

Analysis to Inform Selection of Initial Preliminary Preferred Alternative for Sablefish Gear Switching

Initial analysis of the range of gear-switching alternatives adopted by the Pacific Fishery Management Council (Council) at its April 2023 meeting,

Table of Contents

1.0	Introduction.....	4
1.1	Purpose and Need.....	4
1.2	Guiding Principles.....	4
2.0	Analysis of Problem.....	5
2.1	Origin and Levels of Gear Switching.....	5
2.2	History of Trawl Under Attainment.....	7
2.3	Potential Causes of Trawl Allocation Under Attainment.....	10
2.4	Factors that Might Alter Future Levels of Gear Switching.....	21
3.0	Comparison of Alternatives	30
3.1	Description of Gear Switching Control Mechanism by Alternative	30
3.2	Impacts of Design– Differences Driven By Specific Design Elements.....	31
3.3	Impacts Tied to Gear-Switching Control Mechanism.....	37
3.4	Summary of Impacts from Action Alternative Design Elements and Gear Switching Control Mechanisms	60
4.0	Analysis of Specific Elements of the Alternatives	62
4.1	Alternative 1—Gear Specific QS.....	62
4.2	Alternative 2—Gear Specific QP.....	65
4.3	Alternative 3—Seasonal Management.....	66

List of Tables

Table 1. Sablefish north of 36° N. lat. total catch by year and gear type (millions of lbs.) compared to the allocation and total available pounds (allocation plus surplus carryover) and number of gear switching vessels and permits, 2011-2022. Source: catch from 2011-2020 GEMM; catch from 2021-2022 IFQ database; participants from PacFIN.	6
Table 2. Trawl sector attainment of annual QP allocations (values over 100 percent are covered with carry-over QP or deficit carry-overs).....	9
Table 3. Average proportion of trawl caught sablefish north landed, average ratio of non-sablefish species to sablefish north landed, and the average revenue per 1,000 pounds of sablefish north by trawl strategy compared to the average revenue per 1,000s pounds of sablefish by gear switching vessels, 2016-2019 and 2020. Source: PacFIN.....	19
Table 4. Difference in average price per round weight pound for IFQ sablefish north caught by non-trawl gear compared to non-whiting trawl . (2011-2022). (Source: PacFIN).	20

Table 5. Annual sablefish north QS amount owned by gear switching permits and vessels within a given year, 2011- 2022.	29
Table 6. Amount of sablefish north QS owned by vessels that gear switched anytime between 2011-2022	29
Table 7. Amount of QS owned in 2015-2022 by vessels that GS anytime between 2015-2022..	30
Table 8. Range of the amount of gear switching allowed in the short and long term by Alternative	31
Table 9. Summary of a preliminary assessment of some of the allocation related quantitative impacts of each alternative.....	33
Table 10. Number of individuals qualifying under Alternative 1 and number qualifying and not qualifying under Alternative 2, by qualification option (qualification via group or co-op membership or qualified first receiver status not included).....	34
Table 11. Number of individuals qualifying under Alternative 2 and number qualifying and not qualifying under Alternative 1, by qualification option (qualification via group or co-op membership or qualified first receiver status not included).....	35
Table 12. Number of gear-switching vessels that leased or owned the trawl limited entry permit used to fish, 2011-2021.....	35
Table 13. Changes to the nature of the trawl allocation access privileges for each of the action alternatives.	40
Table 14. Opportunity for new gear switching participants relative to established participants receiving an initial allocation of opportunity based on history.....	42
Table 15. For Alternative 2, the amounts of QP potentially available for any participant to acquire on the market and proportion of any-gear QP that non-legacy participants would receive for their QS, by QP distribution option. ^{a/}	42
Table 16. Relative to No Action, impacts of the action alternatives on the opportunity to sell QP to gear-switchers and impacts on quota prices.	53
Table 17. Implementation and ongoing tasks related to costs for each alternative.	55
Table 18. Summary of Impacts from Action Alternatives.....	60
Table 19. Number of Individuals Qualified by Alternative 1 Conversion Options and Gear Switching Participation Option.....	64
Table 20. Distributional Impacts of Alternative 1 Conversion Options, Gear Switching Participation Option, and QP Split Options across participant types.	64
Table 21. Number of individuals that would qualify under non-gear switching participation options based on each gear-switching participant option	65
Table 22. Distribution of any-gear QPs to legacy and non-legacy participants, ratio of any-gear and trawl only QPs issued to non-legacy participants, and maximum amount of gear switching at implementation and over time by QP Distribution Option for Legacy Option 1	66
Table 23. Distribution of any-gear QPs to legacy and non-legacy participants, ratio of any-gear and trawl only QPs issued to non-legacy participants, and maximum amount of gear switching at implementation and over time by QP Distribution Option for Legacy Option 2	66

List of Figures

Figure 1. Shorebased IFQ utilization of non-whiting species, 2011-2021. Left panel: Percent of total allocations for all species caught and left unharvested. Right panel: Total amount of quota pounds (QPs) caught and allocation QPs unharvested. Internal reference: June Analysis.rmd 8

Figure 2. Trawl landings and percent attainment of Dover sole groundfish harvest limits, 1983-2020 (Source: Harvest Specifications and PacFIN Comprehensive Fish Ticket Database) Internal

reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx; Dover Harvest Limits-1983-2022.	10
Figure 3. Number of non-whiting trawl vessels using trawl gear, 2006-2022.	12
Figure 4. Dover sole landings and exvessel prices (1981-2020). (Source: PacFIN Comprehensive Fish Ticket Database). Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx;Average_Prices.	15
Figure 5. Annual VCNR for vessels while fishing in non-whiting strategies or using non-trawl gear to gear switch, 2009 through 2020. Source: The FISHEyE application maintained by NOAA Fisheries, NWFSC on August 19, 2022.	20
Figure 6. Catch ratio of Dover sole to sablefish on bottom trawl hauls with Dover and sablefish north present (black lines), 2002-2019. Sources: WCGOP. Reference: Dovr Sabl GEMM Analysis.xlsx, WCGOP/SaMTAAC.rmd, 6 Trawl Analysis.rmd	21
Figure 7. Average nominal price per round weight pound for IFQ sablefish north by gear type and QP prices per pound (2011- 2022). (Source: PacFIN and WCR Quota Pound Price Data). Internal reference: Sablefish and QP Prices.xlsx.	24
Figure 8. Levels of gear switching compared to difference between exvessel price per pound for northern sablefish delivered by gear-switching vessels and northern sablefish prices QP prices. Internal reference: Sablefish_TrawlAlloc_QP_Varability_StatAnalysis.xlsx.	25
Figure 9. Cumulative number (lines) compared to yearly count (bars) of permits and vessels with participation in the gear switching fishery, 2011-2022.	28
Figure 10. Gear switching “score” of sablefish north QS accounts by year, 2011-2021.	51
Figure 11. Gear switching “score” of sablefish north QS accounts that are linked to non-legacy participants under Alternative 2, Legacy Option 1 by year, 2011-2021.	52
Figure 12. Cumulative gear switched landings by month and year, 2011-2022.	67
Figure 13. Cumulative distribution of gear switched landings of sablefish north annually by state and year, 2011-2022.	68
Figure 14. Percentage of total gear switched catch of sablefish north by month, 2011-2022	69
Figure 15. Percent of sablefish north IFQ allocation gear switched by month and year, 2011-2022. 29 percent shown as reference line in black.	70
Figure 16. Percentage of total trawl catch of sablefish north by month, 2011-2022	71
Figure 17. Percentage of sablefish north IFQ allocation caught by trawl gear 2011-2022. 71 percent shown by black line.	71

1.0 INTRODUCTION

1.1 Purpose and Need

The Council adopted this statement at its September 2021 meeting, at which time Council members indicated their intent to move its consideration of a limitation on gear-switching through to final action, when it would also make its final determination of the need for an action alternative over No Action.

This action is needed because the Shorebased Individual Fishing Quota (IFQ) Program has under attained most of its allocations since the inception of the program in 2011. The under attainment for some northern stocks may be due to the allowance to use fixed gear to harvest shorebased IFQ, declining trawl vessel participation, and the lack of market and infrastructure. Specifically, participants engaging in gear switching are using northern sablefish quota that may otherwise be used by trawl gears; this may lead to uncertainty in trawl access to sablefish, thereby affecting the development of markets and infrastructure. Working within the guidance and authority provided by the MSA (§303A(c)) and the Pacific Coast Groundfish Fishery Management Plan (FMP) goals and objectives, the purpose of this action would be to keep northern sablefish gear switching from impeding the attainment of northern IFQ allocations with trawl gear, while considering impacts on current operations and investments.

Under attainment results in the Shoreside IFQ Program being unable to meet Management Goals 2 and 3 of the FMP which respectively seek to maximize the value of the groundfish resource as a whole and to achieve the maximum biological yield of the overall groundfish fishery. Additionally, this action would seek to improve the program towards the goal of Amendment 20 to the FMP, which created the Shorebased IFQ Program, of providing for full utilization of the trawl sector allocation.

1.2 Guiding Principles

At its October 2018 meeting, and in consideration of the working principles that were originally developed by the Community Advisory Board (CAB), the Sablefish Management and Trawl Allocation Attainment Committee (SaMTAAC) developed and adopted the following as principles that the alternatives would be designed to support:

- A. We want to ensure there is affordable trawl access to sablefish.
- B. We believe that unlimited catch of sablefish through gear switching is not desirable.
- C. We want to consider impacts on existing operations/investments.
- D. We want to maintain the gear-switching option for trawl operations.
- E. We will consider industry and community impacts and ensure long-term stability.
- F. We will consider the effect on the value of trawl permits.
- G. We want to increase the net economic value of the trawl individual fishing quota fishery.

Principle C, it should be noted, references consideration of impacts to investments related to trawl, fixed gear, and buyer/processor operations.

2.0 ANALYSIS OF PROBLEM

The purpose and need for this action is provided in Section 1.1. The basic concern of the purpose and need is that gear switching might constrain attainment of the non-whiting trawl allocations, either in the current fishery or at some time in the future, if for example, there is an expansion in the amount of gear switching. This section covers the following issues:

- History of the decision to allow gear switching in the trawl IFQ program.
- Indicators of factors that might be constraining attainment of the trawl allocation (including gear switching).
- The levels of gear switching that have been present.
- An assessment of factors that might increase or decrease gear switching in the future.

2.1 Origin and Levels of Gear Switching

Gear switching has been part of the limited entry (LE) program since it was first implemented in 1994 (Amendment 6). This program allowed vessels with trawl permits to use other gears but specified that any groundfish caught would be counted against trawl allocations (where such allocations were in place). While it was allowed prior to 2011, there was little fixed gear harvest by trawl permitted vessels during that period, likely because of bimonthly cumulative limits.

The gear switching provisions included in Amendment 20 were debated at a time when many perceived that a conservation issue connected to trawl gear impacts warranted substantial reduction in its use. The Council considered whether to maintain the current opportunities for trawl vessels to use other gears or to specify that only trawl gear could be used to take the trawl quota. Additionally, a policy was considered that would have required that any gear switching in the trawl sector would have resulted in the permanent conversion of that activity to non-trawl gear. Instead of a permanent conversion, the Council chose a “go slow” approach and decided to allow gear switching to both help trawl fishermen access their quota (in years of surplus sablefish) and allow fixed gear participants to acquire trawl permits and quota (potentially reducing the amount of trawling). For a full discussion of the Amendment 20 deliberations, see [SaMTAAC Agenda Item E.2 Analysis, October 2019](#).

Consequently, starting in 2011, when harvest control shifted from cumulative limits to IFQ, vessels registered to trawl LEPs could utilize non-trawl gear types to target IFQ species. Over the course of the IFQ program, gear switching has averaged 29 percent of each year’s trawl allocation (Table 1). See Section 2.4 for discussion of factors and trends that might impact gear switching in the future.

Table 1. Sablefish north of 36° N. lat. total catch by year and gear type (millions of lbs.) compared to the allocation and total available pounds (allocation plus surplus carryover) and number of gear switching vessels and permits, 2011-2022. Source: catch from 2011-2020 GEMM; catch from 2021-2022 IFQ database; participants from PacFIN.

Landing Year		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2011-2022 Avg
Total Catch		5.29	4.92	4.07	4.13	4.82	5.02	5.56	5.08	5.62	4.09	5.04	6.43	5.01
Catch by Gear ^{a/}	Trawl	3.75	3.26	3.09	2.86	3.24	3.22	3.69	3.27	3.61	2.61	3.72	4.90	3.43
	Fixed Gear	1.54	1.66	0.98	1.27	1.58	1.80	1.87	1.81	2.01	1.48	1.32	1.53	1.57
Allocation Lbs		5.61	5.44	4.03	4.38	4.85	5.32	5.33	5.56	5.69	5.81	6.92	6.58	5.46
Percentage by Utilization	Trawl	66.8%	59.9%	76.7%	65.3%	66.8%	60.5%	69.2%	58.8%	63.4%	44.9%	53.8%	74.5%	63.4%
	FG	27.4%	30.5%	24.3%	28.9%	32.6%	33.9%	35.1%	32.5%	35.3%	25.4%	19.1%	23.3%	29.0% ^{b/}
	Unharvested	5.8%	9.6%	-1.1%	5.7%	0.6%	5.6%	-4.4%	8.7%	1.3%	29.7%	27.1%	2.3%	7.6%
Available Lbs		5.61	5.44	4.29	4.52	5.05	5.46	5.64	5.67	5.94	6.00	6.92	6.58	5.59
Percentage by Utilization ^{c/}	Trawl	66.8%	59.9%	72.1%	63.3%	64.2%	58.9%	65.4%	57.7%	60.7%	43.5%	53.8%	74.5%	61.7%
	FG ^{d/}	27.4%	30.5%	22.9%	28.0%	31.3%	33.0%	33.2%	31.9%	33.8%	24.6%	19.1%	23.3%	28.3% ^{c/ d/}
	Unharvested	5.8%	9.6%	5.0%	8.7%	4.5%	8.1%	2.4%	10.4%	5.5%	31.9%	27.1%	2.3%	10.0%
Gear Switching Participants	Vessels	17	20	11	15	14	16	16	15	15	9	7	10	9
	Permits	17	21	11	14	14	16	16	15	15	10	7	10	9

a/ Catch from 2011-2018 does not include discard mortality rates. Starting in 2019, IFQ vessel accounts were debited for total mortality (landings plus dead discards) instead of total catch.

b/2016-2019 average is 34.2%.

c/2011-2016 average shown in shaded cells is 29 percent (28.85 rounded up). This value was used in the Council's April 2021 motion.

d/2016-2019 average is 33.0%.

