwide Rev**	**# of Ves.**	**# of Dealers**
Puget Sound	115.3	10.0%	$925	10.7%	14	6	229.2	16.8%	$1,768	19.6%	17	5
Washington Coast	235.7	19.3%	$1,896	19.5%	38	14	181.9	13.4%	$1,364	14.7%	27	27
Astoria-Tillamook	60.8	5.2%	$454	5.0%	11	4	81.5	6.0%	$610	6.4%	6	3
Newport	261.9	21.5%	$2,273	23.3%	29	14	340.2	25.0%	$2,438	26.8%	26	15
Coos Bay-Brookings	235.4	19.9%	$1,877	20.4%	32	12	201.1	14.8%	$1,454	16.3%	26	13
Crescent City-Eureka	49.4	4.1%	$351	3.7%	10	7	74.9	5.5%	$422	4.7%	11	15
Fort Bragg	131.0	11.0%	$880	9.5%	11	10	163.5	12.0%	$537	5.9%	14	18
San Francisco (incl. Bodega Bay)	66.0	5.5%	$502	5.6%	15	22	54.4	4.0%	$395	4.0%	13	35
Monterey	28.0	2.4%	$127	1.4%	9	4	33.4	2.5%	$140	1.6%	8	4
Morro Bay	20.2	1.5%	$131	1.1%	6	7	-	-	-	-	-	-

Port Dependence

Figure 8 displays the dependence of port groups on revenue from the LEFG primary sablefish fishery measured as a percent of each port's total landings revenue from all fisheries from 2006-2019. Port-year strata that do not meet confidentiality standards were removed from the figure and therefore lines connecting years through these points are not necessarily representative of the trends within that period. Puget Sound's increasing dependence on the LEFG primary fishery appears to have begun starting in 2011, which corresponds to the implementation of the trawl catch shares program, yelloweye rockfish rebuilding plan, and other factors that contributed to a significant loss of the groundfish deliveries to the area (Appendix B to the 2019-20 Harvest Specifications, Yelloweye Rebuilding Plan Revisions, and Management Measures). While not visible in the figure, this trend appears to have continued in the recent five years, with the average percentage growing from 11.4 percent in 2011-2014 to 19.2 percent in 2015-2019. Ports such as Newport, Fort Bragg, and Coos Bay-Brookings have seen a wide range of the percent of total revenue coming from the LEFG primary fishery over the time period. The remaining port groups appear more stable in their dependence on the fishery.



Note: Year-port combinations that do not meet confidentiality standards are excluded. Washington ports shown in solid lines, Oregon ports shown by dashed lines, and California ports shown in dotted lines.

Figure 8. Percent of total port revenue from the LEFG primary fishery by port group, 2006-2019.

Table 11 indicates the dependence of each port on the LEFG sablefish fishery in terms of local employment (number of jobs, both directly related to the fishing industry and those supporting the industry, e.g. grocery store workers) and local income (total wages and salaries) for 2015-

2019 for those ports with primary fishery landings. For each port area, the table compares the average number of jobs and average income provided by the LEFG sablefish fishery compared to the average employment and income generated by all fisheries. The data displayed in Table 11 indicate the sablefish fishery provides a relatively small number of jobs in comparison to all fisheries. However, for Puget Sound, the primary sablefish fishery is a significant contributor for the groundfish sector, with an average of over 20 percent of groundfish jobs and 18.6 percent of resulting income impacts coming from the fishery.

Table 11. Average number of local jobs and income (millions of dollars AFI to 2019) resulting from the LEFG primary fishery compared to all fisheries from 2015-2019 and the average percent of the total jobs and income from the LEFG primary fishery.

	Jobs			Income (millions of 2019$)		
Port	Primary	All Fisheries	Percent	Primary	All Fisheries	Percent
Puget Sound	67	330	20.2%	4.3	23.3	18.6%
Washington Coast	48	3402	1.4%	3.1	227,8	1.3%
Astoria-Tillamook	19	1,497	1.3%	1.3	115.4	1.2%
Newport	75	1,798	4.3%	5.2	128.3	4.2%
Coos Bay-Brookings	48	1,713	2.8%	3.2	116.0	2.8%
Crescent City-Eureka	14	1,089	1.5%	0.9	77.7	1.4%
Fort Bragg	18	355	5.3%	1.2	20.8	5.9%
San Francisco (incl. Bodega Bay)	13	1,285	1.1%	0.9	78.9	1.2%
Monterey	6	521	1.2%	0.4	34.5	1.2%

Landings and the Owner-On-Board Exemption

The owner-on-board provision of the LEFG program was intended to "preserve the social and historic characteristics and practices in the fishery or to encourage the flow of fishery benefits into fishing communities." It also works together with the three-permit stacking limit to distribute fishery benefits among entities within and across communities (A-14). The owner-on-board requirement limits permit ownership to individuals and requires that any person who owns or has interest in a sablefish endorsed permit be on board the vessel registered for use with that permit when it is harvesting sablefish against that permit's cumulative landing limit. However, the Council granted exemptions to the requirements in order to allow corporations, partnerships and other entities that owned permits prior to November 1, 2000 to continue to own permits and not be present onboard the vessel when fishing the permit's tier.[5] These exemptions expire over time with changes in ownership of the corporation or partnership or the divestiture of tier permit(s) for a period of time (addition of new owners but not subtraction of owners from partnerships, corporations, etc.). Figure 9 shows the number of permits associated with owner-on-board exemptions since 2000. The requirement was first implemented in 2001 but exemption determinations were based on activity as of 2000. Permits for which the associated exemption status changed mid-year were categorized being associated with an owner-on-board exemption in the figure below. Overall, the number of permits associated with exemptions has been steadily

[5] Specific exemptions can be found at 50 CFR 660.231.

declining since 2000. Since implementation, there have been 61 exemptions that have expired, with an average of three exemptions per year expiring.

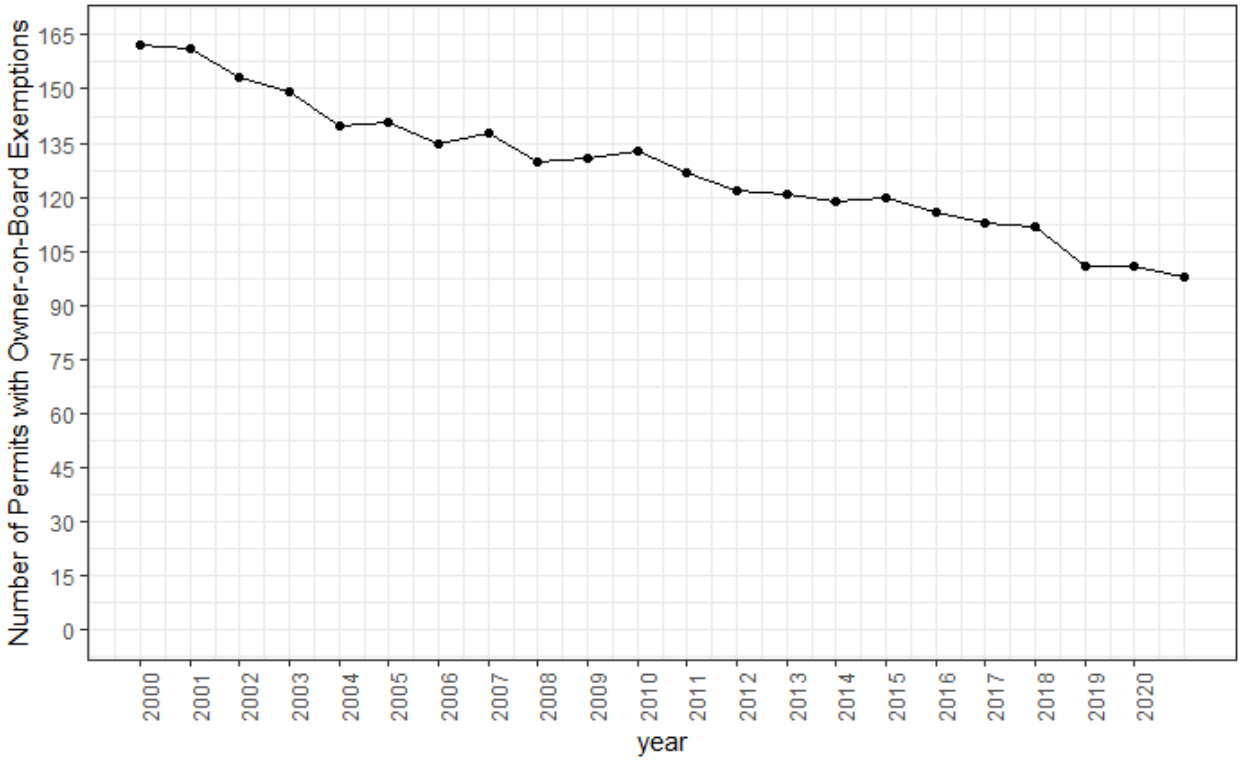


Figure 9. Number of permits with owner-on-board exemptions, 2000-2020.

Occasionally, the number of owner-on-board exemptions appears to increase from one year to the next. However, the new owner-on-board exemptions are not the long-term legacy (grandfather) privileges but rather a short-term (three year maximum) exemption granted for medical reasons. Medical exemptions can be granted to any sablefish endorsed permit owner, including those with owner-on-board exemptions, leading to the owner-on-board exemption count appearing as though they are increasing but in reality, the number of legacy owner-on-board exemptions is not increasing.

Additional analyses on usage of owner-on-board exempted permits by vessels will be presented in the next draft.

2.1.3. Prevent excessive concentration of harvest privileges

This objective relates to NS 4, on allocation, and both NS 8 and FMP Objective 16, on fishing communities. In the Council's effort to reduce capacity in the fishery, did they provide an environment for excessive concentration of the remaining harvest privileges among a few individuals or entities? Such concentration could lead to significant changes in the distribution of fishery benefits among participating communities.

Concentration of Ownership of Permits and Vessels

One source of insight into whether the sablefish tier stacking program has prevented excessive concentration of harvest privileges is to examine if there is any apparent pattern to the changes in the ownership or control of permits and vessels in the fishery since the last review. The last review cited less than five percent and ten percent increases in permit and vessels ownership concentrations respectively, suggesting that there was little concentration of ownership after program implementation. Utilizing the same methodology of the Gini coefficient described in Section 2.1.1, Table 8 shows the Gini coefficient from 2011-2019 for ownership of sablefish endorsed permits and all vessels with at least one primary tier landing in those years. Ownership determinations for this analysis were based on an examination of names, addresses and a review of publicly available business records to identify businesses with common ownership interest. Given that the prior review did not use the same ownership determination criteria, it is impossible to do a direct comparison of the actual values of the Gini coefficient. Yet, trends in consolidation of permits are similar—with a less than a five percent change in the coefficient from 2011-2019. For vessels though, there is a 61 percent difference between the maximum and minimum coefficients. Comparing 2011 to 2019, there has been a 33 percent increase in the coefficient. This suggests that there has been concentration of ownership of those vessels participating in the LEFG primary fishery over the last ten years.