2.2 History of Trawl Under Attainment

There are a number of goals and objectives in the FMP which relate to the importance of fully utilizing fishery allocations. Prior to the IFQ program, the trawl sector was managed with trip limits, leading to large amounts of discards, and other management measures such as gear and area restrictions. While catch for some species has decreased with the implementation of the catch shares program, even as annual catch limits (ACLs) have increased (such as Dover sole), some strategies, such as the midwater rockfish, have seen growth meeting or exceeding pre-IFQ levels as stocks have rebuilt. (See [Agenda Item H.2, Attachment 3, November 2022](#) for a more complete discussion). Assessing the change in trawl allocation attainment that occurred with the start of the catch share program is a challenge because for many species and species groups, there were no trawl/non-trawl allocations prior to 2011. Previous assessments (Matson 2016 and the 2017 catch share review¹) of attainment trends before and during the catch share program have shown that for select species (Dover sole, lingcod, and thornyheads), attainments have continued to decline since 2011. Other species like Petrale sole and sablefish north have seen increases in attainment.

Since 2014, there has been a substantial expansion of the trawl allocation of a number of non-whiting species, and in more recent years, trawl catch has also expanded (Figure 1).² Even though non-whiting quotas in aggregate were over 50 percent greater in 2017-2019 than in 2011-2014, the fishery was able to bring utilization rates closer to 2011-2014 levels reaching an average of 26 percent. A good portion of this increase is associated with the implementation of the trawl gear exempted fishing permit that allowed development of the non-whiting midwater trawl fishery for widow and yellowtail rockfish prior to the start of the primary whiting season, along with marketing initiatives by industry. In recent years, the list of species that usually reach full attainment includes Pacific whiting, Petrale sole, sablefish north, and widow rockfish (Table 2). The attainment level for most other species tends to be under attained (below 50 percent attainment), the primary exception being yellowtail rockfish. COVID appears to have impacted fully attained species more than the under attained species.

¹ Matson, S. 2016. Exploration of landings, harvest specification and attainment time series, for stocks of interest in the historical shorebased LE trawl fishery and contemporary IFQ program. [Agenda Item F.5.a NMFS Report September 2016](#).

² In 2015, the Dover sole annual catch limit (ACL) increased from 25,000 to 50,000 mt (or over 55 million pounds) with 95 percent allocated to trawl fisheries. Since Dover sole landings did not increase proportionally to the allocation, the overall non-whiting trawl attainment decreased to about 21 percent. In 2016, there was a small increase in percentage utilization and usage. Then, in 2017, another 50 million plus QP were added to the IFQ allocations due to the rebuilding of canary rockfish (leading to 16 times greater canary ACLs compared to 2016), increases in the ACL for widow rockfish (over 6 times greater compared to 2016), and some other smaller ACL changes.

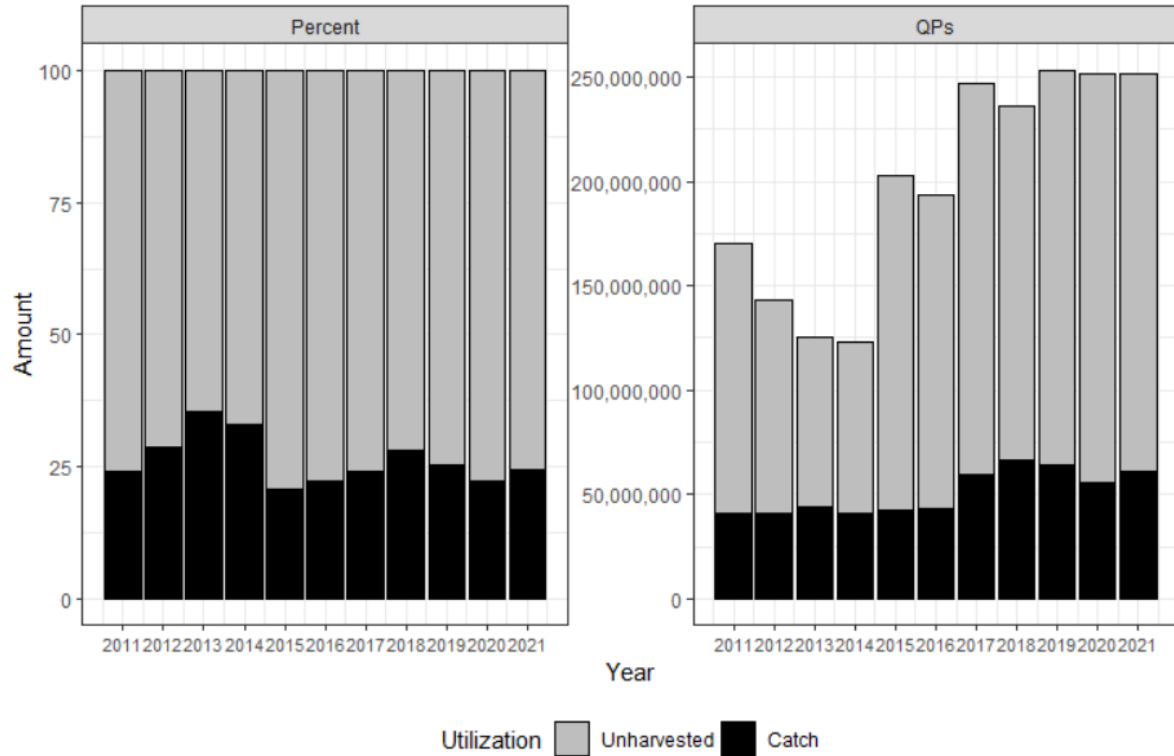


Figure 1. Shorebased IFQ utilization of non-whiting species, 2011-2021. Left panel: Percent of total allocations for all species caught and left unharvested. Right panel: Total amount of quota pounds (QPs) caught and allocation QPs unharvested. Internal reference: June Analysis.rmd

Table 2. Trawl sector attainment of annual QP allocations (values over 100 percent are covered with carry-over QP or deficit carry-overs).

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Arrowtooth flounder	20%	26%	63%	50%	52%	47%	12%	9%	7%	6%	10%
Bocaccio rockfish South of 40°10' N.	9%	15%	17%	11%	47%	51%	30%	63%	40%	35%	38%
Canary rockfish	14%	28%	26%	26%	104%	48%	25%	45%	44%	38%	42%
Chilipepper rockfish South of 40°10' N.	21%	22%	36%	29%	16%	6%	6%	16%	27%	37%	43%
Cowcod South of 40°10' N.	1%	5%	22%	20%	26%	21%	27%	30%	35%	25%	11%
Darkblotched rockfish	36%	36%	44%	35%	43%	42%	36%	51%	50%	39%	35%
Dover sole	35%	33%	36%	29%	14%	16%	16%	14%	13%	10%	9%
English sole	1%	2%	3%	5%	4%	6%	3%	3%	2%	1%	2%
Lingcod	16%	21%									
Lingcod North of 40°10' N.			28%	21%	16%	24%	46%	35%	21%	17%	15%
Lingcod South of 40°10' N.			3%	4%	7%	6%	4%	10%	18%	15%	10%
Longspine thornyheads North of 34°27' N.	49%	48%	59%	50%	26%	23%	30%	14%	11%	5%	3%
Minor shelf rockfish North of 40°10' N.	3%	8%	6%	7%	3%	3%	21%	24%	40%	45%	48%
Minor shelf rockfish South of 40°10' N.	3%	15%	25%	12%	5%	2%	1%	3%	8%	12%	18%
Minor slope rockfish North of 40°10' N.	17%	27%	25%	23%	19%	13%	13%	16%	22%	18%	30%
Minor slope rockfish South of 40°10' N.	14%	33%	31%	26%	16%	12%	13%	17%	4%	10%	9%
Other flatfish	17%	16%	19%	20%	11%	14%	10%	10%	8%	9%	10%
Pacific cod	22%	35%	14%	15%	37%	37%	4%	1%	1%	0%	0%
Pacific halibut (IBQ) North of 40°10' N.	28%	43%	31%	26%	43%	38%	45%	39%	45%	38%	41%
Pacific ocean perch North of 40°10' N.	39%	45%	45%	36%	42%	44%	47%	45%	13%	14%	13%
Pacific whiting	98%	96%	99%	83%	47%	61%	87%	77%	86%	85%	89%
Petrale sole	93%	100%	92%	97%	98%	95%	100%	101%	98%	87%	76%
Sablefish North of 36° N.	94%	91%	101%	95%	100%	95%	105%	91%	99%	68%	73%
Sablefish South of 36° N.	86%	44%	15%	32%	24%	26%	14%	6%	10%	9%	11%
Shortspine thornyheads North of 34°27' N.	50%	50%	60%	50%	45%	48%	48%	42%	36%	24%	27%
Shortspine thornyheads South of 34°27' N.	17%	1%	7%	5%	2%	4%	0%	0%	0%	0%	0%
Splitnose rockfish South of 40°10' N.	3%	4%	3%	4%	2%	1%	1%	2%	1%	1%	1%
Starry flounder	2%	1%	0%	2%	1%	2%	1%	0%	0%	0%	0%
Widow rockfish	40%	45%	41%	66%	57%	59%	52%	97%	94%	89%	80%
Yelloweye rockfish	10%	6%	6%	6%	4%	5%	15%	12%	15%	11%	14%
Yellowtail rockfish North of 40°10' N.	24%	32%	27%	40%	32%	26%	58%	76%	74%	84%	66%

A predominant concern in the discussions of trawl under attainment has been with respect to Dover sole attainment. The vast majority of Dover sole are taken with trawl gear such that the percentage of the available Dover taken by trawl gear is generally reflective of trawl attainment. Historically, from the early 1980s through 2010, trawl harvest of the available Dover sole has generally been in excess of 60 percent (Figure 2). Starting in 2011, percentage attainment has declined by 75 percent relative to the period of the initial license limitation program (1994-2000) and the pre-catch shares stock rebuilding era (2001-2010). Increasing Dover sole harvest limits are a large cause of the decline in percent attainment (Figure 2), but IFQ total landings are also down by about 15 percent relative to the 1994-2000 and 2001-2010 periods. While attainment and harvest amounts are both down, because of increasing prices, total Dover sole revenue in the IFQ era is down three percent relative to 1994-2000 and up three percent relative to 2001-2010, adjusting for inflation. Depending on changes in costs, net revenue associated with Dover may be up or down. Overall, the 20 percent attainment levels for Dover sole in the IFQ era indicate the potential for a strong opportunity for increased industry and community benefits, as well as the production of more seafood for consumers. This warrants a particular emphasis on the exploration of what might be preventing an expansion of trawl harvest of Dover sole.

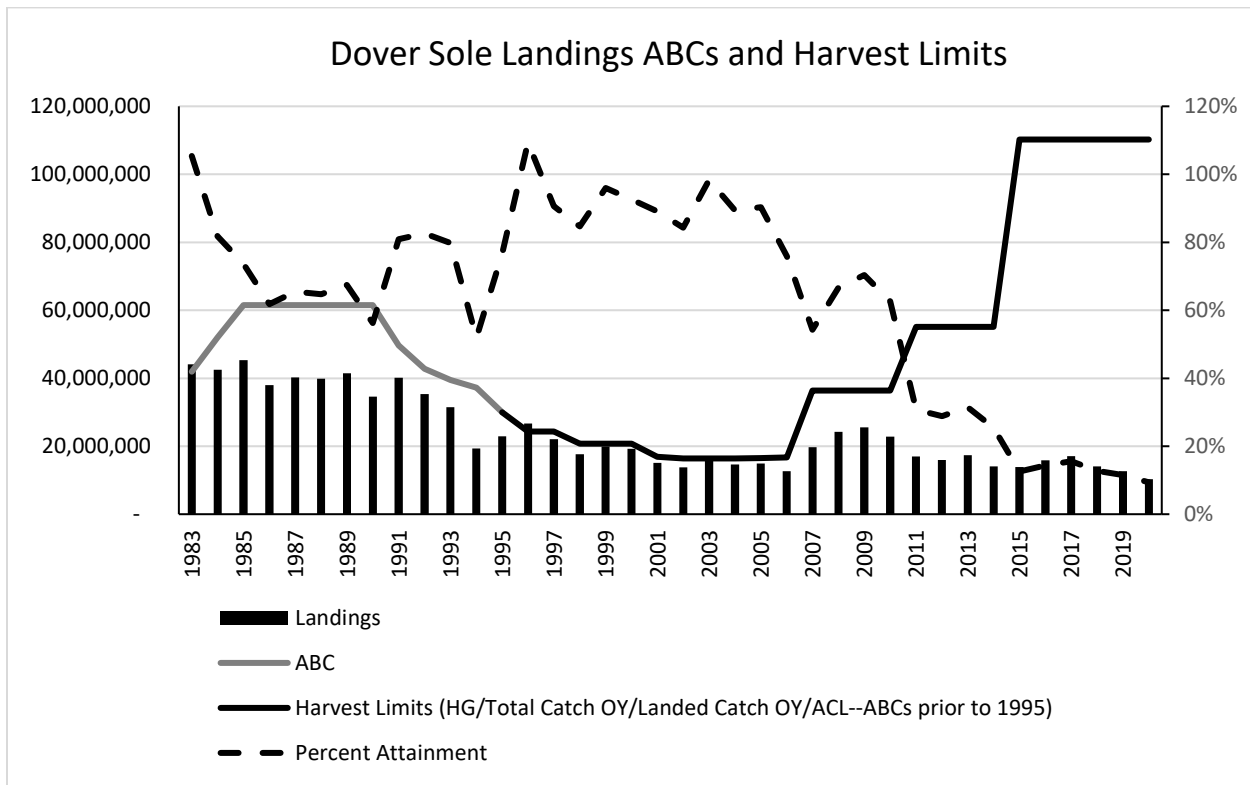


Figure 2. Trawl landings and percent attainment of Dover sole groundfish harvest limits, 1983-2020 (Source: Harvest Specifications and PacFIN Comprehensive Fish Ticket Database) Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx; Dover Harvest Limits-1983-2022.