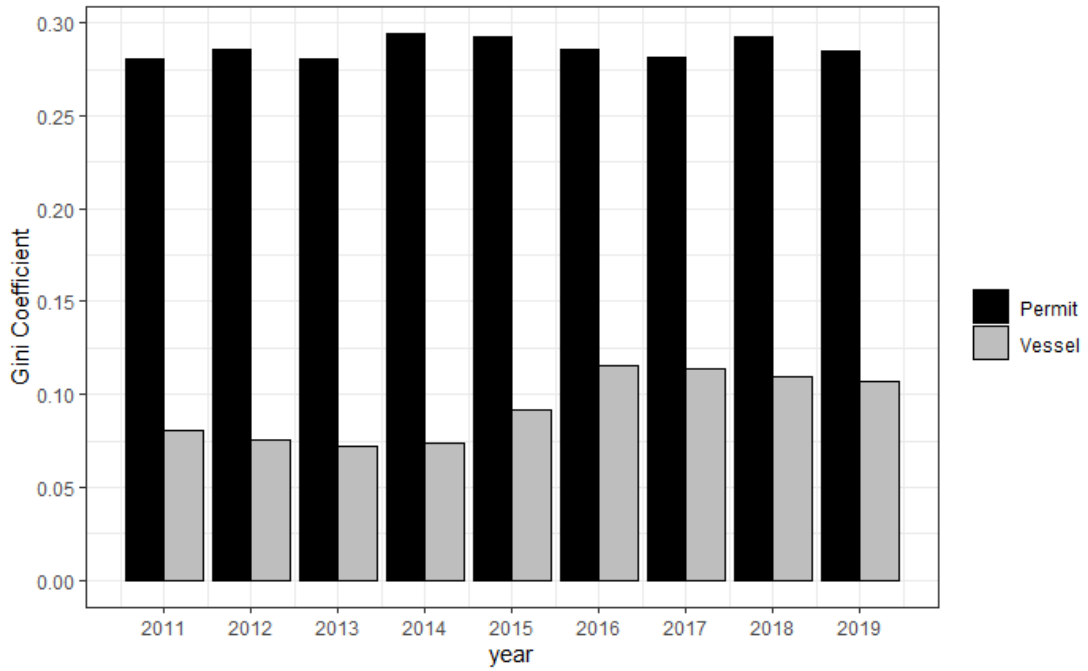


Figure 10. Gini coefficient of ownership for sablefish endorsed permits and vessels that participate in the LEFG primary fishery, 2011-2019.

Leasing

One aspect not considered in the prior review was the leasing of tier permits used in the primary fishery. Approximately a quarter of vessels lease the tier permits that were registered to their vessel during the primary season from since 2011 (Table 12), while approximately 60 percent of vessels were only registered to permits that they were thought to own, based on publicly

available information. A subset of vessels though, between 10-15 a year (~12 percent), were registered to tier permits that they owned and also permits that were leased. Some of these instances were in cases where a vessel purchased a permit midyear while others stacked a leased permit(s) with a permit that they owned in order to increase the vessel's available cumulative landing limit.

Table 12. Number of vessels registered to tier permits during the primary season from 2011-2019 based on if they leased a permit, owned the permit that they fished, or both leased a permit and owned a permit that they were registered to.

Year	Vessels that Leased Permits	Vessels that Were Registered Only Permits that they Owned	Vessels that Leased Permits and were Registered to Permits they Owned
2011	37	64	11
2012	34	63	11
2013	27	58	14
2014	23	66	11
2015	23	58	15
2016	26	58	10
2017	28	59	11
2018	24	57	11
2019	25	53	12
2020	*To be completed*		

Three or less permits have been latent (i.e. unregistered) for the entirety of the primary season in a single year from 2011-2019 (Table 13). Of the remaining permits, approximately two-thirds are registered to vessels with the same ownership. An average of 51 sablefish endorsed permits are typically leased to other vessels in a given year from 2011-2019. There is a small percentage of permits (less than six percent with the exception of 2011, which was nearly double the proportion of the next highest year) that are registered to both the owner's vessel and leased to a different vessel owner in the same season.

Table 13. Number of sablefish endorsed permits that were registered to vessels with the same owner, leased to a different owner, or were both leased and registered to the permit owner, and unregistered, 2011-2019.

Year	Permits Registered to Vessels Under Same Owners	Permits that were Leased	Permits Registered to Vessels Under Same Owner and Leased Out	Unregistered Permits
2011	91	55	18	0
2012	103	54	7	0
2013	104	52	6	2
2014	112	43	5	3
2015	105	50	8	1
2016	109	49	6	0
2017	106	49	9	0
2018	107	50	5	2
2019	104	54	4	2
2020	*To be completed*			

Ownership of the tier permits (including those that were unregistered) and the associated vessels registered to those permits during the primary season from 2016-2020 has been fairly equal across the three West Coast states, with just over two percent of permits and vessels being owned by entities outside the West Coast (Figure 11.). Washington entities have tended to own a larger percentage of sablefish endorsed permits compared to participating vessels owned by Washington residents and vice versa for California. Oregon's ownership of vessels and permits are nearly identical percentages.

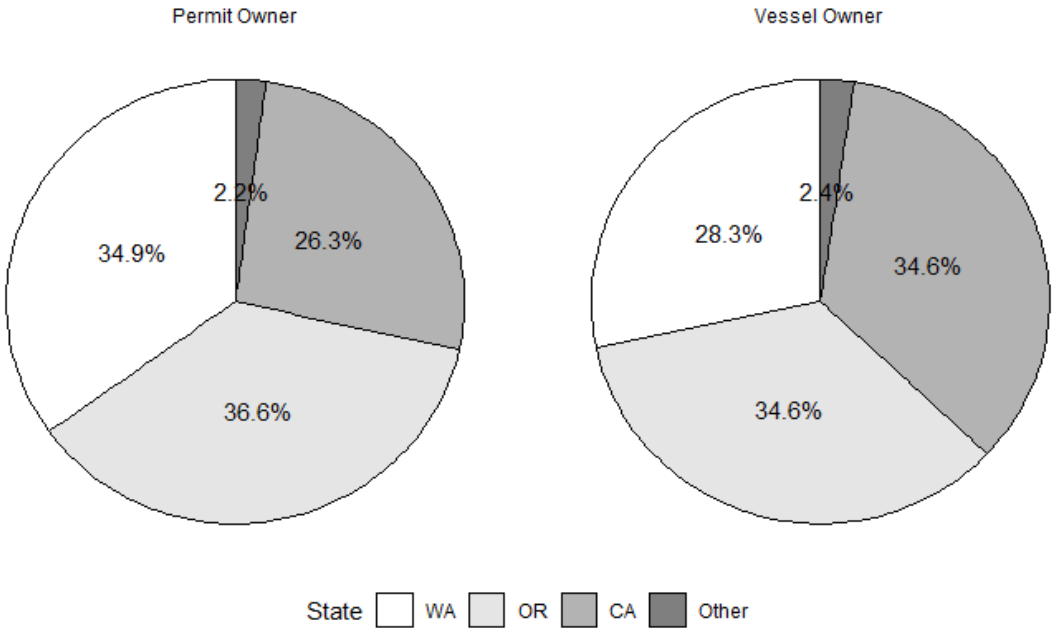


Figure 11. Percent of sablefish endorsed permits and registered vessels by owner state, 2015-2020.

Overall, the majority of landings of primary season sablefish occur in the state of the vessels' ownership. Due to confidentiality, values are unable to be presented. Washington sees the greatest amount of landings delivered to its ports by vessels owned by residents of the other two

West Coast states and non-West Coast states. Washington vessels also contribute the most outside of the state in terms of total revenue and contribution to another state's total revenue (nearly 12 percent to Oregon). Each state though receives approximately 90 percent of revenue from vessels owned by its own residents.

2.1.4. Mitigate the reallocational effects of recent policies

This objective can really be categorized as a subset of the broader objective of promoting overall equity which is covered in Section 2.1.5 below. Both objectives relate to NS 4 on allocation, FMP Objective 12 on equitable allocation, and FMP Objective 14 on minimizing disruption. As described in the 2014 review, the regulatory regime prior to A-14 had included a series of partial and short-term policies and actions in an that attempted to end the derby fishery during a time when new IFQ programs were prohibited by Congress. Of focus in development of this objective was the equal cumulative limits assigned to all fishery participants who qualified for endorsements in 1997 (regardless of permit catch history) and assignment of tiers starting in 1998. The assignment of tiered limits to permits better matched annual allocations to annual permit history but still provided limits that varied substantially from catch history. The ability to stack permits started with implementation of permit stacking provisions in 2001, allowing vessels a way to better match their fishing opportunity to past levels of participation. This objective was considered as a part of the last review and there has been no reallocation within the program since the last review.

2.1.5. Promote equity

Promoting equity is an overarching objective that includes the objective of the previous section (2.1.4). Both objectives relate to NS 4 on allocation, FMP Objective 12 on equitable allocation, and FMP Objective 14 on minimizing disruption. The issue of compliance with the regulations also bears heavily on this objective. If some fishermen are not complying with the program, they are often viewed as gaining an unfair advantage over other fishermen. The 2014 review showed similar concentrations in landings as the original fishery and shows that when overages occurred, they were small without any consistent pattern among vessels.

As described in Section 2.1.1, there does not appear to be a substantial increase in concentrations in landings since the prior review.

The majority of LEFG primary fishery participants harvest the majority of their tiers as shown in Table 7 above. Prior to 2017, a vessel could not fish against their tier limits and DTL fishery on the same trip and there was a 24-hour waiting period between landings in the two sectors. In other words, if a vessel had exceeded its cumulative tier limit on a trip, any fish in excess of the limit would need to be discarded. However, after implementation of the 2016 LEFG follow-on package , a vessel could harvest the remainder of its cumulative tier limit and a full LE DTL limit on the same trip. As shown in Table 6, starting in 2017, there was a shift in the proportion of vessels taking a higher percentage of their tier limits compared to 2015 and 2016, which may indicate that this flexibility made it easier for vessels to make a final trip and harvest the remainder of their tier limit without going over the regulatory limit (tier limit + one DTL) and having to discard additional sablefish. Since implementation of this new ability to harvest in the

DTL sector on the last tier-limit trip of the season, there have been few/no instances of overages in the primary tier fishery.

2.1.6. Resolve or prevent new allocation issues from arising

This objective relates to NS 4 on allocation and FMP Objectives 12 on equitable sharing and 14 on minimizing disruption.