2.3 Potential Causes of Trawl Allocation Under Attainment

Prior to the catch share program, there was under attainment for many species but after implementation, under attainment increased. A limited amount of unused northern sablefish QP available, potentially due to gear switching, is one potential cause of under attainment of the trawl

allocations. This, along with other potential causes have been evaluated (see [Agenda Item D.1, Attachment 1 September 2020](#); and [Agenda Item F.4, Attachment 1, April 2021](#)) and those evaluations are summarized in this section. The degree to which gear switching is or is not a cause of under attainment will have a substantial bearing on the impacts of a gear switching limitation.

The key questions these sections seek to address are:

- *What is the likelihood that something other than gear switcher use of sablefish QP might be contributing to under attainment?*
- *What are the indicators that gear switcher use of sablefish QP might be contributing to under attainment?*
- *Might the expansion of use of sablefish QP in some trawl strategies make it difficult for other trawl strategies to get the sablefish QP they need (even if sablefish QP usage by gear switchers stays unchanged)?*
- *What are the trends in factors that might cause gear switching to increase or decrease in the future?*

2.3.1 Trawl Vessel Participation as a Limit on Attainment (Including Relative Profits)

Summary: The purpose and need statement proposed for this action identifies declining trawl vessel participation as a factor that might be affecting attainment of trawl allocations. [Agenda Item H.3, Attachment 3, November 2022](#) evaluated the relationship between the number of non-whiting vessels using trawl gear, average vessel harvest for those vessels, and total non-whiting trawl harvest. In general, it finds:

- *Participation by vessels using trawl gear to catch non-whiting species declined after implementation of the program; however, average harvest per vessel has increased and the remaining fleet likely had the physical capacity to maintain pre-IFQ harvest levels.*
- *Economic data appears to show adequate profitability to support expansion of trawl harvest.*
- *The general indication is that factors other than the capacity of participating non-whiting trawl vessels remaining in the fishery led to under attainment of the trawl allocation.*

Declining levels of trawl vessel participation has been suggested as one explanation for low levels of trawl allocation attainment. When the IFQ program was implemented in 2011, the number of non-whiting vessels using trawl gear dropped from an average of 116 vessels from 2006-2010 down to an average of 66 from 2011-2022 (Figure 3).

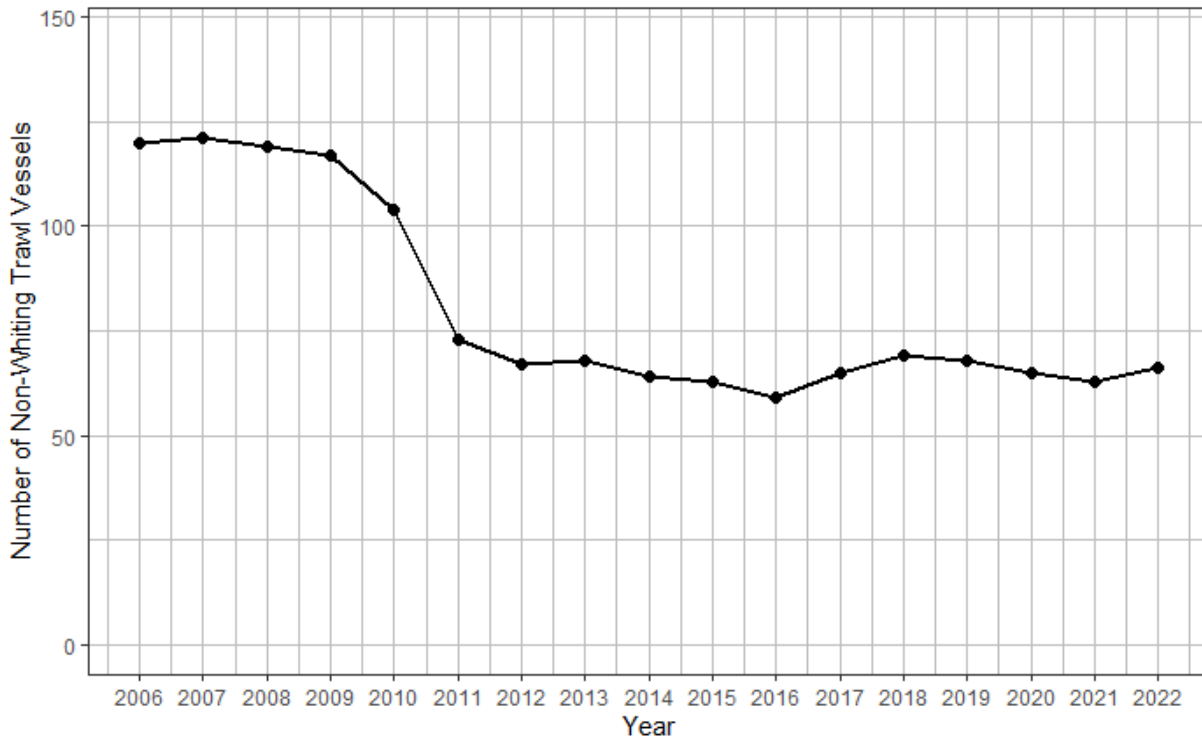


Figure 3. Number of non-whiting trawl vessels using trawl gear, 2006-2022.

One indicator of the capacity of the existing fleet is the harvest of those vessels that are “stable participants”, or those that had landings over each of the analyzed time periods³, relative to what they were harvesting prior to the IFQ program. On average, as a group, stable participants have increased their landings and revenue compared to before the start of the program and over the course of the years of the program.

While data on stable participants and their harvest levels indicate that the trawl catch share fleet likely had sufficient capacity to harvest at pre-catch share levels without even taking into account new entrants, participation and attainment could still be constrained by low profitability. Summaries from the National Marine Fisheries Service (NMFS) Economic Data Collection (EDC) program generally show that, while using trawl gear in non-whiting fisheries, vessels became more profitable after implementation of the catch share program—taking into account fixed⁴ and variable costs⁵ (total cost net revenue, TCNR). In considering these results, it should be noted that some of the apparent increases in profitability might be the result of less efficient vessels leaving the fishery rather than an increase in efficiency of remaining vessels. Overall, vessel profitability while using trawl gear in the catch share program does not appear to be constraining because the majority of vessels have positive TCNR per day while fishing these strategies. This will be discussed further in Section 2.3.5.

³ For description of groups, see [page 44 of Agenda Item H.3., Attachment 3, November 2022](#)

⁴ E.g. fishing gear and on-board equipment

⁵ E.g., crew wages, fuel, monitoring costs, and cost recovery fees.

2.3.2 Market Limits – Domestic Markets and Competing Imports

This section explores information related to the possibility that markets are or could constrain attainment of trawl allocations.

Summary:

- *Increasing the attainment of trawl allocations for some species will likely require the development of markets—either through expansion of existing markets or displacement of products such as imports. Market development requires competitively priced products.*
- *Competition from imports may have become an increasingly important factor affecting the expansion of West Coast fisheries as global markets have increasingly commodified whitefish. Market studies indicate that fresh tilapia imports may be competing in whitefish markets with some U.S. wild caught species, possibly including Dover sole.*
- *Previous expansions of Dover harvest appear to have been at least partially limited by markets. Other possible causes of the limitation include vessels having better opportunities in other fisheries and limited availability of sablefish QP.*
- *Even if markets are currently limiting the expansion of harvest of species like Dover sole, it is also possibly that uncertainty about availability of sablefish QP is limiting investments in equipment and marketing, indirectly contributing to trawl allocation under attainment.*
- *See Section 2.3.4 for a discussion of possible ways the catch share system design is impacting investment.*

The proposed purpose and need statement identifies a lack of markets as another factor that could be constraining trawl allocation attainment. This is particularly a concern with respect to Dover sole. Section 2.3.5 explores the potential for expansion of trawl catch assuming that sablefish is constraining and markets are able to absorb the additional production. However, if gear switching is limited and markets are not able to absorb additional trawl production, the intended expansion might be thwarted, or prices might be reduced in order to increase amounts demanded (if lower prices can still support profitable operations). Alternatively, investments that increase efficiency along with increased marketing efforts could improve competitiveness and expand market capacity. For example, with the recent rebuilding of widow and canary rockfish, the redevelopment of the midwater rockfish fishery was facilitated in part by a cooperative effort among vessels and processors to coordinate production and support marketing efforts to expand demand.

One challenge in developing markets may be competition from imports and, in particular, commodified seafood. While 39 percent of the world’s seafood is traded in global markets, around 75 percent of all seafood production is impacted by import/export trade competition (Tveteras et al., 2012⁶). Dover sole is one of the trawl caught species that has been a particular focus of concern with respect to trawl allocation under attainment but may be impacted by import competition. It

⁶ Tveterås, S., Asche, F., Bellemare, M.F., Smith, M.D., Guttormsen, A.G., Lem, A., Lien, K. and Vannuccini, S., 2012. Fish is food—the FAO’s fish price index. *PLoS One*, 7(5), p.e36731.

appears likely that Dover sole compete across species categories with farmed tilapia and catfish in the commodified whitefish market (see [Agenda Item D.1, Attachment 1, September 2020](#)). U.S. imports of tilapia and catfish, fresh and frozen, increased each year from 1994 to 2013 but leveled off and declined somewhat since reaching a peak. Overall, the amount of tilapia and catfish imports far outstrips the amount of Dover sole production, with the volume of processed imports⁷ exceeding the volume of round Dover sole landed on the West Coast by a ratio of over 40:1 over the last 10 years (through 2019). The large volumes of these imports may indicate both a competitive advantage for the imported product as well as market opportunities for domestic production, if imports can be displaced.

Previous expansions of Dover harvest appear to have been at least partially limited by markets. In 2007, as Dover sole ACLs increased dramatically, Dover sole landings began to increase despite continuing increases of fresh tilapia imports. However, the increase was short lived, with landings beginning to decline in 2010 and declining more substantially when the IFQ program was implemented in 2011. The years of high production in 2007 to 2010 could indicate that the market is able to absorb increased Dover landings but that other constraints (e.g., IFQ program implementation) restricted Dover sole landings causing the decline. On the other hand, the decline after a rapid increase could have been linked to market issues: the high levels of imports, the result of an information lag within the market, and other sources of imperfect information about the amounts of Dover sole the market could absorb.

Changes in Dover sole exvessel prices provide information indicating a possibility that the Dover sole markets might have been limiting during harvest expansions. The peak years of the two major expansions of Dover landings have been associated with drops in exvessel prices, with a further decline in price in the first year after the peak (e.g., 1996 and 1997, and 2009 and 2010, Figure 4). Focusing on the most recent expansion (2007-2010), the drop in prices appears to be associated first with an increasing portion of the product going to frozen rather than fresh markets followed by a drop in the price of fish going to the fresh market (potentially indicating a fresh market limitation).

After the Dover sole production declined in 2011, price and profit conditions in the fishery appeared to be such that they would have been conducive to higher production levels, indicating other constraints may have been present. There are numerous possible explanations for the continued lower levels of Dover production including possibilities that processors had vessels on market limits, that vessels were drawn off into other more profitable fisheries (e.g., shrimp or crab), or that they were unable to gain sufficient access to sablefish QP.

⁷ Close to 80 percent are reported as fillets (weighted annual average)

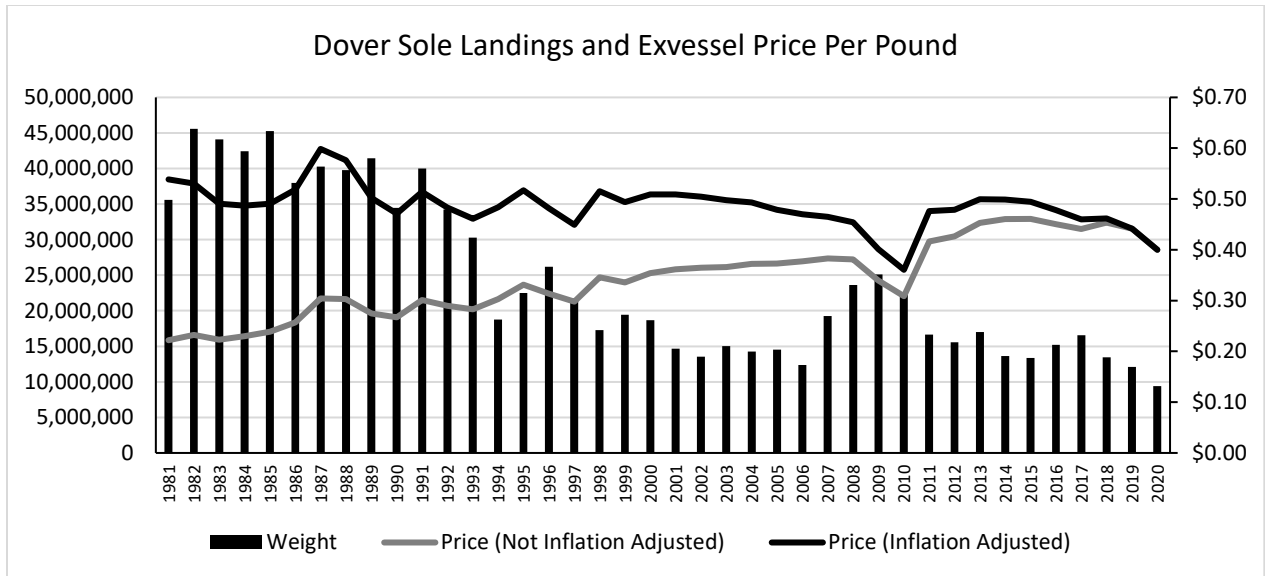


Figure 4. Dover sole landings and exvessel prices (1981-2020). (Source: PacFIN Comprehensive Fish Ticket Database). Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx;Average_Prices.