Since implementation of the permit stacking program in 2001, there have been few calls for any changes to the allocations within the LEFG sector. That is, to alter the 85-15 percent split between the primary and LE DTL fisheries. While there was some brief discussion of the intersector sablefish allocation during the Council's formal consideration of its groundfish allocations for Amendment 21, it was decided that, relative to other workload concerns at that time, there was not a sufficient need to reconsider the intersector allocations of sablefish. As will be discussed under Section 2.2, the Council may want to consider whether this review should include a consideration of the within LEFG allocation.

2.1.7. Promote safety

The A-14 objective to improve safety also relates to NS 10 and FMP Objective 17 on safety. As discussed in the prior review, prior to A-14, the LEFG sablefish fishery was a classic derby fishery, lasting only five days in 1996. Such classic derby fisheries are well-known for creating safety hazards by providing incentive to fish in poor conditions to get an adequate share of catch, skipping maintenance, or overloading vessel capacity.

To be completed.

2.1.8. Improve product quality and value

This A-14 objective to improve product quality and value also relates to NS 5 on efficiency and FMP Objective 6 on net national benefits. Achievement of this objective could be indicated by changes in the sales price or grades of fish landed after implementation of A-14 as compared to before. However, changes in exvessel price (the most readily available data) are strongly driven by the influence of broader market conditions which might overshadow any effects resulting from a change in product quality. The prior review examined the impact of the permit stacking program on exvessel prices by comparing the price differentials of trawl versus fixed gear prior to and after program implementation and saw no significant difference. The review noted a stabilization of prices in the LEFG sector after program implementation, which was likely due to the participant's abilities to meet market demand over a longer set season rather than being restricted to whatever market conditions were present during the derby season. While the previous review was unable to provide much insight into the relationship of fish size and value, this section attempts to characterize how gear type and grades (weights) of sablefish affects price and the possibility that sablefish are highgraded to achieve higher revenue through retention of larger fish.

Average price per pound by month since the last review (with the exception of 2020) is lower than that of the previous five year period (2008-2013) in the earlier months and similar in the later months (Figure 12). For both periods, prices for each month are higher compared to 2002-2007. While prices prior to 2014 appear to stay stable throughout the season, in the 2014-2019 period, there appears to be an increase in sablefish prices in the fall relative to the spring. This seasonality appears to be driven more by trends in more recent years. For 2018-2020, the August-October prices are 17 percent above the April-July prices (comparing unweighted averages of monthly prices) while for 2014-2017 the difference is only eight percent. This recent strengthening of the seasonality of prices, may be contributing to the trend for a greater portion of landings to be taken later in the year, which started in 2018 (see Figure 2).

The inflation adjusted average annual price has declined by 34 percent in for recent years, with 2014-2017 averaging $3.34 per pound compared to 2018-2020 averaging $2.14 per pound. Comparing the monthly prices for the last three years (2018-2020) to the monthly prices for the prior four years (2014-2017), for each month, prices have been lower in the more recent years (Table 14).

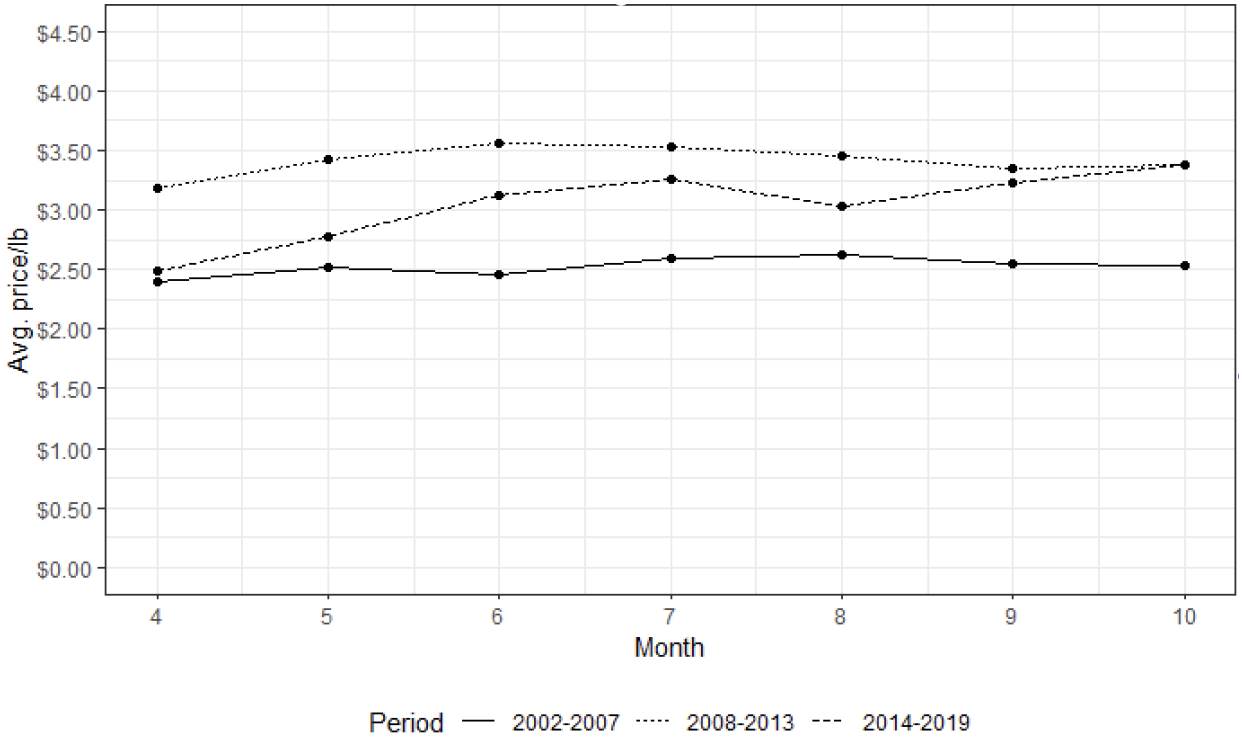


Figure 12. Average price per pound by month (2020$) for periods of 2002-2007, 2008-2013, 2014-2019.

Table 14. Average price per pound by month (AFI, 2020$), 2014-2020.

Year	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Avg.
2014	$2.41	$2.92	$3.88	$3.46	$3.10	$3.20	$3.43			$3.20
2015	$2.47	$3.21	$3.16	$2.91	$2.58	$3.39	$4.20			$3.13
2016	$2.86	$3.35	$3.14	$3.90	$3.27	$3.58	$3.68			$3.40
2017	$3.36	$3.04	$3.52	$4.01	$3.90	$3.83	$3.74			$3.63
2018	$2.01	$2.08	$2.88	$2.87	$2.91	$3.00	$3.00			$2.68
2019	$1.81	$2.02	$2.18	$2.42	$2.41	$2.40	$2.23			$2.21
2020	$1.43	$1.22	$1.45	$1.52	$1.79	$1.62	$1.59	$1.65	$1.41	$1.52
Average	$2.34	$2.55	$2.89	$3.01	$2.85	$3.00	$3.12			

There are price differentials by gear type that may be affected by a number of factors, including size of fish (i.e. grade), ports to which deliveries are made, and fish quality. Overall, since 2012, longline caught sablefish have brought a higher price per pound on average compared to pot caught sablefish in the LEFG fishery (Table 15 and Figure 13 of this review; Figure 3-21 in the 2014 review).

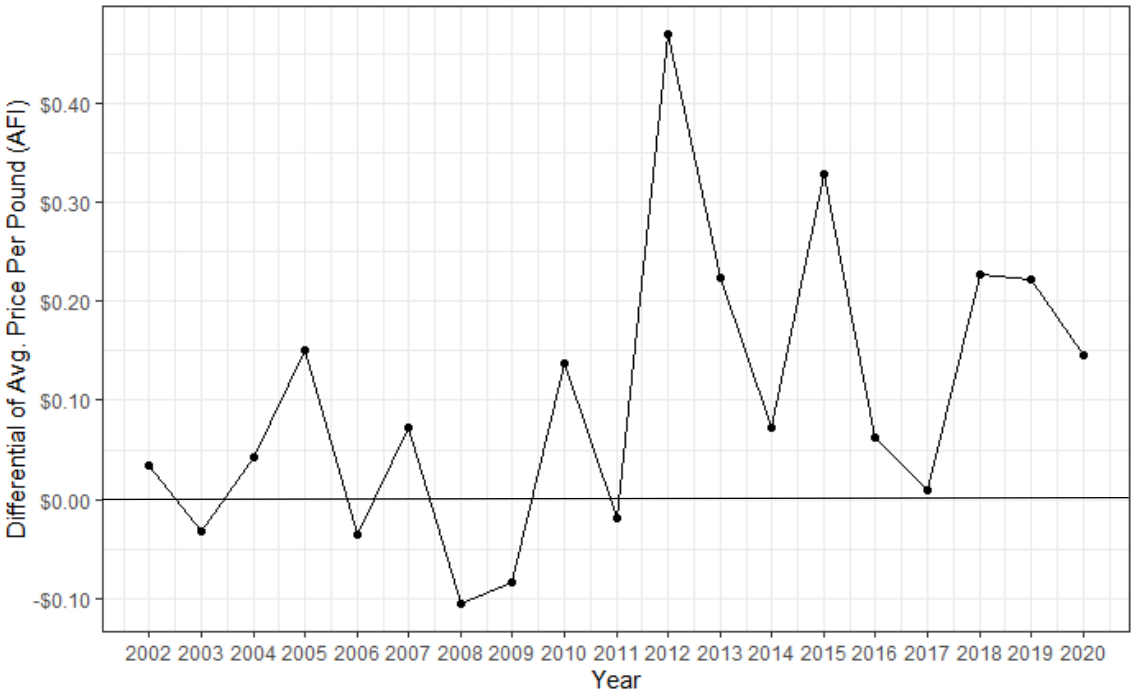


Figure 13. Differential between average price of longline caught sablefish compared to pot caught sablefish, 2002-2020.

Table 15. Avg. Price per pound (AFI) of LEFG sablefish by gear type, 2014-2020.

Gear Type	2014	2015	2016	2017	2018	2019	2020
HKL	$2.93	$3.03	$3.20	$3.49	$2.79	$2.34	$1.63
Pot	$2.87	$2.72	$3.14	$3.48	$2.56	$2.12	$1.48
Differential (HKL-Pot)	$0.07	$0.31	$0.06	$0.01	$0.22	$0.22	$0.15
Percent Difference between Gear Types	2.33%	10.19%	1.82%	0.25%	8.06%	9.50%	8.97%

In general, larger sablefish receive a higher price per pound than smaller fish. Table 16 below shows the average price per pound based on the grade size recorded by the dealer on a fish ticket from 2014-2019 with the average by grade size shown for each row. Due to confidentiality, "X-Large" grade fish were combined with "Large" fish in the table. Note that grades are not required on fish tickets in some states or some sablefish are listed as "unspecified." Grades also may not be consistent between dealers. From 2014-2019, 42 percent of the landings were categorized as unspecified.

Table 16. Average price per pound (nominal) by grade of sablefish in the LEFG primary fishery, 2014-2019.

Grade	2014	2015	2016	2017	2018	2019	2014-2019 average
X-Small	$4.87	$2.38	$4.73	$2.37	$1.37	$0.69	$2.87
Small	$2.97	$3.17	$3.00	$3.57	$2.68	$2.22	$2.97
Medium	$2.86	$3.11	$3.10	$3.05	$3.18	$2.57	$2.86
Large/X-Large	$3.68	$3.82	$4.07	$3.93	$3.96	$3.16	$3.68
Unspecified	$2.54	$2.46	$2.95	$3.50	$2.41	$2.09	$2.54

Because of the price difference between sizes and given that tier limits are used to cover landings but not catch, there is incentive and opportunity for vessels in the LEFG fishery to increase their revenue per pound by discarding smaller sablefish and retaining larger ones. This is unlike the shorebased IFQ fishery where discards count against the vessel's quota. However, in the LEFG fishery, discard mortality does not go unaccounted for as observer data is used to make adjustments to landing limits in anticipation of the expected levels of discards. In the biennial harvest specifications, cumulative landing limits for the tiers are determined based on the share of the primary allocation expected to be landed. This "landed share" is the allocation to the primary tier fishery (85 percent of the limited entry fixed gear allocation) minus the expected discard mortality. Discard mortality parameters are recommended by Groundfish Management Team (GMT) and are based on the recent WCGOP historical discard mortality estimates.

The difference in size distribution between retained and discarded fish suggests that vessels are highgrading their catch. Figure 14. and Figure 15 provide the count and proportion of retained sablefish fork lengths (cm) sampled shoreside by catch monitors and state sampling programs compared to the fork lengths (cm) of discarded sablefish sampled by WCGOP onboard observers in the LEFG primary fishery from 2011-2019. The average retained sablefish is approximately 63 cm in fork length compared to ~51 cm for discarded sablefish, which may suggest that vessels are prioritizing larger sablefish.

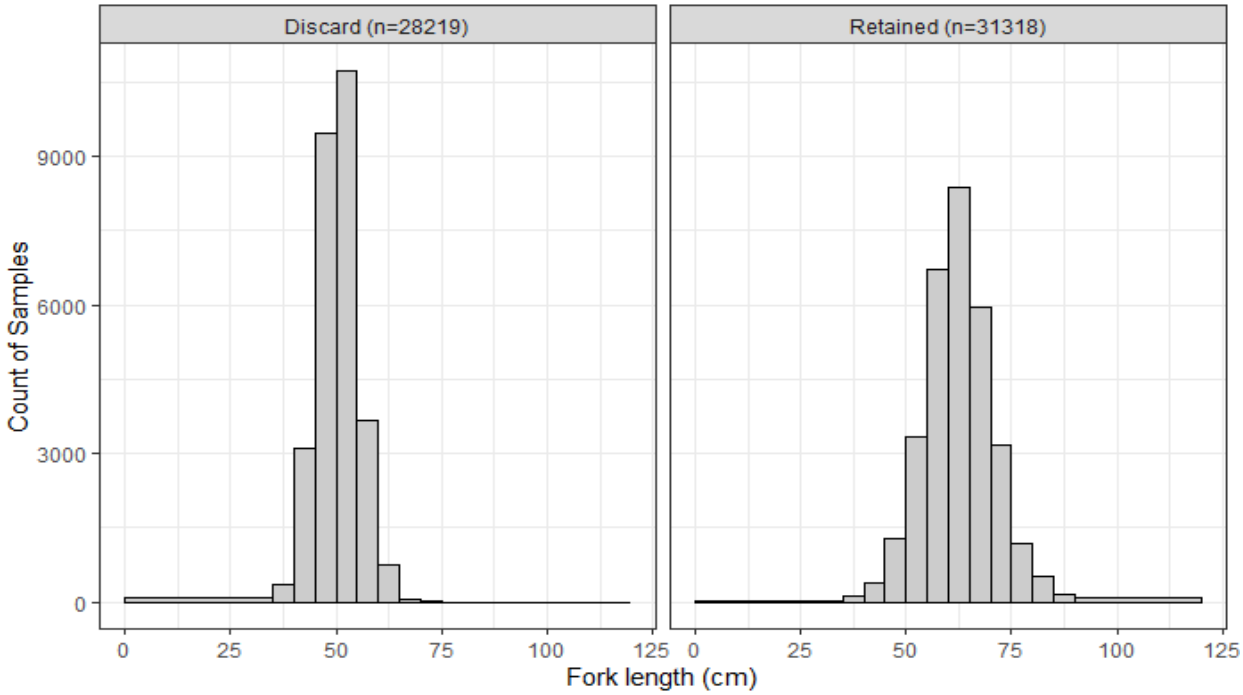


Figure 14. Count of sampled sablefish discarded (left panel) and retained (right panel) in the primary sablefish fishery by fork length size bin (cm), 2011-2019. Number of sampled sablefish shown for each group.

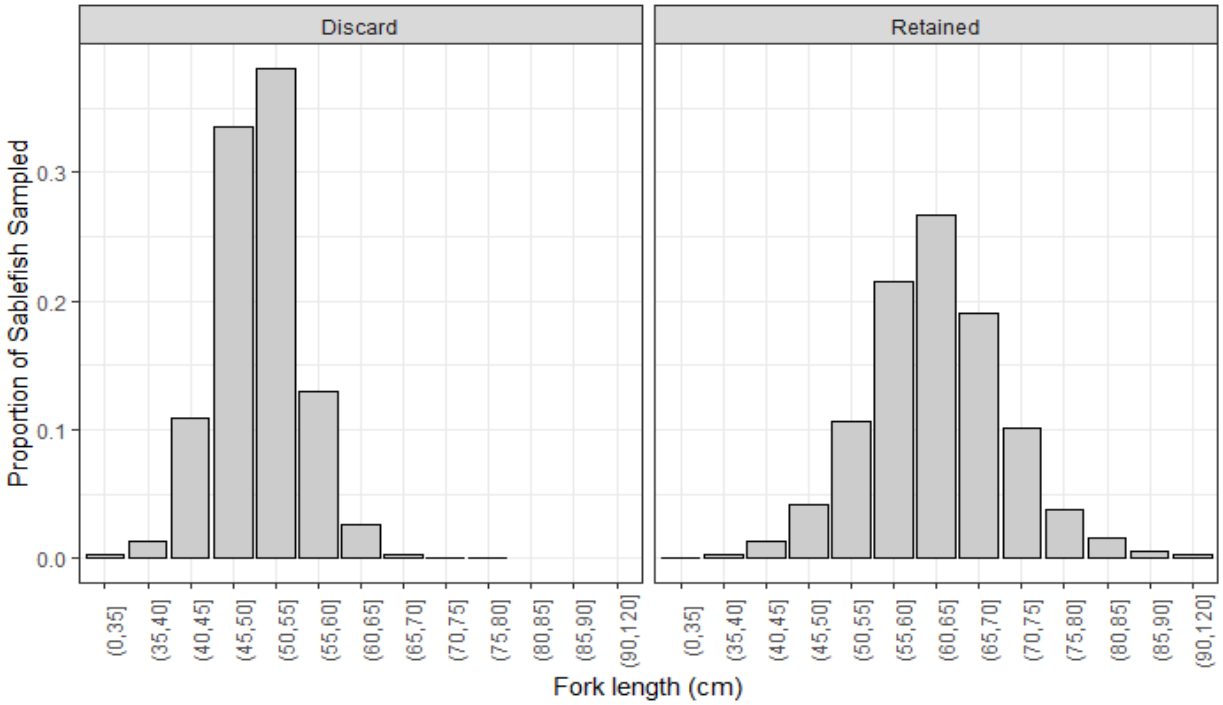
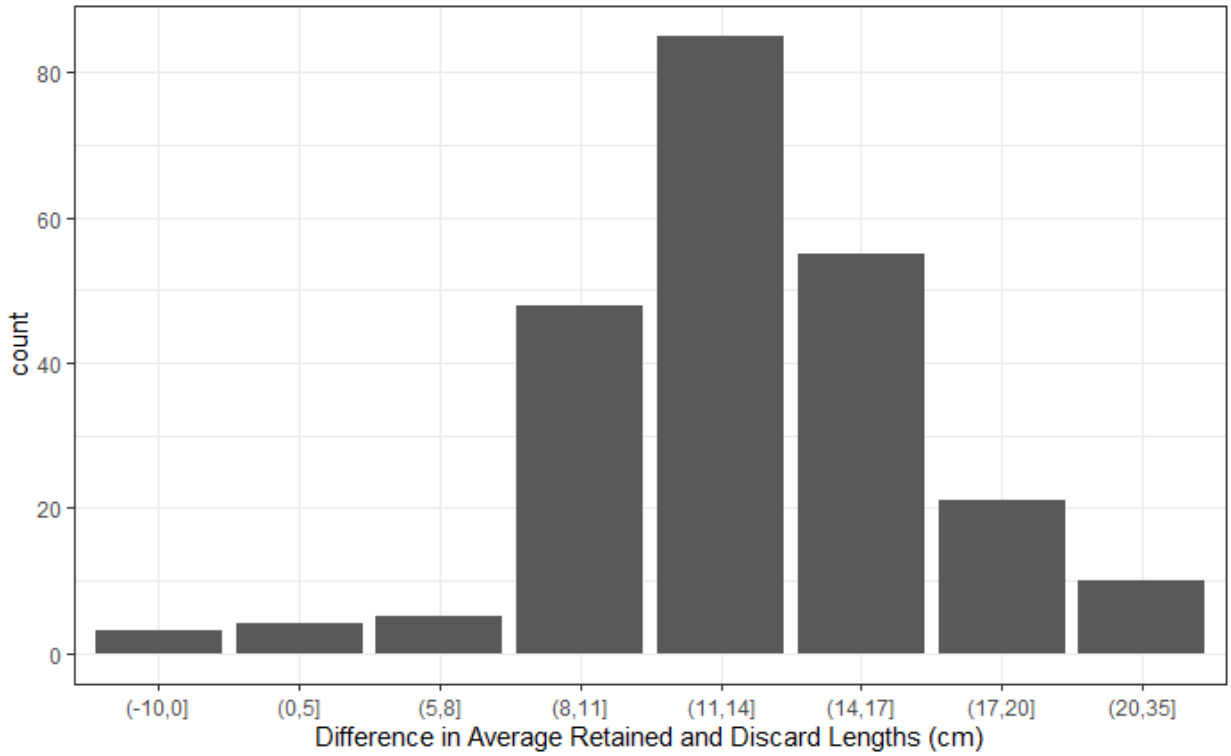


Figure 15. Proportion of sampled sablefish discarded (left panel) and retained (right panels) in the primary sablefish fishery by fork length size bin (cm), 2011-2019.