As mentioned above, limitations on what the market can absorb might be overcome with capital investments that increase efficiency (reducing production costs and increasing price competitiveness) and expansion of marketing efforts. Developing and maintaining premium markets requires a reliable supply. It has been argued in public comment that uncertainty about future availability of sablefish QP may be dampening the type of capital and successful marketing efforts needed to expand markets. The possible impacts on investment from uncertainty about access to raw products will be discussed further in Section 2.3.3. See Section 2.3.4 for a discussion of possible ways the catch share system design might impact investment.

2.3.3 Infrastructure Limitations (Physical)

Summary:

- *Since the catch share program was implemented, there has been a decline in the number of processors in a number of ports.*
- *The number of IFQ first receivers (FRs) has declined in five ports from Half Moon Bay south while declining in only two ports north of that.*
- *Other than processors and FRs, fishery infrastructure does not appear to have declined under catch shares.*

It has been hypothesized that infrastructure limitations could be causing low quota attainment under the catch share program. Overall, the catch share review finalized in 2017 showed no strong indications that infrastructure has declined substantially on a coastwide basis under the IFQ program, except with respect to a decline in the number of processing entities. As summarized in Section 2.3 of the September 2020 analysis ([Agenda Item F.4, Attachment 1, p. 25](#)), excluding the numbers of processors and FRs, there are more instances of improvement of an infrastructure category in a port (11) than losses of infrastructure (6), indicating that it does not appear likely that post IFQ implementation losses in non-processing infrastructure is affecting attainment of the trawl allocation. The number of processing companies was down in a number of ports; and, since

2011, the number of IFQ first receivers has declined in five ports from Half Moon Bay south while declining in only two ports north of that.

2.3.4 Catch Share System Design

Summary of main points:

- *Quota share (QS) control limits in the catch share system limit the degree to which processors and others can better secure access to a key input needed to support major investments (reduce risk) through vertical integration (acquiring QS).*

It is possible that the QS control limits are inhibiting investments in markets and infrastructure, thereby contributing to under attainment of the non-whiting trawl allocations. When a business evaluates whether to make substantial and specialized capital investments that may improve efficiency and market competitiveness, its willingness to make those investments is partially dependent on an assessment of risk. One source of risk is security of access to the supply of key inputs. When uncertainty is high, a strategy for reducing risk is to secure access to those key inputs through vertical integration.

Prior to catch shares, processors could acquire fish from any licensed vessel, subject to the cumulative landing limits which constrained that vessel's catch. In contrast, under catch shares a processor depends not only on the identification of an available vessel willing to fish but also on that vessel's ability to access QP, which are, in total, more limited relative to the opportunities provided by pre-catch share trip limits. A processor could secure access to QP through QS acquisition (vertical integration), but QS control limits reduce its ability to do so. A limitation on the ability to secure access to QS as a key input could inhibit a processor from making efficiency-promoting capital investments that would improve the price competitiveness of trawl caught fish, potentially expanding attainment of the trawl allocation.

QS control limits are recognized as balancing concerns about distribution of opportunity among individuals and communities with the potential for some reduction in efficiency. It could be that efficiency effects related to reduced incentives for investments (and consequent impacts on attainment) is a cost traded off for the distributional and other positive effects of control limits. In recent years, there were a total of six entities that were within 10 percent of being constrained by either the sablefish north or the aggregate non-whiting control limits, 3.0 percent and 2.7 percent, respectively (including at least one processing company and a community trust). For additional discussion, see the analysis presented at the September 2020 Council meeting ([Agenda Item F.4, Attachment 1, p. 29](#)).

2.3.5 Competing Uses for Sablefish QP, Including Gear Switching

One of the main issues that has been considered under this action is whether gear switching is constraining to trawl harvest and if gear switching were to be limited, would that QP otherwise go unused, be used by trawl vessels to take more sablefish, or be used to take more of other species, thereby increasing overall attainment. The following are the main findings of previous analyses from see Section 2.5 of the September 2020 analysis ([Agenda Item D.1, Attachment 1, September 2020](#)); Section 2.1 of the April 2021 analysis ([Agenda Item F.4, Attachment 1, April 2021](#)); and Section 3.3.5 of the November 2022 analysis ([Agenda Item H.3, Attachment 3, November 2022](#)).

- *Sablefish QP can basically be considered fully utilized with a 2011-2022 average of over 96 percent or more attainment from 2011-2022 excluding COVID years (2020 and 2021).*
- *Gear switching averaged 29 percent of the northern sablefish allocation from 2011-2022.*
 - *Gear switching operations primarily target sablefish with little to no additional retained harvest of other species.*
 - *Gear switching operation earned \$2,588 in exvessel revenue from all species, per 1,000 pounds of sablefish landed (2016-2019).*
- *Trawlers averaged 63 percent of the trawl allocation of northern sablefish QP from 2011-2022.*
 - *In the IFQ fishery, the dominant usage of northern sablefish is in the bottom trawl fisheries, which caught about 59 percent of the allocation from 2016-2019.*
 - *Based on 2016-2019 revenues, the Dover sole-thornyhead-sablefish (DTS) complex is probably the trawl strategy most vulnerable to competition with gear switchers.*
 - *DTS operations earned \$5,834 in exvessel revenue from all species, per 1,000 pounds of sablefish landed:*
 - *at least 45 percent less than any other trawl strategy, but*
 - *more than twice that earned in gear switching.*
 - *More recent declines in the mixed shelf and mixed slope fishery revenue per 1,000 pounds of sablefish landed indicate that they may also be becoming vulnerable to competition with gear switchers for sablefish QP.*
- *With respect to sablefish QP prices*
 - *Gear switching vessels likely help bid up the price of sablefish QP.*
 - *Among the trawl strategies, trawlers will likely be the least willing to pay for sablefish QP to support the DTS strategy (assuming comparable costs among the trawl strategies).*
 - *Increasing sablefish QP demand by other trawl strategies (e.g., whiting) could put additional pressure on sablefish QP prices.*
- *Taking into account QP prices, together with the sablefish exvessel price and operating cost differences between trawl and fixed gear vessels, on average, there appears to be relative similarity in the profit per pound of sablefish for each gear group as a whole.*
 - *However, there are substantial cost differences when comparing individual trawl vessels with individual gear switching vessels such that some trawl vessels generate substantially more profit per sablefish pound than many gear switching vessels and vice versa.*
- *As long as exvessel prices and QP and harvest costs are such that catching additional sablefish generates a:*
 - **profit**, *trawl vessels will try to catch as much sablefish as possible while taking the available amounts of species that co-occur in their target strategy.*
 - **loss**, *trawl vessels will try to reduce the rate at which they encounter sablefish in their catch in order to catch the co-occurring species for which they are able to make a profit. This reduction will likely occur up to the point*
 - *the vessels encounter a technical limit (the rate cannot be further reduced), or*

- *the additional amount of other species that would be caught cannot be marketed (i.e. the ratio of sablefish in the catch could be further reduced but there is no reason to do so because of a market limitation).*
- *If there is surplus of sablefish QP, QP prices would likely drop until the harvest of that sablefish QP becomes profitable for either some trawlers or some gear switchers.*
- *The decreases in the amount of sablefish taken with Dover that occurred with the start of the program and has generally been maintained since indicates that at least some DTS trawlers are trying to reduce the rate at which they encounter sablefish.*

In general, the trawl allocation of sablefish is fully utilized, creating competition among different strategies for the available sablefish QP. On average, 96.5 percent of the trawl sablefish QP issued for each year was caught from 2011-2019. Attainment was much lower in 2020 and 2021, likely due to COVID. In 2022, overall attainment was above the 2011-2019 average. In catch shares programs, it is not unusual for there to be some relatively small amounts of quota left unused.

Over the course of the IFQ program, gear switching has averaged 29 percent of each year's trawl allocation (Table 1, page 6). In the first two years of the program, there were the greatest number of gear-switching vessels and permits. It is thought that some participants "tested out" gear switching for sablefish. While the number of participants has declined since then, the level of gear switching has increased. For 2016-2019, the level of gear switching ranged from 32.5 percent to 35.3 percent of the allocation and numbers of participating vessels and permits varied between 15 and 16. Gear switching has declined in more recent years, possibly due to the COVID pandemic.

Where gear switching operations primarily target sablefish with little to no additional retained harvest of other species, vessels using trawl gear use a variety of strategies that utilize sablefish. Previous analyses have examined how each strategy utilizes sablefish QP and their willingness to pay for sablefish QPs. Of all the strategies, DTS is most likely to be limited by the availability of sablefish as it brings in the least revenue amongst the other trawl species per pound of sablefish (Table 3). Whiting and midwater rockfish on the other hand are observed to have the highest revenue per pound of sablefish, suggesting that they would likely not be outbid in the market to obtain sablefish QPs. Assuming similar costs, this makes DTS the most vulnerable to competition with gear switching vessels. Table 3 also indicates the potential gains to trawl sectors and the fishery as a whole sablefish is moved from use in gear-switching to trawling. For example, assuming that trawlers are not constrained by markets and prices and species mixes remain the same as in 2020, increasing trawl DTS use of sablefish by 1,000 pounds would increase trawl revenue by \$5,033, and taking into account the gear-switching reduction, the exvessel revenue in the sector as a whole would increase by \$3,971. Previous analysis have examined the potential revenue increases that trawl strategies may experience under various gear switching levels assuming gear switching is constraining trawl attainment (see [Section 4.4.1 of Agenda Item H.3., Attachment 3, November 2022](#)).

Table 3. Average proportion of trawl caught sablefish north landed, average ratio of non-sablefish species to sablefish north landed, and the average revenue per 1,000 pounds of sablefish north by trawl strategy compared to the average revenue per 1,000s pounds of sablefish by gear switching vessels, 2016-2019 and 2020. Source: PacFIN

Strategy	Proportion of Sablefish Taken by Trawl Strategy	Ratio of Landed Non-Sablefish Species to Sablefish North	Revenue (\$) per 1,000 lbs of sablefish
2016-2019 Averages			
DTS	72.4	8.3	5,834
Flatfish	11.8	15.9	12,791
Mixed Slope	8.2	15.3	10,944
Whiting	5.8	4,683.9	345,716
Mixed Shelf	1.4	39.3	27,487
Midwater Rockfish	0.5	1,907.3	732,714
	Trawl Total = 100%		Trawl Weighted Average = 512,175
Gear Switching			2,588
2020			
DTS	56.5	9.4	5,033
Flatfish	7.2	18.6	13,367
Mixed Slope	20.1	12.2	6,661
Whiting	9.0	1,596	101,356
Mixed Shelf	6.8	16.9	8,426
Midwater Rockfish	0.6	1,712	388,049
	Trawl Total= 100%		Trawl Weighted Average= 286,137
Gear Switching			1,162

Internal Reference: June Analysis.RMD; Post September 2020 Analysis.RMD

As conditions and regulatory requirements change, the proportion of sablefish needed by various strategies may also change. Recent years have seen an increased amount of sablefish showing up in all fisheries- from trawl to recreational. With the opening of the shelf via the removal of the trawl rockfish conservation area, mixed shelf and mixed slope strategies have seen increasing amounts of sablefish needed. The increase demand from the trawl strategies are likely to put upward pressure on sablefish QP prices in addition to what gear switching vessels are already exerting.

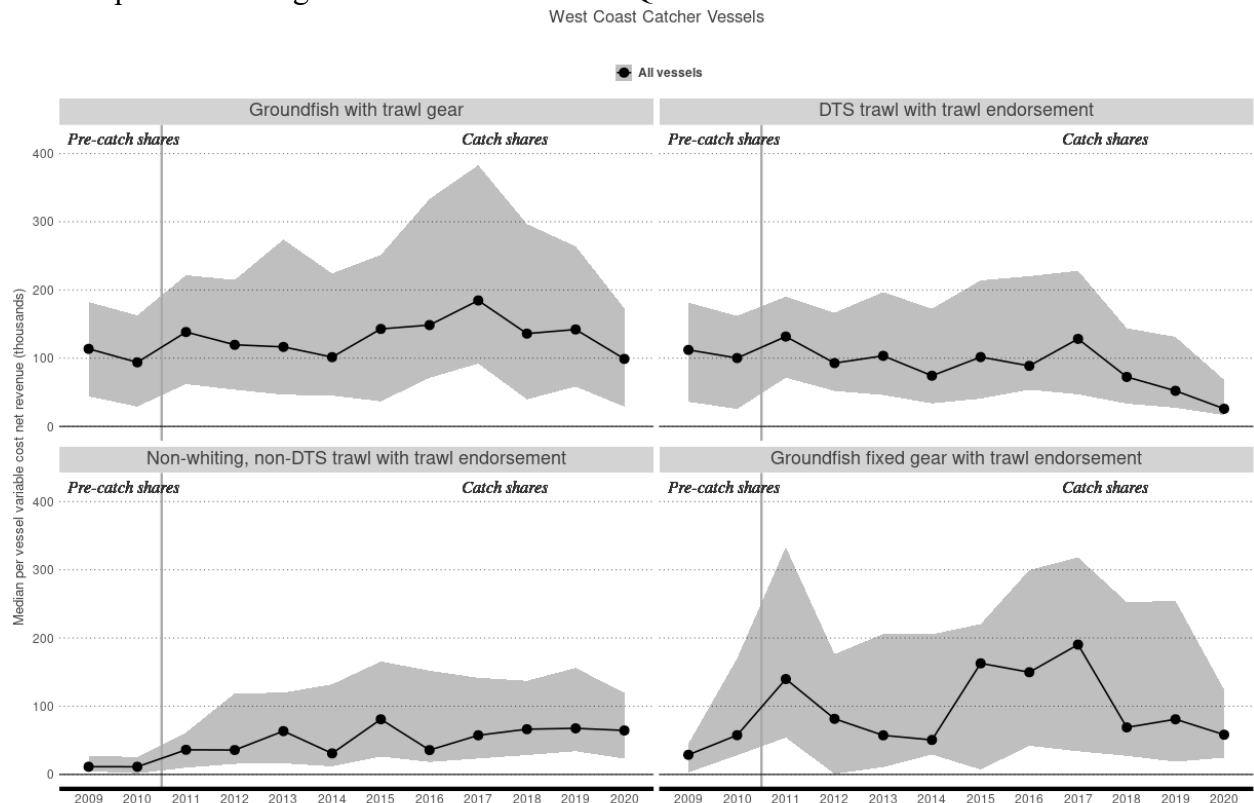
While revenue is informative, ultimately, which gear types and vessels are willing to bid more sablefish will be affected by differences in the relative profitability per pound of sablefish. Trawl and gear switching vessels face the same sablefish QP market prices but different revenue and cost structures. While gear switching exvessel values for sablefish are typically greater than for trawl vessels (Table 4), trawlers have additional revenue from other species and average trip costs per pound that were much lower than for gear switching vessels (using the average annual median vessels, DTS vessel, trip costs were 0.96 per pound less than for trawl vessels, EDC data). Relative profitability varies depending on the cost structures of individual vessels. For example, a high efficiency gear switching vessel (a vessel operating at the 25th cost percentile for gear switching vessels) has costs per pound less than a low efficiency DTS vessel (a vessel operating at the 75th cost percentile for DTS vessels). Such a gear switching vessel, in addition to having an exvessel price advantage also has a cost advantage over the low efficiency DTS vessel. Similarly, high

efficiency trawlers have significant cost advantages over low efficiency gear switching vessels. Thus, for any given set of conditions, there are likely to be some vessels of one gear type that are more profitable than vessels of another gear type and those that are more profitable are likely to bid more for and garner more sablefish QP.

Table 4. Difference in average price per round weight pound for IFQ sablefish north caught by non-trawl gear compared to non-whiting trawl . (2011-2022). (Source: PacFIN).

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Price Difference	\$1.03	\$0.72	\$0.72	\$0.69	\$0.72	\$1.03	\$1.01	\$0.93	\$0.84	\$0.53	\$0.63	\$0.82

Relative incentive for using sablefish QP to target DTS might be waning in more recent years because of changing relative profitability. TCNR for the median gear switching vessel (“Groundfish Fixed Gear with Trawl Endorsements”) had daily profits that were roughly comparable to vessels using trawl gear in most years of the catch share program. However, looking at VCNR, which tends to drive the daily fishing decisions, when gear switching the median vessel had greater daily profits than vessels when they used trawl gear in 2011 and 2015-2018. Further, in most years the more efficient vessels (75th percentile, top of shaded area) have had substantially greater daily profits when gear switching than when using trawl gear both in terms of VCNR (Figure 5). This variability could indicate that over time different sectors will experience different relative profit advantages in the use of sablefish QP.



A. Note: Median vessel shown by the line, top of the gray area denotes the 75th percentile vessel, and the bottom the 25th percentile vessel.

Figure 5. Annual VCNR for vessels while fishing in non-whiting strategies or using non-trawl gear to gear switch, 2009 through 2020. Source: The FISHEyE application maintained by NOAA Fisheries, NWFSC on August 19, 2022.

If trawl profitability using sablefish QP is lower, they will likely try to avoid sablefish. However, if trawlers can generate a net profit from sablefish (taking into account QP prices and possibly while on market limits), they would tend increase their ratio of sablefish to other species (as long as trawl caught sablefish were not market limited). Biomass and encounter rates may also influence the ratio of sablefish in the catch, independent of market forces. Data for the bottom trawl fishery illustrates that with implementation of the catch share program, trawlers used less sablefish per unit of Dover sole landed—i.e., ratios of Dover sole per pound of sablefish increased from 3.35 in 2010 to 4.64 in 2011 and stayed at that higher level through 2019 (averaging 4.74 from 2011 through 2019—Figure 6, to be updated with more recent data).

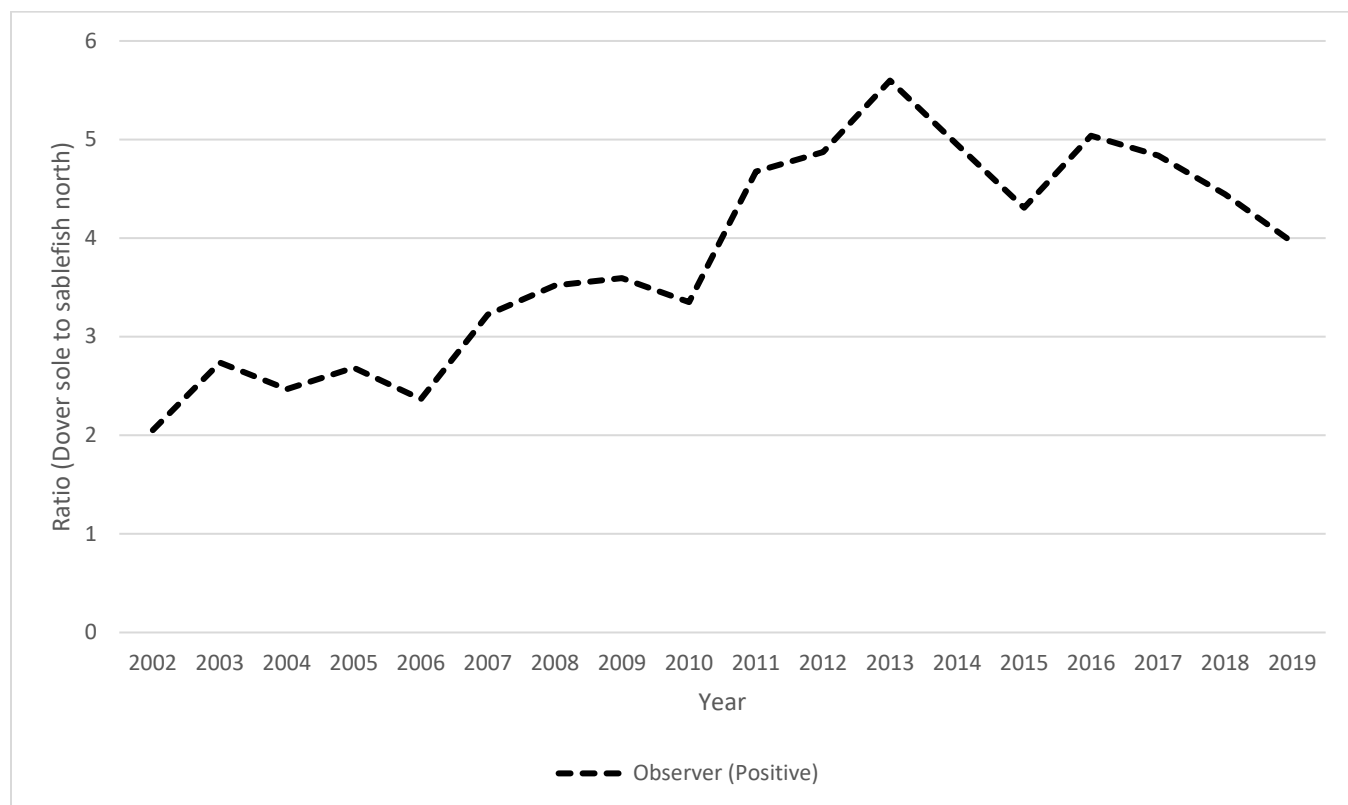


Figure 6. Catch ratio of Dover sole to sablefish on bottom trawl hauls with Dover and sablefish north present (black lines), 2002-2019. Sources: WCGOP.

Reference: Dovr Sabl GEMM Analysis.xlsx, WCGOP/SaMTAAC.rmd, 6 Trawl Analysis.rmd

2.4 Factors that Might Alter Future Levels of Gear Switching

When the Council decided to move ahead with its consideration of a limitation on gear switching, for at least some Council members the concern was not so much that the current level of gear switching is problematic but rather the unlimited expansion of gear switching would be undesirable. To consider the differences in impacts between no action and action alternatives, consideration must be given not only to current levels of gear switching but the possible directions and degrees of change in future years and the factors that make different outcomes more and less probable. This section reviews a number of factors that may influence gear switching in the future through their impact on vessel profitability and fishing opportunity. Much of this information has

been previously presented in the [September 2020](#), [April 2021](#), and [November 2022](#) analyses. Factors that might influence future levels of gear switching include:

- Normal variation and extraordinary events
- Biomass changes and changing ACLs
- Sablefish market prices
- Conditions in crossover fisheries
- The availability of latent and underutilized permits
- New entrants
- QS acquisition by gear switchers

2.4.1 Normal Variation and Extraordinary Events

Summary of main points:

- *Even if conditions are stable, gear switching levels may increase or decrease due to normal variation or extraordinary events (e.g., COVID-19 pandemic)*

There is a possibility that even if conditions in the fishery are relatively stable, gear switching may increase or decrease to some degree due to normal variation, as has been seen historically and also indicated by a random sampling analysis that is based on conditions present from 2011- 2019 (see Section 3.1 of [Agenda Item F.4, Attachment 1, April 2021](#)). However, changing fishing and marketing conditions and extraordinary events could decrease or increase levels of gear switching in the future. The recent COVID pandemic, during which gear switching declined from 35.3 percent of the annual allocation in 2019 to a low of 19.1 percent in 2021, provides an example of unexpected fluctuations. Some of the conditions likely to influence levels of gear switching are discussed in the following sections.

2.4.2 Biomass and Changing ACLs

Summary of main points:

- *Increases in the ACLs might create more opportunities for gear switching without conflicting constraining harvest of trawl allocations*
- *Decreases in ACLs might result in lower amounts of gear switching.*
- *Both of these relationships may not be the case depending on encounter rates, profitability of and competition amongst gear types, and whether gear switching is or is not limiting trawl attainment.*

Previous discussions of the impact of gear switching on trawl attainment have looked at two scenarios- one in which gear switching constrains trawl harvest and the other where it does not. ([Agenda Item F.4, Attachment 1, April 2021](#)) The assumption of that question is closely tied to the impact of changing ACLs on the level of gear switching. Assuming that use of sablefish QP by gear-switching vessels constrains trawl harvest, as ACLs increase it might be expected that the competition with trawl gear for sablefish QP would decrease and that either or both groups might be able to further expand their activity. If gear-switching is not constraining trawl harvest, increasing ACLs could provide an even clearer opportunity for an expansion of gear switching. Decreasing ACLs might increase competition between trawl and gear switching strategies. However, this depends both on how the changes in ACL impacts gear-switcher cost and revenue

relative to the trawl gears and what happens to the rates at which sablefish is encountered in the trawl fishery.

With respect to gear switchers, if catch per unit effort for gear switchers increases as biomass increases, gear-switching costs per unit of catch would decrease, potentially increasing profitability and ability to compete with trawl vessels for sablefish QP. At the same time, if average fish size declines, this would exert a downward influence on revenue per unit of catch because lower prices are generally paid for smaller fish. While these dynamics can be identified, the net outcome is uncertain, as is the impact of increasing volume of sablefish on exvessel prices overall.

For trawl vessels, an increase in biomass, ACLs and trawl allocations could increase the proportion of sablefish in the trawl catch. For complexes such as DTS, more sablefish QP might be required to land the same amount of other species in the complex. If encounter rates increase proportionally more than the trawl allocation or increase substantially before managers respond by increasing allocations, to maintain landings levels trawlers might need not just an increase in the amount of QP but an increased proportion of the allocation. Further, increases in encounter rates for some trawl strategies might decrease QP available for other trawl strategies and gear-switchers. Large year classes taken as bycatch in the whiting fishery like those seen in recent years may increase the amount of sablefish QP needed for that fishery. Section 2.3.5 discusses how whiting and other strategies are likely able to economically outcompete strategies such as DTS for sablefish QPs. As biomass and ACLs decrease, the degree of constraint on trawlers' ability to harvest at least their current landing levels of co-occurring species—like Dover sole and thornyheads—will depend on whether encounter rates decline in proportion to the ACLs and competition with other strategies for the available QP.

Overall, biomass and ACL increases could but do not necessarily create more opportunity for gear switchers and trawlers. Similarly, biomass decreases could increase competition with trawl vessels for sablefish QP, decreasing gear switching opportunity, or decrease competition with trawl vessels, depending on how encounter rates change.

2.4.3 Sablefish Market Prices (Exvessel and QP)

Summary of main points:

- *Differences in exvessel prices and costs between gear types that are outside the range observed in the past may result in future levels of gear switching that are outside the historical range.*
- *Factors other than prices appear to have a strong influence on the level of gear switching, as evidenced by the fact that the highest level of gear switching (both in weight and as a percentage of the trawl allocation) occurred in 2019, when the difference between the price of gear-switched caught sablefish and the cost of a pound of QP was at a low level.*

Trawlers and fixed gear vessels tend to pay similar amounts for sablefish QP, as would be expected in a well-functioning QP market (see Figure 21 in [Agenda Item H.3., Attachment 3, November](#)

2022) Annual average sablefish QP prices generally fluctuate in a manner that tracks the major changes in exvessel prices (Figure 7), likely reflecting expected changes in profits.