Looking closer at trips where sablefish were both retained and discarded, the average difference between the retained and discarded sablefish is over 13 cm. Trips were based on the "TRIP_ID" field in the WCGOP database and were linked to retained records through fish ticket number. Of the available samples, only three trips had an average discarded length greater than the average retained length (far left-hand bar of Figure 16.). This further supports the idea that vessels may be highgrading in the primary sablefish fishery. *Additional analyses examining the difference in discards between the IFQ fishery and the LEFG fishery may provide further insight on highgrading.*



Note: "(" designates greater than the first value in the pair and "]" indicates less than or equal to for the second value in the pair.

Figure 16. Number of trips by the difference between the average retained and discarded sablefish fork lengths (cm) on trips where sablefish were both retained and discarded.

2.1.9. Take action without substantial new disruptive effects

This objective relates to FMP Objective 15 that directs the Council when considering alternative management measures to choose the measure that best accomplishes the change with the least disruption of current domestic fishing practices, marketing procedures, and environment.

As of the drafting of this document and since the last review, there have been no noted issues with the program's structure, except for the need to extend the season in 2020. The following changes have been made to the program since 2014:

- E-ticket requirement along with a subsequent update and simplification.

- Provide exemptions to permit ownership limits for permit owners with less than 20 percent interests in vessels participating in both Alaska and West Coast
- Allow the joint registration of a trawl endorsed and fixed gear endorsed permit at the same time (recommended as part of the trawl follow-on action but implemented within a 2016 fixed gear regulatory amendment package) .
- Prohibition of processing sablefish at-sea in the shorebased IFQ program for those LEFG vessels with exemptions.
- Clarified existing regulatory language prohibiting retention in the LEFG fishery beyond allowable quota.

In general, these changes were intended to improve program performance and are not reported to have had any noticeable disruptive impacts to the LEFG fishery. The prohibition on processing at-sea prevented expansion of such activity while preserving opportunity for existing at-sea processors meeting the qualifying requirement.

2.1.10. Create a program that will readily transition into a multi-month IQ program.

By the time the Council was completing its deliberations on this program, Congress had provided this fishery with an exception to the moratorium on new IFQ programs. Therefore, upon implementation of the permit stacking program, the multi-month fishery was established. Without such an exception, there would have been a lag between implementation of the permit stacking program and its evolution to a multi-month IQ program. However, as noted in the prior review, the Council could consider the movement of the program into a more "typical" IFQ program like the shorebased IFQ program in which individual pounds could be traded apart from the permit.

2.2. Allocations

Questions for Council consideration: Should this review examine the within LEFG allocations (primary, DTL)?

NMFS Fisheries Allocation Review (01-119, 01-119-01) policies provide a mechanism for ensuring periodic allocation reviews and requires triggers for reviews of sector allocations. The triggers were implemented by this Council in COP 27. A-14 is reliant on the trawl/fixed gear northern sablefish allocation originally established in the early 1990s. COP 27 specifies that the trigger for a review of that allocation is the review of the trawl catch share program, next scheduled for 2022. Therefore, a full analysis of that allocation is probably not required as part of this review.

However, the NMFS catch share review guidance (NMFSPI 01-121-01, pp. 11-12) states that the allocations to be reviewed are not just those between sectors but also between entities and subgroups within the program. The trawl catch share program would not be a very natural fit for a review of the LEFG within-program allocations. The LEFG program includes allocations between individuals (assignment of tiers to permits) as well as the allocation to groups (amount allocated for Tier 1, Tier 2, and Tier 3 permits). As mentioned in Section 2.1.6, there might also

be consideration of the amounts allocated for the LEFG sablefish DTL fishery (15 percent of the LEFG allocation) as compared to the LEFG primary fishery (85 percent). Further, the NMFS guidance states that review of catch share allocations should explicitly consider the effect of existing accumulation limits. For the LEFG program, this would be the three-permit stacking limit which is covered by Section 2.1.3. Because the within LEFG sector allocations would not fit well with the trawl catch share review and consideration of trawl/non-trawl allocations, the Council may want to include some of those allocations as part of this review.

Since the last review in 2014, the primary fishery has averaged 93.3 percent attainment with the DTL fishery averaging only 73.8 percent. In 2015, the LE DTL fishery was closed inseason for period 6 (November-December) due to expected overages in that sector (80 CFR 61318).

Table 17. LEFG primary tier and LE DTL allocations (mt), total mortality (mt), and percent attainment of allocations, 2014-2019. Source: WCGOP GEMM.

Year	Primary (85% of LEFG Allocation)			DTL (15% of LEFG Allocation)		
	Allocation	Mortality	Attainment	Allocation	Mortality	Attainment
2014	1,254	1,101	87.8%	221	136	61.6%
2015	1,385	1,367	98.7%	244	158	64.7%
2016	1,515	1,471	97.1%	268	200	74.6%
2017	1,518	1,470	96.8%	268	245	91.4%
2018	1,583	1,475	93.2%	279	214	76.7%
2019	1,620	1,400	86.4%	286	211	73.7%
Avg.			93.3%			73.8%

In order to understand the relationship between those that participate in the primary fishery compared to those that fish in the LE DTL, Table 18 below looks at the number of vessels that crossover between the primary and LE DTL fishery from 2011-2019. Of the 88 vessels on average that fish in the primary tier sablefish fishery, an average of 54 vessels (or 61 percent) have at least one landing in the LE DTL sector throughout the fishing year. An average of 15 vessels fish only in the LE DTL fishery north of 36° N. lat. Thirty four vessels with sablefish endorsed permits on average (2011-2019) have at least one DTL landing in period 6 (November-December; excluding 2015). This means that approximately 39 percent of all primary fishery vessels participate in the DTL fishery after the primary season has concluded. These vessels receive 16.5 percent of their ex-vessel revenue on average from the DTL sector compared to 36 percent from the primary fishery.

Table 18. Number of vessels that participated in the LEFG primary and/or DTL fisheries compared to total LEFG primary participation, 2011-2019.

Landing Year	Participated in both Primary and LE DTL	Participated in LE DTL only	Participated in Primary Only	Total Primary Participants
2011	75	23	23	98
2012	51	24	44	95
2013	49	10	40	89
2014	46	11	38	84
2015	52	13	34	86
2016	53	18	32	85
2017	57	14	28	85
2018	54	12	29	83
2019	47	10	36	83

2.3. Eligibility

Question for Council consideration: Should the review assess impacts on those who have left the fishery? (If so, consider including in Section 2.10.)

Reviews should evaluate who is allowed to hold quota and the effects of those eligibility criteria (NMFS Procedural Guidance 01-121-01, p. 13). If the needed resources and information is available, a more extensive review effort might also include effects on those who have left the fishery. A preliminary look at the number of businesses that have left the LEFG primary fishery can be found in Section 2.10.2. If an evaluation of those who left the fishery is conducted, it might best be placed in that section.

Anyone eligible to own a US documented fishing vessel is eligible to own an LEFG permit, except that only individuals are allowed to acquire sablefish endorsed LEFG permits. As anticipated when the program was created, this means that while fishing enterprises may still organize themselves as corporations, partnerships, etc., the LEFG permits must be owned by a single member of such an entity. It also sets up a situation that contrasts with the trawl IFQ program in that while under the IFQ program a community can own quota this is not possible under the LEFG program.

2.4. Transferability

The review should assess whether transferability limitations are conducive to achieving the program objectives. This program limits transferability in six ways, some of which hamper program objectives and others of which enhance achievement of those objectives.

First, the tier limits are of three size categories and may not be subdivided. This limits a vessel's ability to fine tune its allocation to its fishing needs.

Second, the three-permit stacking limit is essentially a transferability limit with respect to a vessel and further limits a vessel's ability to optimize the scale of its sablefish harvesting activities. The three-permit limit has been hypothesized as an incentive for participation in IFQ gear switching by LEFG permitted vessels (discussed more in Section 2.6).

Third, the tier endorsement is associated with a general LEFG permit and may not be separated from that permit. The permit includes the privilege of not only harvesting sablefish but all other groundfish species, subject to the gear specific bi-monthly limits and sector allocations. Therefore, the harvest privileges for all species must be transferred as a unit. One effect of this is that the consolidation of harvest privileges for the purpose of sablefish fishery (and consequently a reduction in the number of vessels active in the fishery) has effectively reduced the number of vessels eligible to target on other groundfish species within the LEFG fishery.

Fourth, associating the quota with a permit and restricting permit ownership to individuals facilitates the application of the owner-on-board provision and exceptions. The exceptions are expiring over time.

Fifth, the three tiers combined with a three-permit stacking limit provides for a different balance between the limit on maximum consolidation and minimum fleet size than would a more typical IFQ program. With 164 permits, a three-permit stacking limit ensures there will be at least 55 vessels in the fleet (assuming all permits are used). If this were instead implemented as a more typical IFQ with a vessel limit based on percentages, that limit would have to be set at 1.82 percent to maintain a similar minimum fleet size. Vessels that stack 3 tier-1 permits can harvest 4.1 percent of the total amount available to be landed, substantially more than the 1.82 percent (vessel with 3 tier-2 permits can harvest 1.8 percent and with 3 tier-1 permits 1.1 percent). A general 4.1 percent limit would allow a reduction in the fleet to as few as 25 vessels. Thus, the current approach might be limiting potential efficiency gains for the trade-off of providing for a more diverse fleet (in terms of the levels of harvest in the LEFG Fishery) with a larger number of vessels while still allowing some vessels to achieve higher total harvest levels.

Finally, the LEFG permits may only be transferred from one vessel to another once in a calendar year, except in cases of death of a vessel owner or complete vessel loss (50 CFR 660.25). The majority of permits are utilized on only one vessel as shown in Table 19 below. Given that the fishery allocation is highly attained, the transferability limitation appears to not be inhibiting fleet level attainment. However, on an individual level, this limitation could be restricting optimization of fleet efficiency and vessel movement between different strategies.

Table 19. Number of sablefish endorsed permits by the number of vessels registered to within a calendar year, 2014-2020.

Number of Registered Vessels	Number of Permits by Year						
	2014	2015	2016	2017	2018	2019	2020
1	139	147	153	146	151	157	147
2	21	16	11	18	11	5	16

2.5. Catch and Sustainability

The review should assess whether the program has kept harvest within applicable limits such as ACLs, evaluate achievement of full utilization, analyze impacts on the minimization of bycatch and bycatch mortality, and discuss changes in the status of the stocks covered by the program.