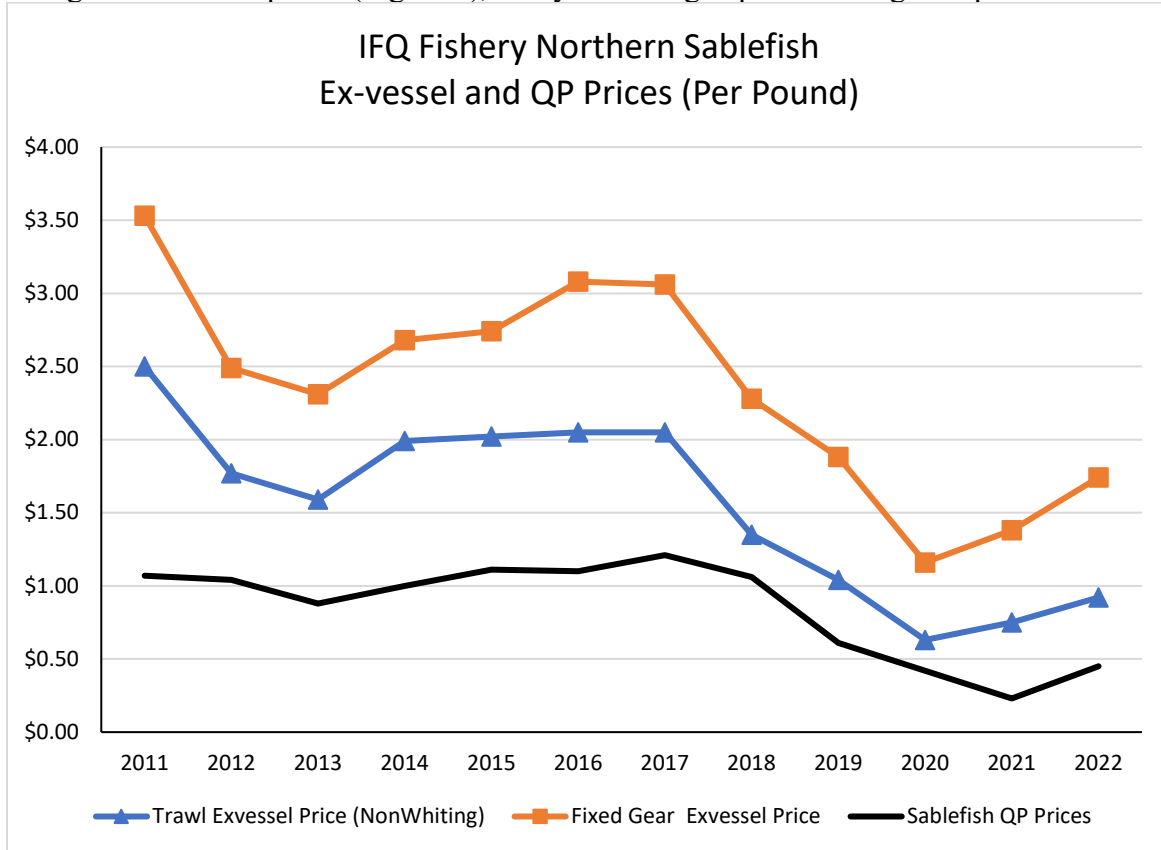


Figure 7. Average nominal price per round weight pound for IFQ sablefish north by gear type and QP prices per pound (2011- 2022). (Source: PacFIN and WCR Quota Pound Price Data). Internal reference: Sablefish and QP Prices.xlsx.

Differences between non-whiting trawl and gear-switched exvessel sablefish prices and fishing costs influence the relative incentive for each gear type to target sablefish. Excluding the low price differentials in 2020 and 2021 (possibly influenced by COVID), differences in sablefish exvessel price have varied from \$0.69 per pound (2014) to \$1.03 per pound (2011 and 2016, Table 4, on page 20).

From 2011 through 2019, the median DTS trawler had a fishing cost advantage over gear switching vessels—\$0.90 a pound less than gear switching vessels—but in 2019 and 2020 the advantage was at its lowest levels, just below \$0.66 a pound. But, average costs for the fleet may not reflect the relative advantages of particular vessels (see discussion in Section 2.3.5). Costs vary among vessels due to varying ways in which fishing businesses organize their operations and differences in equipment efficiency, even within a gear type. Thus some individual non-whiting trawlers may be more profitable than many gear switching vessels and some gear switching vessels more profitable than many non-whiting trawl vessels.

As sablefish prices fluctuate, there is likely a greater proportional impact on the profit of gear switching vessels, which do not have the buffer from other species, than for trawl vessels. Prices

per pound for species in the DTS complex other than sablefish tend to be more stable than those for sablefish.

While QP and exvessel prices along with price differences between trawl and gear switched landings undoubtedly influence levels of gear switching, other factors also have a strong influence. This is indicated by the fact that the highest level of gear switching (2019) occurred when there was a small difference between gear switched caught sablefish ex-vessel prices and the price of the QP (indicating low potential net profit, before taking into account fishing costs, Figure 8). Additionally, in 2019, gear-switching vessels did not have a particularly large exvessel price advantage over non-whiting trawlers –only slightly above average (Figure 7).

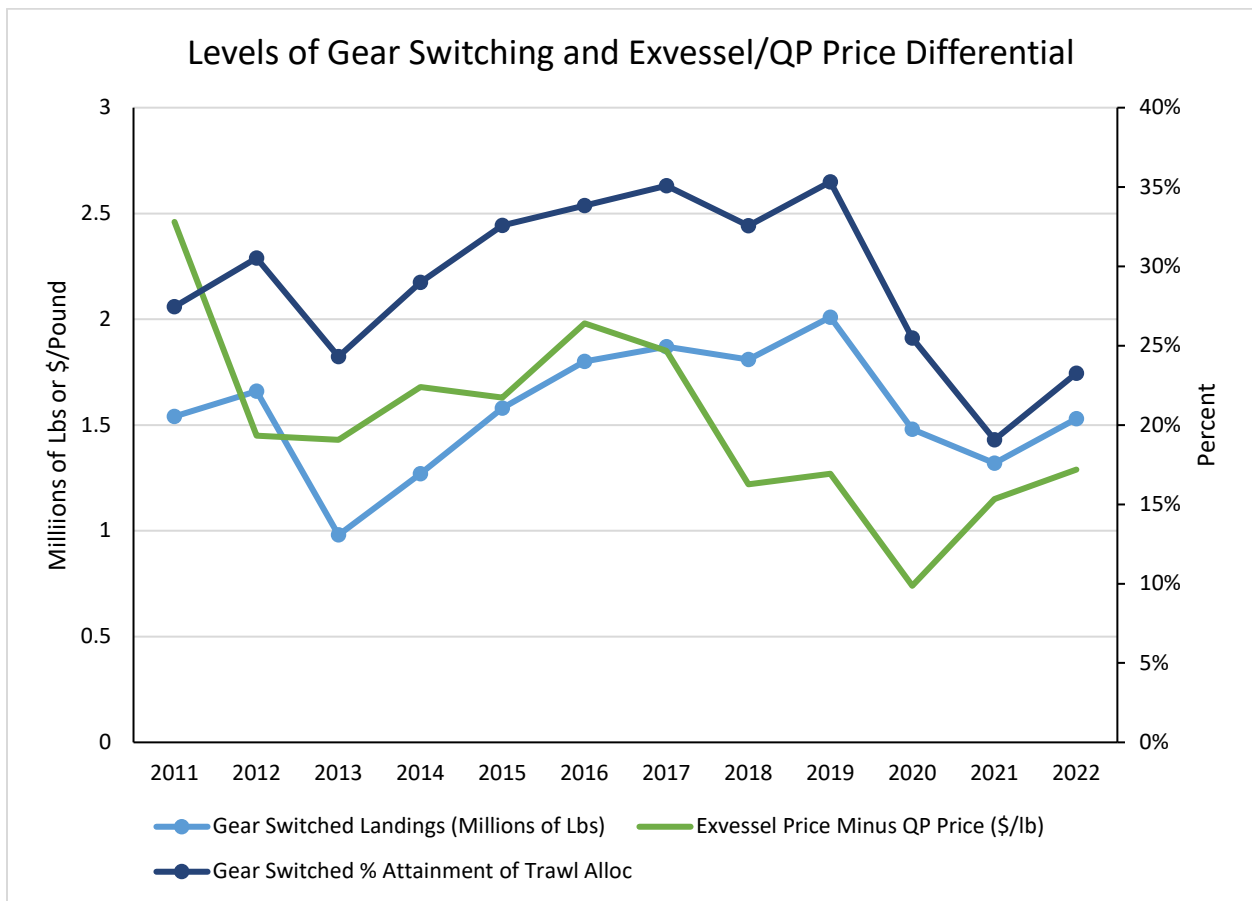


Figure 8. Levels of gear switching compared to difference between exvessel price per pound for northern sablefish delivered by gear-switching vessels and northern sablefish prices QP prices. Internal reference: Sablefish_TrawlAlloc_QP_Variability_StatAnalysis.xlsx.

2.4.4 Conditions in Cross-Over Fisheries

Summary of main points:

- Opportunities in other fisheries, in particular the Dungeness crab, Alaska IFQ sablefish, and Limited Entry Fixed Gear (LEFG) primary tier fisheries, may result in changes in gear switching levels.

- *The LEFG primary sablefish fishery experiences the most crossover with the IFQ gear switching fishery and recent and potential future changes with that program may increase or decrease the incentive to participate in gear switching.*

One of the driving factors for the levels of gear switching includes the opportunities present in other fisheries—both on the West Coast and Alaska. Previous analysis shown in [September 2020](#) and [April 2021](#) discussed the primary fisheries where there is the most amount of crossover with the gear switching fleet—the Alaska IFQ sablefish fishery, West Coast Dungeness crab fishery, and the West Coast LEFG primary tier sablefish fishery. Comparing 2015-2018 and 2019-2022, where Alaska sablefish quotas increased by approximately 71 percent (from 23.1 million lbs to 39.4 million lbs), vessels participating in both fisheries appeared to have been prioritizing Alaska sablefish over West Coast sablefish as average Alaska landings increased and West Coast landings decreased. Continuation of the recent trend or a reduction in opportunity in Alaskan fisheries could result in less or more gear switching on the West Coast. For Dungeness crab, the small proportion of crab vessels that gear switch (two percent) compared to the large number of gear-switching vessels that crab (about 66 percent in recent years) might indicate that a decline in opportunities in the crab fishery could lead to more gear switching with no restrictions on gear switching. Similarly, increasing opportunities or prices in the crab fisheries might lead to less participation in gear-switching activities, though the prime fishing times in the crab fishery (late fall and early winter) do not strongly overlap with when most of the gear switching sablefish fishing occurs.

Crossover between the LEFG primary fishery and the IFQ sector (gear switching) has been discussed extensively during consideration of gear switching limitations and the most recent LEFG primary tier program review. Approximately half of the IFQ gear-switching vessels in a given year also participate in the LEFG fishery (based on 2016-2019 fisheries). Likely motivations for crossing over to gear switching include the three-permit stacking limit and historical seasonal constraints (April 1-October 31) of the LEFG primary fishery. The maximum a vessel may harvest in the LEFG primary fishery (three tier 1 permits in 2023= 218,712 lbs) is substantially less than the opportunity available in the IFQ sector (386,266 lbs for an annual vessel QP limit in 2023). Previous analysis showed that all but one of the vessels from 2016-2019 that crossed over from the LEFG to the trawl fishery had reached its three-permit stacking limit ([2020 LEFG Primary Tier Program Review](#)). The three-permit stacking limit remains in place. However, the Council is considering the allowance for a fourth permit for those without an owner-on-board exemption as part of the LEFG review follow-on actions (Agenda H.4 at this meeting). Additionally, starting in 2023, the primary tier season is permanently extended to December 31st. This extension would allow vessels to fish their tier quota over a longer period of time and later in the season off the West Coast, potentially reducing some vessels' incentives to participate in gear switching.

While there are total opportunity and seasonal advantages that may attract non-trawl vessels to the IFQ fishery, there are other economic advantages for vessels that participate in the LEFG primary fishery. In contrast to the trawl IFQ fishery, vessels participating in the LEFG primary fishery do not have to pay buyback loan fees, cost recovery, or monitoring costs (100 percent monitoring required). On the one hand, this profit advantage and attractiveness of the LEFG primary fishery might be further increased if monitoring or other costs of participating in the trawl IFQ fishery are increased, potentially reducing gear switching. On the other hand, efforts to reduce those costs in

the trawl IFQ fishery or the imposition of cost recovery in the LEFG fishery (being considered under Agenda Item H.4.) could increase the relative attractiveness of gear switching.

2.4.5 Latent and Underutilized Permits

- *The number of latent and underutilized trawl permits available is substantial, indicating that acquisition of such permits is not likely to be a barrier to entry of new gear switchers.*

Gear switching can increase through expansion of the efforts of existing participants or through new entry. New entry requires access to a trawl permit. The number of permits that are latent (i.e., unregistered to a vessel) or inactive (i.e., registered to a vessel but not used for IFQ landings) indicates the availability of trawl permits for potential new entrants. From 2011-2022, there have been 61 trawl endorsed permits that were unregistered to a vessel for an entire year, with five being latent over the entire period. The number of latent permits increased from an average of 22 per year between 2011-2014 to 32 from 2015-2018 to 38 in the most recent four years (2019-2022). The number of trawl permits that have been registered to a vessel but not used for IFQ landings for an entire year (“inactive”) from 2011-2022 has been relatively stable at an average of 35 permits. There have been 100 different trawl permits that have been inactive for a year, with three being inactive the entire period. This suggests that if there are entities interested in gear switching (or participating in the IFQ program in general), the acquisition of a permit would not require getting a permit from an active IFQ participant. Therefore, gear switching could continue to expand if the market conditions allowed.

2.4.6 New Entrants

- *Prior to COVID (2016-2019), levels of gear-switching participation and utilization had stabilized, potentially indicating that gear-switching may have reached an equilibrium for the conditions present at that time. However, the control date was announced early in that period and the influence of that date needs to be taken into consideration.*

Recent trends in new entry can indicate whether under current conditions and profit opportunities, gear-switching participation has stabilized, is still attracting new interest, or is not sufficient to maintain current interest, such that participants are leaving the fishery. Prior to the COVID-19 pandemic, gear-switching participation had stabilized both in terms of numbers of vessels and permits (Figure 9) and levels of gear switching (between 32.5 and 35.3 percent of the trawl allocation, Table 1), indicating that an equilibrium might have been reached for the conditions present at that time. Figure 9 below shows the cumulative number of distinct permits and vessels with gear switched landings (lines) compared to the yearly totals of permit and vessel participants in the fishery in a year. While gear switching participation declined during COVID (2020 and 2021), there were still some new participants in each of those years (i.e., some new entry but more vessels exiting for the year or longer-term).

With respect to interpreting these trends, the effect of the control date needs to be considered. A total of six vessels and permits entered the gear switching fishery after the control date—when it was announced that any gear switching activity after the fact may not be considered in allocating opportunity in the future. On the one hand, the control date may have discouraged new entry into

the fishery, in which case one might expect to see an expansion of participation if the Council decides not to take any action. On the other hand, it may have encouraged some new entry, such that some of those who have entered since the control date did so on speculation that the control date would change and they might then become eligible for some future consideration.

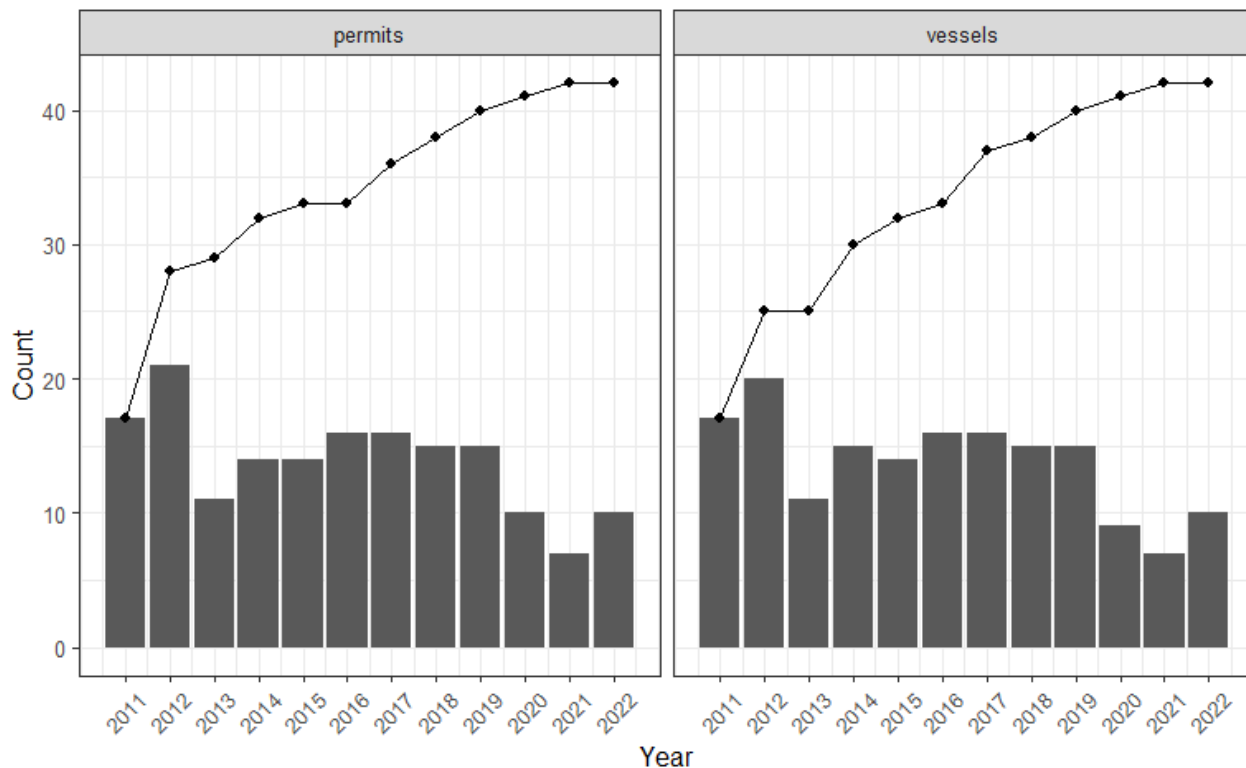


Figure 9. Cumulative number (lines) compared to yearly count (bars) of permits and vessels with participation in the gear switching fishery, 2011-2022.

2.4.7 Trends in QS Acquisition by Gear Switchers

- *QS ownership among gear-switchers has been relatively stable in recent years, though there was a slight uptick in 2022.*

A trend toward increasing investment in QS ownership by gear switching entities might indicate the potential for further expansion in the amount of gear switching. The following tables show that most of the QS acquisition occurred after trading started in 2014, but since then QS ownership levels have been relatively stable.

It is difficult to fully ascertain QS ownership by gear switching operations because detailed ownership information is available only for QS accounts and vessel accounts, but not permits. Another challenge is developing a measure for a group (gear switchers) whose membership and participation changes from year-to-year, such that changes in QS ownership may be related to who is participating in a particular year, rather than trends in acquisition or divestment. This is seen in Table 5 where QS ownership has generally fluctuated with the number of participants. Also note

that with respect to entities that own a gear switching permit, in some cases these may be trawl entities that leased their permit to a gear switching vessel.

Table 5. Annual sablefish north QS amount owned by gear switching permits and vessels within a given year, 2011- 2022.

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
QS owned by Permit Owners	22.58	21.364	9.67	14.678	13.792	15.053	14.623	13.382	15.965	12.179	10.12	Not available
Total GS Permits	17	21	11	14	14	16	16	15	15	10	7	10
QS owned by Vessel Owners	5.418	14.173	6.432	9.705	8.567	10.812	11.654	9.624	5.978	4.939	2.653	7.191
Total GS Vessels	17	20	11	15	14	16	16	15	15	9	7	10
GS Vessels that Owned QS	7	10	5	8	9	9	10	8	7	5	3	6

Looking at the set of vessel owners that gear switched at least once since the start of the program and that group’s holdings in each year, there has been some QS acquisition since QS trading began in 2014. These vessel owners have increased their holdings from 16.229 percent to 19.907 percent, an increase of 3.678 percentage points (Table 13). However, since the year after trading first started (2015), levels of QS ownership by this set of vessel owners have been relatively stable. There was some net acquisition in 2022 (compared to 2021) but the total QS owned by this group was still less than the 2016 peak. As with the number of participants discussed in the previous section, investment trends in QS may have been muted by announcement of the 2017 control date. Of the 42 vessels that had some gear switching history in this period, 23 vessels had owners that also owned QS over the time period.

Table 6. Amount of sablefish north QS owned by vessels that gear switched anytime between 2011-2022

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
QS Owned	16.23	16.23	16.23	17.27	19.60	21.08	19.58	19.13	19.33	19.33	19.33	19.91

The 2011-2022 time period includes some vessels that primarily trawled but tried gear switching in a year or two at the start of the program but did not return to it. Therefore, it may be instructive to look at just those vessels that gear switched in more recent years. Vessel owners that gear switched at least once between 2015-2022 held 12.12 percent of the QS in 2015 and have recently acquired additional QS in 2022 compared to historical levels (any degree of commonality in the vessel account and QS account was used in determining common ownership, Table 7). Of the 26 vessels that had some gear switching history in this period, 17 vessels had owners that also owned QS.

Table 7. Amount of QS owned in 2015-2022 by vessels that GS anytime between 2015-2022

Year	2015	2016	2017	2018	2019	2020	2021	2022
QS Owned	12.118	13.346	13.346	12.872	13.073	13.073	13.073	13.647

3.0 COMPARISON OF ALTERNATIVES

After providing a brief synopsis of the alternatives, this section focuses on two types of impacts:

- Impacts that are determined by particular design elements (Section 3.2).
- Impacts that are driven by the main gear-switching limitation mechanism around which the alternatives are designed (Section 3.3).

Differences among the alternatives based solely on impacts related to the particular design elements considered here should probably not be used to choose between the alternatives—since, the design elements can generally be adapted and moved between the alternatives (except that direct allocational provisions would not be adaptable to Alternative 3). For example, the total amount of gear switching allowed can be changed across any of the alternatives. Impacts driven by the main gear-switching limitation mechanism are more likely to be specific to the alternative.

3.1 Description of Gear Switching Control Mechanism by Alternative

Relative to No Action, the action alternatives would limit gear switching only with respect to sablefish north of 36° N. lat. For a complete description of the alternatives, please see Attachment 2.

No Action: Under No Action, the regulatory regime would not change in connection with this deliberation, but the fishery will continue to change in response to changing environmental, economic, and social conditions, as well as other regulatory actions. Northern sablefish QS would be restricted to a 3 percent control limit and vessels would be subject to a 4.5 percent annual vessel limit.

Alternative 1 – Gear Specific QS: Northern sablefish QS will be converted to trawl-only and any-gear QS and each year, trawl-only and any-gear QP will be issued for each type of gear specific QS, respectively. The proportion of an owner’s QS that is converted to any-gear QS will be affected by their personal history of gear switching and QS ownership on the control date. The amount of QS designated as any-gear QS will be 26.1 percent or less (to which 29 percent or less of the QP would be allocated). The maximum amount of gear-switching allowed would not decline over time.

Alternative 2 – Gear Specific QP: A ratio of trawl-only to any-gear northern sablefish QP will be designated for each QS Account. Each year, trawl-only and any-gear QP will be issued to each account in the ratio designated for the account. The ratio of trawl-only and any-gear QS provided to a QS Account will be affected by the account owner’s ownership of a permit with gear switching history and QS ownership, and potentially a gear switching vessel, as of and since the control date.

The amount of annually issued any-gear QP issued will be 29 percent or less. The maximum amount of gear-switching allowed might decline over time, potentially to zero, depending on options selected.

Alternative 3 – Seasonal Approach: Each year, participants in the shorebased IFQ fishery would be able to retain sablefish north with non-trawl gear until 29 percent of the allocation was projected to be attained, at which point retention would no longer be allowed. There would be no change in the QS or QPs issued for sablefish north. The maximum amount of gear-switching allowed would not decline over time.

3.2 Impacts of Design– Differences Driven By Specific Design Elements

Each of the action alternatives includes some key design elements that could be adopted into alternatives other than that in which they are currently placed. Specifically:

- The amount of gear switching allowed
- How gear switching opportunity is allocated- particularly to qualified gear switching participants (Alternatives 1 and 2 only)
- The impact of the phase out/expiration of gear switching opportunity to qualified gear switching participants (Alternative 2 only)

As discussed in the introduction to Section 3.0, the choice between alternatives should not be based on the preference for one or more of these elements—since there is some interchangeability between alternatives.

3.2.1 Amount of Gear Switching Allowed

Summary of main points:

- *Each alternative has an option that would allow for 29 percent gear switching in the short and long term.*
- *Alternative 2, QP alternative, has options for the lowest allowed level of gear switching for both short- and long-term outcomes.*

While each alternative has an option that would allow 29 percent gear switching in the short and long term, the design of each alternative and the selections of options within the alternative would drive the initial starting point and the long-term allowance. Table 8 displays the range of maximum amounts of gear switching that could occur under each alternative, depending on options selected. For Alternatives 1 and 3, there is no difference between the short and long term. For Alternative 2, some options include a phase down or total expiration of gear-switching opportunity (see Section 3.2.3 and 4.2.). Options could be added to any of the alternatives to allow lower or higher levels of gear switching.

Table 8. Range of the amount of gear switching allowed in the short and long term by Alternative

Amount of GS Allowed	Alternative 1	Alternative 2	Alternative 3
Short Term	29% or 1.8 mil lbs	6.5-29%	29%
Long Term	Same as short term	0-29%	Same as short term

3.2.2 Initial Allocation of Gear Switching Opportunity

Summary of main points:

- *Using the qualifiers currently associated with the alternatives, Alternative 1 has the potential to qualify more gear switching individuals than Alternative 2*
- *Under Alternative 1, history of the individual is used to meet the qualification criteria whereas Alternative 2 it is the asset(s) (permit and possibly vessel) that the person owns.*
- *Individuals that have lease permits to use on their vessels or sold their permit after making qualifying landings (potentially before the control date) may be most impacted by the choice between the Alternative 1 and 2 approaches to qualification.*

The initial allocation of gear switching opportunity to qualified gear switching participants will depend on the qualification criteria included within the alternative and may influence other impacts tied to the control mechanism described in Section 3.3. Table 9 provides a summary of the allocations of gear-switching opportunity to qualified gear switchers and others under Alternative 1 and 2. Note that all values are subject to change at the time of implementation, due to QS divestiture, ownership changes, or other factors. Since Alternative 3 does not allocate any privilege to individuals, it is not discussed in this section.

Alternative 1 has the potential to qualify more gear switching individuals than Alternative 2 and therefore could initially allocate higher amounts of gear switching opportunities to those individuals overall (assuming they own more QS in total). Alternative 1 also allows qualification through group membership (co-op or QS ownership group) and has a suboption that would allow first receivers to qualify.

Table 9. Summary of a preliminary assessment of some of the allocation related quantitative impacts of each alternative.