As described in depth above, the LEFG primary fishery has been managed within its allocation since at least 2001, with attainment averaging 93 percent from 2014-2019. The remainder of this section will focus on the other aspects of this element, including updates to stock status and impacts of bycatch within the fishery.

2.5.1. Stock Status

Since the last program review, there has been an update assessment in 2015 and a new full assessment in 2019. The 2019 assessment indicates the stock was at 39 percent unfished biomass as the start of 2019 compared to 34.5 percent in 2015. As noted in the 2020 Stock Assessment and Fishery Evaluation document, "Despite these [model] uncertainties, the NMFS trawl survey index and compositional data are informative with respect to both abundance trends and recruitment variability. Spawning output has been relatively stable over the past decade with depletion close to the management target level during that time. In 2019, the sablefish stock is estimated to be at 39 percent of unfished spawning output. However, abundance is projected to increase, and the spawning output is projected to be above the target level in 2021. This trend is driven in part by the estimated, but highly uncertain, size of the 2016 year class." For the 2021 harvest specifications cycle, the Council chose to change the default harvest control rule to ABC=ACL and a P* of 0.45. Additionally, the Council changed the north-south apportionment of the stock from 73.6 percent north/26.5 percent south based on the long-term trawl survey biomass to 78.4 percent north/21.6 percent south based on a recent five-year average of the trawl survey biomass. This change effectively moved a greater proportion of the West Coast sablefish harvestable amounts to within the scope of the LEFG primary fishery (which occurs only north of 36º N. lat.).

2.5.2. Co-occurring Groundfish Species and Pacific Halibut

While the primary sablefish fishery targets primarily sablefish north of 36° N. lat., there is other catch and bycatch associated with the fishery. Vessels participating within the primary fishery may retain other groundfish species subject to the LEFG fishery landing limits for other species outlined in 50 CFR 660 Subpart E Table 2. Since the last program review, there have been several species rebuilt leading to less restrictive trip limits as well as modifications to the seaward boundary of the non-trawl RCA in 2017-2018 south of 40° 10' N. lat. (moved from 150 fm to 125 fm). From 2015-2019, excluding sablefish, the species with the highest average landings on deliveries that included primary fishery sablefish catch include slope rockfish north of 40 ° 10' N. lat., longnose skate, shortspine thornyhead north of 40° 10' N. lat., lingcod north of 40° 10' N. lat., and minor slope rockfish north of 40° 10' N. lat. (Table 20.). In terms of discard, the groundfish stocks (besides sablefish) with the highest average estimated discard in the primary tier fishery were spiny dogfish, arrowtooth flounder, longnose skate, minor slope rockfish north of 40° 10' N. lat. , and shortspine thornyhead north of 40° 10' N. lat.

Table 20. Average annual landings and discard of the top five non-sablefish species delivered on trips that included LEFG primary fishery catch, 2015-2019. Source: WCGOP GEMM.

Landings		Discard	
Species	**Avg. (mt)**	**Species**	**Avg. (mt)**
Slope rockfish North of 40° 10’ N. lat.	39.7	Spiny dogfish	102.5
Longnose Skate	28.4	Arrowtooth flounder	27.8
Shortspine thornyhead (North of 34°27' N. lat.)	21.8	Longnose skate	25.5
Lingcod (North of 40°10' N. lat.)	11.5	Minor slope rockfish (North of 40°10' N. lat.)	24.3
Minor slope rockfish (North of 40°10' N. lat.)	7.8	Shortspine thornyhead (North of 34°27' N. lat.)	3.3

Yelloweye rockfish remains under a rebuilding plan and is encountered in the LEFG primary fishery. The LEFG tier fishery is the primary source of mortality within the non-nearshore sector. Since 2015, the non-nearshore fishery has remained within its yelloweye HG with the exception of 2017.

In addition to groundfish, vessels fishing in the primary fishery can retain Pacific halibut in either the directed fishery south of Pt. Chehalis, WA or throughout the primary season north of Pt. Chehalis, WA with the incidental catch limit. The directed halibut fishery has typically lasted for a few days but vessels with a primary tier permit may retain sablefish while fishing for halibut. The incidental halibut retention allowance north of Pt. Chehalis can last the entirety of the primary season assuming adequate quota is available. Recent incidental limit catch ratios, quotas, and harvest can be found in Agenda Item F.2, Attachment 1, March 2021.

2.5.3. ESA bycatch

Impacts to Endangered Species Act (ESA) listed species vary by gear-type. More sablefish is caught by hook-and-line gear than by pot gear. Table 21. below shows the amount of sablefish landed by pot gear and other hook-and-line gears in the primary sablefish fishery from 2014-2020.

Table 21. Percentage of primary sablefish landings by gear type, 2014-2020.

Year	HKL	Pot
2014	68.4%	31.6%
2015	72.7%	27.3%
2016	73.8%	26.2%
2017	73.4%	26.6%
2018	71.6%	28.4%
2019	69.6%	30.4%
2020	57.5%	42.5%

Whales

Incidental take of humpback whales occurs as a result of entanglement with fishing gear and is expected to occur in the sablefish pot/trap fishery. After 2013, there have been two estimated takes of humpbacks in the groundfish fishery- one by pot gear in the LEFG sablefish fishery in 2014 and one in the open access fishery in 2016. NMFS released a new BiOp for humpback whales in October 2020, with a take limit of the following:

Mexico distinct population segment (DPS)

- Annual upper estimated amount = no more than 3
- 5-year running average limit = no more than 1.44

Central America DPS

- Annual upper estimated amount = no more than 2
- 5-year running average limit = no more than 0.90

Using the information available on entanglement, "if more than 5 humpback whales are observed or estimated to have been incidentally captured in the PCGF in any one year, or if the 5-year running average of humpback whale bycatch exceeds 2.34 per year, then we would conclude that the incidental take of ESA listed Mexico DPS and/or Central America DPS humpback whales would have been exceeded."

The Council and its advisory bodies are currently engaging with NMFS on methods to satisfy the 2020 terms and conditions.

Seabirds

Short-tailed albatross take can occur off of the U.S. West coast year-round and are subject to take by interactions with longline gear. On average from 2014-2020, approximately 70 percent of the tier fishery was harvested using hook-and line gear (Table 21.). As of 2020 (see 84 FR 67674), streamer lines used as a mitigation measure are in effect year-round and could be expected to minimize interactions.

There has only been one known case of short-tailed albatross take in the groundfish fishery, which occurred using line gear in the LEFG primary fishery off Oregon in 2011 (NMFS Report). The 2017 BiOp states that "Incidental take [for the entire groundfish fishery] should not exceed an estimated five albatross in a two-year period or 1 observed albatross in a two-year period." Based on the most recent ESA Workgroup report, the fishery remains in this threshold.

Salmon

The groundfish fishery operates under specific bycatch guidelines for salmon and the threshold for the non-whiting trawl sector[6] as a whole is 5,500 Chinook salmon. Historically, the fixed gear fishery has had low Chinook salmon bycatch rates (Agenda Item H.9, Attachment 1, November 2019). There has been no observed bycatch of Chinook in the limited entry sablefish

[6] Bottom trawl, non-whiting midwater trawl, IFQ-fixed gear, LE and OA fixed gear fisheries, and select recreational fisheries outside of the primary seasons are included within this threshold.

fleet since 2002 when WCGOP sampling began, with limited occurrences of coho salmon bycatch (Table 10 of Richerson, et. al., 2019).

2.6. Accumulation Limits/Caps

Question for Council Consideration: Should this review include a detailed assessment of the accumulation limits?

Accumulation limits for this fishery are in the form of limits on permit ownership/use and the number of permits that can be registered to a single vessel (three permits). The degree of concentration of ownership in the fishery and change over time is discussed in 2.1.3. The NMFS catch share review guidance also states that "reviews should analyze and evaluate the equity/distributional impacts of existing caps and the impacts those caps have had on the creation of market power by affected entities . . . . [and] analyze whether and to what extent QP caps or limits have generated technical inefficiency for firms operating in a CSP" (NMFS Procedural Guidance 01-121-01, pp 14-15). ***As with allocation reviews, because the types of analysis described here can be time and resource intensive, it might be appropriate for separate analysis and with a summarization in the review document.***

Based on the NMFS guidance, this section of the analysis should also consider whether existing data collection and monitoring is adequate to determine ownership and evaluate compliance with the caps and whether the caps are being applied at levels that ensure they are serving their intended purpose. Capacity control might also be covered in this section and, if so, "should be conducted in a manner consistent with the terminology and methods outlined in NMFS' National Plan of Action for the Management of Fishing Capacity." (NMFSPI 01-121-01, p. 15).

Accumulation Limits: Permit Ownership/Control

No individual person, partnership, or corporation in combination may own or hold more than three sablefish-endorsed permits. Vessel owners that have permits that are registered to their vessels are considered to hold (control) the permit. However, an exception is provided. In particular, vessel owners may be granted an exemption for situations in which all of the following apply: they have no more than 20 percent ownership interest in a vessel registered to the sablefish endorsed permit, the vessel owner currently has ownership interest in Alaska sablefish individual fishing quota, and the vessel has fished in the past 12-month period in both the West Coast groundfish LEFG fishery and the Sablefish IFQ Program in Alaska.

To be completed.

Accumulation Limits: Stacking Permits

As discussed in Section 2.1.1., the number of vessels with three primary tier permits stacked increased in recent years, but may not be a net change if considering the full program history. It has been hypothesized that one of the reasons that there has been crossover from the LEFG primary fishery to the shorebased IFQ program and "gear switching" might be due to the constraints imposed by the three-permit stacking limit in addition to the seasonal constraints (April 1-October 31). Vessels with a trawl endorsed permit are able to "gear switch" (utilize legal non-trawl gear to harvest trawl quota in the shorebased IFQ program) and harvest primarily

sablefish (Agenda Item F.4, Attachment 1, April 2021). Thus, vessels that have reached their permit stacking limits may continue to expand their fixed gear sablefish harvest by entering the shorebased IFQ program.

From 2016 to 2019, all but one vessel that crossed over from the LEFG fishery (an average of six) to the IFQ fishery had stacked their maximum number of LEFG permits (three) at some point during the primary season. Of those that crossover from the LEFG sector, 56 percent of their total groundfish revenue and 41 percent of their total revenue on average comes from IFQ sablefish north compared to 76 percent and 38 percent respectively for those vessels that only gear switch in the IFQ program. At the same time, there has been an average of 21 vessels with three stacked permits (at some point in the year) that did not crossover. The Council is currently undergoing considerations of limiting gear switching opportunity in the IFQ fishery, which may promote participation into the primary tier fishery by vessels that gear switch in the IFQ fishery but have not been participating in the LEFG fishery. Additionally, given that the LEFG primary fishery does not have cost recovery or 100 percent monitoring requirements, the overall profit for LEFG primary trips could provide more incentive to prioritize those trips compared to IFQ trips.

Data Collection and Monitoring

Currently, sablefish endorsed LEFG permit owners only have to submit an ownership interest form to NMFS if they are a partnership or a business entity. For LEFG permit owners who are individuals, NMFS does not need any additional information to determine if participants are complying with the ownership cap. Since the start of the program, permits can only be transferred to individuals, however, partnerships and other types of organizations that were already permit owners were allowed to continue in that capacity.

In terms of the tier stacking limit, the NMFS public permit database tracks the registration of all federal groundfish permits and ensures that no more than three permits are registered to a vessel at the same time.

Additional information on existing data collection and monitoring programs and whether they are adequate to determine ownership and evaluate compliance with accumulation limits and if the limits are serving their intended purposes will be provided at a later date. Further discussion on data collection and reporting can be found in Section 2.8.

2.7. Cost Recovery

Questions for Council consideration: Should cost information be expanded and is a cost recovery program needed?

The review should identify whether cost recovery is in place and if costs and fees are being appropriately assessed. It should also evaluate the economic effects of the fees on program participants along with any compliance or enforcement issues (enforcement is also a topic of Section 2.8). For programs without cost recovery, such as the LEFG permit stacking program, the program review should explain the situation as well as "plans to develop such a program in the future, where applicable" (NMFS Procedural Guidance 01-121-01, pp 15-16).

If costs were to be recovered for the LEFG permit stacking program, such recovery would likely be based on management costs that would not be incurred but for the implementation of the IFQ program. In that regard, the history of program development seems to indicate that some aspects of the program would likely have been put into place regardless of whether it had been created as an IFQ program.

In 1997, sablefish endorsements for the LEFG permits were established and required for access to the primary sablefish fishery. At that time, the season lasted only a few days but could not be lengthened because a longer season, combined with trip limits to control catch, would have constituted an IFQ program; and a Congressional moratorium on new IFQ programs had gone into place in 1996. The 1997 management system allocated sablefish harvest opportunity (cumulative limits) equally among all permits, substantially redistributing harvest among vessels as reflected in Figure 3-7 of the previous review. In 1998, those permits with sablefish endorsements were assigned to one of three cumulative limit tiers based on permit history, but season duration continued to remain quite short and the program was not considered a catch share program. Despite the tier program, there was still considerable redistribution of harvest among the fleet relative to the 1996 fishery (see Figure 3-7 of the 2014 review) and permit stacking was seen as a way to further address the situation. Fixed gear permit stacking was discussed frequently at Council meetings beginning in 1998 and was a policy recommended as a high priority for consideration in the Groundfish Strategic Plan sent out for public review in June 2000 (pp 28-29). The strategic plan identified that once a permit stacking program was established, it might be easily transitioned to an IFQ program. Also at its June 2000 meeting, consistent with but in advance of finalizing its strategic plan, the Council initiated formal development of the permit stacking program. At its September 2000 meeting, the Council both adopted its final groundfish strategic plan and approved the draft permit stacking alternatives and analysis for public review. At that time, it was recognized that even if the moratorium on IFQ programs were extended, the permit stacking program could be implemented without extending the season (e.g. the September 2000 SSC statement[7]). However, the September 2000 GAP report indicated that a majority of the GAP felt that stacking program should not be implemented unless the season could be extended while a minority felt permit stacking should be implemented regardless[8]. The MSA moratorium on new IFQ programs expired October 1, 2000. The Council took final action on the permit stacking program at its November 2000 meeting. At the time of that final action, NOAA General Counsel (GC) noted that "The proposal in this action would allow the season to be lengthened if there is a possibility (if this fishery is not under an individual fishing quota [IFQ] moratorium)" (as summarized in the November 2000 Council minutes, pp 30-31). Thus, if the moratorium continued apply, the stacking program could have gone into place but without the extended season. On December 21, 2000, Public Law 106-553, an appropriations bill for the NOAA, contained a continuation of the IFQ moratorium through

[7] "The SSC concurs with the following conclusions from the analysis: unless the individual quota (IQ) moratorium is lifted, voluntary permit stacking per se is not likely to increase the duration of the fixed gear sablefish season, alleviate the safety concerns and complex management decisions associated with short seasons, or result in significant capacity reduction. In order to accomplish those things, voluntary stacking will need to be followed by a properly designed IQ system (an uncertain prospect at this time, given the moratorium) or some other stringent capacity reduction mechanism. The SSC is concerned about the limited benefits that would accrue from voluntary stacking if the IQ moratorium is not lifted. However, we also realize that it is up to the Council to decide whether that risk is acceptable."

[8] The groups represented by these majority and minority opinions was not recorded.

October 1, 2002 but provided an exception for the West Coast fixed gear sablefish fishery. This exception allowed the permit stacking program to be implemented with a longer season, effectively making it an IFQ program. As noted in the A-14 analytical package:

> This proposed plan amendment and regulatory package would implement a permit stacking program, in which more than one permit could be registered for use with a single vessel and that vessel would have access to the cumulative limits associated with each of those permits. Most importantly, the exception to the IQ moratorium for the fixed gear sablefish fishery would allow a longer season (up to 12 months), so that each vessel can fish against its limits at its own speed" (p. 2).

The last review noted that:

> Prior to the program review, incremental costs associated with this LAPP were likely minimal, although at this time no quantitative assessment of incremental costs has been done. However, certain actions being considered during this review process would implement an electronic fish ticket and modify the control rules. (p. 46)

Section 2.1.9 provides a list of actions related to the catch share program that have been taken since the last catch share review. Not all of these actions were necessarily because of the catch share program and further discussion is likely needed to explore which might be attributed to the catch share program.

During the 2014 review, question was raised as to whether it would cost more to recover the related costs than the costs themselves. This might raise questions about consistency with national standards, for example, NS 5: "Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources…." NMFS guidelines on NS 5 indicate that administrative costs are part of a determination of efficiency and that minimization of these costs contributes to efficiency (e.g. 660.330(b)(2)(ii).[9] However, even though from an individual business perspective payment of cost recovery fees is a cost, from the national accounting perspective used to assess efficiency, cost recovery itself is a transfer from privately held assets to the government—as compensations for operational costs/expenditures already incurred by the government. Thus, the transfer itself does not reflect an additional cost to the national economy. At the same time, the costs of making the transfer and administering cost recovery would be new costs to the system, potentially reducing efficiency and also impacting achievement of NS 7 on minimizing costs. However, one basis for judging the efficiency of the system is whether it is achieving the specified functions at least cost. Cost recovery for catch share programs is a specified and mandated function and the MSA does not carry an explicit exception to the mandate.

[9] 660.330(b)(2) (ii) Management regimes that allow a fishery to operate at the lowest possible cost (e.g., fishing effort, administration, and enforcement) for a particular level of catch and initial stock size are considered efficient.

2.8. Data Collection/Reporting, Monitoring, and Enforcement

Questions for Council Consideration:

- *How extensive should be the description of existing data collection, monitoring, and enforcement programs? For example, should the entire catch accounting description for the LEFG fishery be updated (currently in the FMP but out-of-date), the state fish ticket system described, the entire enforcement systems be described, etc.?*
- *Should the review include a full assessment of program costs, cost effectiveness and opportunities for improvement?*
- *Are current data collections adequate to support program evaluations?*

The NMFS catch shares review policy states that reviews "should contain a description and assessment of the existing data collection, monitoring, and enforcement programs (e.g., observers, logbooks, economic data reporting, etc.), including a discussion of any changes since the CSP's implementation or the previous review" (NMFSPI 01-121-01, p. 16). The assessment should indicate whether the information available is adequate to support the review, the reporting burden imposed by data collections, and opportunities for improvements along with related costs and opportunity for cost savings. The policy also states that "particular attention should be paid to assessing whether the current enforcement provisions and activities, including resources for conducting the latter, are sufficient to ensure a high rate of compliance with program requirements" (NMFSPI 01-121-01, p. 17). Additionally, "…a description and overall assessment of the CSP's administrative costs should be provided to determine whether total administrative costs are being minimized to the extent practicable, which is consistent with National Standard 7" (NMFSPI 01-121-01, p. 17).

An expanded data collection for monitoring the program effects (i.e. similar to the Economic Data Collection (EDC) Program for the trawl IFQ program) was not created when this program was implemented. As part of this review, the Council should consider whether key performance criteria are adequately measured and, if not, whether there are enhancements to the data collection system that should be implemented.

Catch Accounting

Catch data for the LEFG fishery comes through two pathways: fish tickets and observer records. Since the last program review, the Council recommended requiring e-tickets for all commercial sablefish landings on the West Coast beginning in 2017 (81 FR 84419). Prior to this action, sablefish landings were only recorded on paper tickets which could take weeks to months before being uploaded into the PacFIN database. With the 2017 rule, sablefish landings in the primary tier program (as well as the DTL fisheries) must be submitted within 24 hours of landing.

New data reports have been developed that are aimed at helping both state and federal agencies to track primary tier landings by vessel. The availability of e-ticket information allowed these reports to provide more up-to-date information to assess how primary tier vessels were attaining, but not exceeding, their tier limits. Previously, assessment of vessel compliance relied on after-the-fact review of landings information. The availability of reports inseason creates new opportunities for enforcement to target monitoring on vessels that are approaching their tier limit.

While fishery landings are the primary activity monitored, the fishery is also subject to WCGOP observer coverage. Observer coverage has increased from an average of 25 percent from 2002 to 2014 to 44 percent from 2015 to 2019 (Agenda Item D.2.a, Supplemental REVISED GMT Report 4, September 2020). As described in Section 2.1.8, these estimates are used to establish the amount of landed pounds available to be divided amongst the tiers (i.e. "landed share").

Ownership

When A-14 was implemented, data collected via the permit system was enhanced to include more detailed ownership information, including that necessary to monitor expiration of exemptions to the owner-on-board requirement and the three-permit control limit.

Other Data Collections

There are numerous other data collections that support management of the fishery but were not necessarily created for the catch share program including state fish ticket systems, observer program, and others. Currently, there is not a federal logbook requirement for the LEFG fishery.[10] However, in December 2017, the NMFS issued a new BiOp and incidental take statement (ITS) for the groundfish fishery and its effects on seabirds. As a part of Term and Condition 2 for Reasonable and Prudent Measure 4 of the ITS, NMFS is in the process of developing a fixed gear logbook which is potentially scheduled for implementation in 2023.

2.9. Duration

The review should indicate the life span of the catch privileges (a maximum of ten years but with the possibility of automatic renewal if not revoked, limited, or modified) and discuss the pros and cons of the current specification of the catch privilege duration. The MSA provision limiting the duration of harvest privileges to a maximum of ten years does not apply to this program because it was implemented prior to the 2007 reauthorization which created extensive guidelines for catch share programs but exempted programs from a number of those guidelines. Nevertheless, the program allocates harvest privileges (not rights) which may be modified at any time or even eliminated without compensation to the holders of those privileges.

2.10. Entry and Exit, Including New Entrants

Questions for Council Consideration: Is a more in-depth analysis of entry costs and market power needed/desired? Is a more in-depth analysis of distributional and intergenerational effects needed/desired?

According to NMFS guidelines, the review should assess opportunities for new entrants including cost of entry and whether those costs have increased to the point where market power is being exercised, resulting in economic inefficiencies (NMFS Procedural Guidance 01-121-01, pp 17-18). Equity and distributional effects, including intergenerational effects, should also be considered.

[10] Oregon does have a state mandated logbook requirement for all fixed gear vessels landing into Oregon ports. Washington and California do not.

Concentration of harvest among vessels and permit prices are considered in Section 2.1.1. This information (combined with the existence of the three-permit own-or-control limit) provides preliminary information indicating that it is unlikely that market power is being exerted to the point of creating economic inefficiencies.

The NMFS catch shares review guidance associates consideration of equity and distributional effects with the question of new entry, and intergenerational effects in particular. Overall, the costs of the permit required for new entry are expected to be a reflection of profit opportunity. Those who are leaving the fishery will likely receive and those buying in will likely pay amounts for permits that are reflective of expected profit opportunity. Theoretically, permit values will reflect the expectation of the amount of above normal profits that are expected to be generated by the fishery (leaving the new entrant with a normal profit level, after taking into account the price of the permit). After new entrants pay for permits, changing conditions may result in changes in expected profits (up or down) and increased valuation or devaluation of the asset value of the permit. Anything that improves profitability is likely to result in higher permit costs.

2.10.1. Entry

For the LEFG fishery, entry can be viewed in different ways: (1) a vessel entering the fishery that had not previously participated (the vessel might be newly acquired by an existing participant); (2) a vessel that previously participated returns to the fishery (new entry with respect to a particular year); or (3) a vessel and or permit that has been participating is acquired by new owner (i.e. the new entrant is the owner, rather than the vessel).

In order to participate in the fishery, vessel owners must acquire a sablefish endorsed permit for their vessel, through lease or purchase. As of March 10th, 2021, Dock Street Brokers lists the price of Tier 3 permits for sale between $150,000 and $200,000, and Tier 2 between $300,000 and $375,000 (no Tier 1 permits are currently listed). (Further discussion on permit prices can be found in Section 2.1.1 and Table 9). Lease prices ranged from $10,000 to $13,000 for the end of the 2020 season.

This section evaluates entry opportunity as evidenced by changes over time in ownership of vessels and permits. These ownership changes also relate to exit opportunities. Using the same ownership databased described in Section 2.1.3, Table 22 shows the number of sablefish endorsed permits and participating LEFG primary tier vessels by the number of owners from 2011-2019. From 2011-2019, there have been 138 entities that have owned at least one of the 164 sablefish endorsed permits and 135 entities that have owned at least one of the 152 vessels that participated in at least one year in the LEFG primary fishery. During this period, 65 permits and 16 vessels have had more than one owner. Three permits have had six or more owners but no participating vessels have had more than two owners.

Table 22. Number of sablefish endorsed permits and participating primary tier vessels by the number of different entities that have owned the permits/vessels from 2011-2019.

Number of Different Owners	Number of Permits/Vessels Owned by the Indicated Number of Different Owners	
	Permits	Vessels
1	99	136
2	37	16
3	17	0
4	5	0
5	3	0
6+	3	0
Total Number of Individual Owners	*138*	*135*

Changes in Permit Ownership

In 2011, there were 107 entities identified as owning at least one sablefish endorsed permit. Over the next eight years, there have been an average of three new permit owners entering into the fishery through purchase of a permit (Table 23). The annual number of permit owners has declined by seven percent over the nine-year period, with most of that decline occurring in 2016.

Table 23. Number of new permit owners and cumulative number of permit owners from 2012-2019.

Year	Number of New Permit Owners (compared to previous year)	Total Annual Permit Owners	Cumulative Number of Permit Owners
2011	N/A	107	107
2012	3	105	110
2013	3	107	113
2014	6	109	119
2015	5	106	124
2016	2	100	126
2017	5	102	131
2018	4	102	135
2019	3	99	138

An active permit market is an indicator of opportunity for new entry (as well as exit opportunities). While only a few entities have entered as new permit owners each year since 2011, the permit market is more active, as reflected by the annual number of permit transactions (an average of 13 for 2011-2019, Table 24) relative to the number of new owners each year.

Permit consolidation could inhibit entry opportunities for new fishermen (discussion on consolidation can be found in Section 2.1.3). While the number of entities owning two permits has been fairly stable, the number of entities owning three or more permits in a year increased for 2016-2019, compared to 2011-2015.[11] Concurrently, over the 2011-2019 time period, there appears to be a downward trend in the number of entities that own a single permit (average of 66 for 2011-2015 compared to 57 for 2016-2019; Table 24).

[11] While an entity could own more than three permits in a year, it would not be allowed to own more than three permits at a time except through the Alaska participant exemption.

Table 24. Number of entities by the number of permits owned annually, 2011-2019.

Number of Permits Owned by an Entity	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	67	64	66	69	64	58	57	57	57
2	20	21	23	18	17	18	22	21	19
3	16	17	15	17	21	20	19	17	19
4+[a/]	4	3	3	5	4	4	4	7	4
Number of Permits with Ownership Changes Mid-Year	11	10	11	17	18	9	13	17	7
Number of Permits that Changes Ownership the Following Year	0	1	2	0	0	0	0	2	0

a/ In general, an entity is not allowed to own or control more than three permits at a time, however, it could do so within a calendar year either through sequential transfer or the Alaska participant exemption.

Changes in Vessel Ownership

In 2011, 94 entities were identified as owning participating vessels. Over the next eight years, there have been an average of five new vessel owners entering into the fishery each year (Table 25). The annual total number of vessel owners has declined by over 20 percent from 2011 to 2019 yet annual vessel participation has been relatively stable over that same time period (Figure 1) which supports the idea of vessel ownership consolidation discussed in Section 2.1.1. Unlike permits, where there is a set number of privileges with an associated value, vessels are only limited by the ability to access a permit, either through permit purchase or lease.

From 2011-2019, there has been a decline in the number of entities owning a single vessel (Table 26). However, it appears as though a few entities have shifted from owning two vessels to three vessels in recent years, which aligns with the recent trends in annual owner and vessel participation. On average, fewer than two vessels have changed ownership within a year or between active fishing years. New vessels tend to move into the fishery at the higher rate of five per year.

Table 25. Number of new vessel owners, total annual vessel owners, and cumulative count of vessel owners from 2011-2019.

Year	Number of New Vessel Owners	Total Annual Vessel Owners	Cumulative Count of Vessel Owners
2011	N/A	94	94
2012	9	88	103
2013	7	82	110
2014	6	79	116
2015	5	80	121
2016	2	74	123
2017	7	76	130
2018	1	73	131
2019	4	75	135

Table 26. Number of participating primary tier vessels owned by entity per year, 2011-2019.

Number of Vessels Owned by an Entity	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	86	80	75	72	72	65	67	65	67
2+	8	8	7	7	8	9	9	8	8
Number of Vessels with Ownership Changes Mid-Year or in Next Year of Fishing[a/]	5	2	0	2	4	0	2	0	2

a/ While most participating vessels transfer mid-year or with the change in the calendar year, two vessels were inactive in the fishery for at least one year before moving to a new owner.

2.10.2. **Exit**

As described in Section 2.3, reviews should evaluate impacts to those who have left the fishery. As a first step, this section identifies the number of those entities that have left the fishery in terms of ownership of a sablefish endorsed permit or participating primary fishery vessel. Table 27 below describes the number of business entities that have left the fishery by displaying the last year of permit or vessel ownership. This table does not take into account any gaps in ownership. For example, if a company owned Vessel A, which participated in 2011 and 2013 only, it would be counted in the 2013 row as that was the last year of participation by that company. With respect to permit ownership, there are no entities with a gap in participation before the year they appear to exit the fishery. However, there are four vessel owners with a gap in participation prior to leaving the fishery. Overall, 39 companies ceased to own a sablefish endorsed permit since 2011 with an average of five per year and there are 60 entities that have left the fishery in terms of vessel ownership with an average of approximately eight per year. *Further investigation into whether these entities pursued opportunities in other fisheries can be explored depending on Council direction (see questions for consideration on page 1).*

Table 27. Number of business that left the LEFG primary fishery from permit or vessel ownership.

Year	Permit Owners	Vessel Owners
2011	4	13
2012	2	9
2013	2	11
2014	8	7
2015	7	6
2016	4	6
2017	5	4
2018	7	4

2.11. Auctions and Royalties

For catch share programs implemented after January 12, 2007, the MSA requires consideration of auctions or royalties for the initial or any subsequent distribution of limited access privileges. This consideration does not apply to the LEFG catch share program.

3. RESEARCH AND DATA NEEDS

Based on the 2014 review, the SSC recommended in April 2014 the following future research items to add further insight into the LEFG sablefish primary fishery.

1. Routine collection of permit sale prices to indicate the market value of the fishery.
2. Collect information about crew, captains, and owners of vessels. Information about the county of residence and participation in the fishery is necessary to understand the regional economic impacts of the fishery (for models such as IO-PAC), and to estimate the number of people who directly work in the fishery. This information will also assist in an evaluation of the community effect of the owner-on-board requirement.

As described in Table 2, the collection of LEFG permit prices is currently listed as a potential management measure on the groundfish workload prioritization list and could be picked up by the Council as a priority at any time (Agenda Item G.2.a, GMT Report 1, March 2021). Note that NMFS originally asked permit owners submitting a permit transfer form to voluntary give the sale or lease price of the permit—however, due to lack of responses, it was dropped from the form in 2013.

In terms of the second data request, in 2017 and 2020 the NWFSC implemented the West Coast Fisheries participation survey, which was a voluntary survey of vessel owners who had records of participating in commercial fisheries in the previous year(s).[12] The goal of the survey was to gather information of socio-economic benefits, including the importance of fishing to communities and how individuals are affected by changes in fisheries. Of the respondents to this survey, there were matches to 41 LEFG primary fishery vessels in the 2017 survey and 44 in the 2020 survey—which corresponds to approximately half of the participating vessels in those years (Table 4). There were 23 vessels in common across the surveys. *Additional information on results of this survey in relation to the fishery to be provided at a later time.*

To be completed based on review results.

4. CONCLUSIONS

To be completed based on review results.

5. COUNCIL RECOMMENDATIONS

To be completed.

[12] 2015 and 2016 data was used for 2017 survey, 2019 was used for 2020 survey.

6. REFERENCES

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