	Alt 1—Gear-Specific QS	Alt 2—Gear-Specific QP
Number of Qualified Gear Switchers	16-38 Individual Entities Note: Co-op options not included.	10-19 Individual Entities
Total Amount of GS Opportunity (% of allocation) Initially Distributed to Qualified Gear-Switchers Based on Qualification Avenue	8.7-22.8%	6.5-12.6%
<i>Vessel History</i>	8.7-17.4%	N/A
<i>Permit History</i>	N/A	6.5-12.6%
<i>QS Ownership Group Membership</i>	0-4.1%	N/A
<i>Co-op Membership</i>	Not available until implementation	N/A
<i>First Receiver History</i>	1.3%	N/A
Total Amount of GS Opportunity (% of allocation) Received by Those Not Qualifying as Gear Switchers	6.2-20.3% (to be reduced by the amount owned by qualifying co-ops; dependent on QP Split Option) ^a	0-22.5% depending on Legacy Qualification Option and QP Distribution Option ^b
Maximum Amount of Individual Gear Switching Opportunity		
Long-term (QS Control)	11.5-12.8% of the any-gear quota (based on the 3% control limit and depending on the total amount of gear-switching allowed)	Legacy Participants – varies depending on each individual’s control date ownership of QS, (but no Legacy Participant is at the 3 percent control limit).
Short-Term (QP Acquisition)	15.5 percent for QP Split Option 1 and somewhat more for Split Option 2	15.5-69.2% (based on 4.5 percent vessel limit and dependent on Legacy Qualification Option and QP Distribution Option)

^a Values assume QP Split Option 1 (71 percent trawl only, 29 percent any gear).

^b Over time, under QP Distribution Option 1, non-legacy participants would receive 29 percent

One of the key design elements that differentiates the alternatives in terms of qualifying for gear switching opportunity is history used for qualification as a gear switcher. Under Alternative 1, it is the history of the individual that is used to meet the qualification criteria whereas Alternative 2 is based on the history of the asset. Alternative 1 determines if someone who owned QS on the control date had pre-control date history of owning a gear switching vessel. To qualify, that individual did not need to maintain ownership of that vessel (or any vessel) after the gear switching

activity. On the other hand, Alternative 2 only considers if a QS owner had ownership of the gear switching asset (permit and potentially vessel) as of and since the control date.

The difference between these two approaches in terms of numbers of qualifiers and numbers that are benefited by one approach but not the other is shown in the following two tables. Table 10 shows, for those individuals that would qualify as gear-switching participants under Alternative 1 qualification options, the number that would qualify as legacy participants under each of the Alternative 2 qualification options. Table 11 shows the inverse of Table 10, displaying, for those qualifying as legacy participants under each option, the number that would qualify as gear-switching participants under each of the Alternative 1 qualification options. As an example, , Table 10 shows there are 16 individuals that would qualify under Alternative 1, Gear-Switching Participant Option 2 based on their personal history of vessel ownership. Of those 16 individuals, based on their ownership of a permit as of and since the control date, 13 would qualify as a legacy participant under Alternative 2 Option 1 and 10 under Option 2. Table 11 shows that there are 10 individuals in Alternative 2 that would qualify based on current permit and vessel ownership under Legacy Option 2 and all of those 10 would qualify under any of the vessel ownership history based qualifying options of Alternative 1. In each table, the far-right column shows the number of individuals that would only qualify under the alternative and option for that row. For example, three of the 16 qualifiers for Alternative 1, Gear-Switching Participant Option 2 would not qualify under either option for Alternative 2.

Table 10. Number of individuals qualifying under Alternative 1 and number qualifying and not qualifying under Alternative 2, by qualification option (qualification via group or co-op membership or qualified first receiver status not included).

Alternative 1 Qualification Options <i>Basic Qualifier: Own QS and Own a Vessel When It Made Gear Switched Landings</i>	Total Individuals Qualifying under Alt 1	Number of Individuals Also Qualify Under Alternative 2 <i>Basic Qualifier: Own QS and Own Permit With History (30,000 lbs in each of 3 yrs)</i>		<i>Individuals that Do not Qualify Under Alt 2</i>
		Legacy Option 1 <i>Basic Qualifier</i>	Legacy Option 2 <i>Basic Qualifier + Own a Vessel that Was Used to Gear Switch</i>	
GS Participation Option 1 <i>Only One Landing Required</i>	32 ^{a/}	14	10	18 ^{a/}
GS Participation Option 2 <i>30,000 lbs in each of 3 yrs Required</i>	16	13	10	3

a/An additional 3 individuals would qualify under the group QS ownership criteria for GS Participation Option 1 and are not included in this estimate.

Table 11. Number of individuals qualifying under Alternative 2 and number qualifying and not qualifying under Alternative 1, by qualification option (qualification via group or co-op membership or qualified first receiver status not included).

Alternative 2 Qualification Options <i>Basic Qualifier: Own QS and Own Permit With History (30,000 lbs in each of 3 yrs)</i>	Total Individuals Qualifying under Alt 2	Number of Individuals Also Qualify Under Alternative 1		<i>Individuals that Do not Qualify Under Alt 1</i>
		<i>Basic Qualifier: Own QS and Owned a Vessel When It Made Gear Switched Landings</i>		
		GS Participant Option 1 <i>Only One Landing Required</i>	GS Participant Option 2 <i>30,000 lbs in each of 3 yrs Required</i>	
Legacy Option 1 <i>Basic Qualifier</i>	19	14	13	5
Legacy Option 2 <i>Basic Qualifier + Own a Vessel that Was Used to Gear Switch</i>	10	10	10	0

These results show the degree of overlap and difference between the individuals that owned vessels when they made gear-switched landings and those that own the permits with gear switching history. Historically, for the groundfish fishery, the Council has allocated based on asset ownership, rather than personal history. These differences might arise for different reasons. For example, an individual that owned a vessel and permit when it made gear-switched landings might sell the permit (perhaps together with a vessel) to someone else and buy a new permit (and vessel). Under Alternative 1, that person would qualify because it is based on personal history, not history of the asset. Under Alternative 2, the person who bought the permit used for gear switching could qualify, if they acquired it by the time of the control date. Or, the owner of a gear switching vessel might lease the permit they use with the vessel, so that once again, under Alternative 1 the person with the history of being a vessel owner would qualify while under Alternative 2 the current owner of the permit would qualify.

With respect to leasing, previous analyses have looked at the leasing statistics of both gear-switching and trawling vessels based on publicly available information ([Agenda Item C.5, Attachment 3, September 2021](#)). Table 12 below provides an update of that analysis for gear switching vessels from 2011-2021. The number of vessels across some years may be in excess of the number of gear switching vessels shown in Table 1. These cases are where a vessel owner utilized both a leased permit and a permit they owned in a given year.

Table 12. Number of gear-switching vessels that leased or owned the trawl limited entry permit used to fish, 2011-2021.

Vessel Used Permit that was	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Leased	9	11	4	8	6	6	6	7	10	6	6
Owned	8	10	7	7	8	10	10	8	6	4	1

Examination of the leasing history used for Table 12 shows that for Alternative 2, which is based on permit history prior to the control date, four of the 11 permits that would qualify individuals for legacy status (there are 15 such individuals in total) were leased out to a gear switching vessel

for the majority or all of the qualifying landing years. The vessel owners leasing these permits would likely qualify as gear-switching participants under Alternative 1 (assuming they own QS on the control date).

3.2.2(a) Breadth of Distribution of Gear Switching Opportunity

The previous section focuses on the primary ways that individuals are able to qualify for history-based gear-switching opportunity: through ownership of a vessel when it gear switched (Alternative 1) or a permit with gear switching history (Alternative 2—which might also require ownership of a gear-switching vessel depending on options selected). For both alternatives, to qualify, individuals must also own QS on the control date.

Alternative 1 provides for a broader distribution of allocations by including a number of alternative ways for individuals to qualify that are not included in Alternative 2.

First, as mentioned above, under Alternative 1, individuals could qualify through membership in a QS ownership group or membership in a co-op in which at least one member qualifies based on vessel ownership history. Under Alternative 1, Qualification Option 1, three additional individuals would qualify based on group membership. None would qualify under Option 2. The number qualifying individuals based on co-op membership is unknown and will not likely be known until the time of implementation.

A second avenue through which individuals could qualify is if the Council includes a first receiver suboption to the qualification criteria—in which all of their eligible QS would be converted into any-gear. There are three individuals who would qualify under this suboption, of which some would also qualify under Alternative 2 (i.e., some of the five that are listed as only qualifying under Alternative 2; Table 11).

Alternative 1 also broadens distribution through consideration of family members. Under Alternative 1, QS transferred to a family member after the control date would be considered to be owned by that family member as of the control date. The qualification status would not be considered to transfer along with the QS. However, if a family member owned a vessel that gear-switched and then after the control date received QS from another family member, they could then qualify as a gear-switching participant. The same rule applies with respect to qualifying as a non-gear switching participant under Non-Gear-Switching Participant Option 2. At this time, we do not have information on how many individuals this provision might affect.

3.2.2(b) Fraction of Ownership Required

Under Alternatives 1 and 2, where there are allocations to qualified gear switching participants, any degree of ownership of the asset is sufficient assuming the qualification levels are met (e.g., landings pre-control date). Previous iterations of gear switching alternatives have required at least a 50 percent commonality in ownership of assets, for example, permit and QS. If desired, the Council could specify a particular ownership level required of an asset. Fraction of ownership also relates to the individual and collective approaches to allocation which are not further analyzed here due to time constraints. When the Council chooses an iPPA, it can also choose whether or

not to pursue further analysis and consideration of the differences between the individual and collective approaches.

3.2.3 Phase Out/Expiration

Summary of main points.

- *Currently a phase out is only provided for Alternative 2 but something could be developed for either of the other two action alternatives.*

As described above, the only alternative with a phase out or expiration of gear switching opportunity is Alternative 2. Under Alternative 2, legacy participant status is associated with the individual and not transferable. Therefore, if the legacy participant were to sell their QS, the percentage of any-gear QPs they were receiving would be redistributed to other participants (QP Distribution Option 1), be issued at a standard ratio of any gear to trawl only (QP Distribution Option 2) or be issued as trawl only (QP Distribution Option 3).

While Alternative 1 does not include a phase out, the absence of a phase out should not be used to discriminate between Alternatives 1 and 2, since a phase out or sunset could be designed and added to Alternative 1, if desired. Similarly, the amount of gear-switching under Alternative 3 could be phased down over time, though a phase-out could lead to a race for fish. This possibility might make a sunset date preferable to a phase out, if a reduction in gear-switching is desired after initial implementation.

3.3 Impacts Tied to Gear-Switching Control Mechanism

This section covers impacts that are driven by the main gear-switching limitation mechanism and so cannot be changed or moved between alternatives with changing the fundamental nature of the alternative.

3.3.1 Likelihood of Attaining Gear Switching Allocation

- *In terms of likelihood of attaining the level of gear switching allowed, Alternatives 1 and 2 are likely to see high attainment for the any-gear quota allocated to qualified gear switchers. Use of any-gear quota allocated to non-qualifiers would largely depend on acquisition and trading levels amongst participants. This will be more challenging if any-gear QS or QP is distributed across many QS accounts.*
 - *Alternative 1 provides an opportunity for any-gear QS to be consolidated by gear switchers. As this occurs, it would become more likely that a greater portion of the any-gear QP would be utilized for gear switching.*
 - *Alternative 2 provides a much more limited opportunity for gear switchers to consolidate the any-gear QP—for any QS, they acquire only a relatively small portion would be issued as any-gear QP.*
- *Alternative 3's attainment of the 29 percent seasonal limit would be mainly driven by the factors affecting gear switching under No Action*

The likelihood of attaining the maximum amount of gear switching allowed under each alternative would depend on the same set of factors that impact gear switching levels under No Action (described in Section 2.4) and would be influenced by the mechanism and how the gear switching opportunity was initially allocated.

For Alternative 1, it is likely that the any-gear QS and resulting QPs issued to gear switching participants would be used for gear switching (8.7-22.8 percent of the allocation depending on the option; see Section 4.1 for more details). Any any-gear QS issued to historic gear switchers that do not qualify as a gear-switching participant will likely also be utilized for gear switching. For most of the remaining any-gear QPs, there are two factors that would drive the likelihood of reaching the 29 percent (or 1.8 million pounds)—the accumulation of any-gear QPs inseason (short term) and any-gear QS (long term). The non-gear-switching participation option selected would influence the number of entities with which gear-switching participants would need to trade or purchase, with Non-Gear Switching Participant Option 1 having the any-gear QS spread across more accounts than Option 2 (see Table 21 in Section 4.1). Rather than acquiring QS, participants could increase the likelihood of attaining the maximum gear switching allowance through inseason transfer of any-gear QPs—however, this effort would require many trades each year. For example, under No Action, some gear switching entities may have long-term relationships to trade non-whiting QPs for sablefish QPs. Depending on the options, those QP trades may no longer be possible—at least at the historical levels—as non-gear-switching participants would receive only some any-gear QS. Thus, participants would have to seek out new, and likely a greater number, of willing trading partners. However, if gear switching participants acquire any-gear QS, it would increase the likelihood of attaining the gear switching allowance over the long term.

For Alternative 2, the likelihood of attaining the gear-switching allowance will depend on the initial any-gear QP distribution to legacy participants and the ability of interested gear switching participants to accumulate any-gear QPs from across the other accounts to which it is distributed. Under all options, any-gear QPs issued to legacy participants will likely be used for gear switching (12.6 percent under Qualification Option 1 and 6.5 percent under Option 2). For QP Distribution Option 3, any-gear QPs would be issued only to legacy participants, and therefore it's a high likelihood that all any-gear QP issued would be used for gear switching and thus the maximum gear-switching level allowed fully attained. For QP Distribution Options 1 and 2, the remaining any-gear QPs would be spread across QS owned by non-legacy participants. While historic gear-switching participants (including non-qualifiers) would likely accumulate additional any-gear QPs, given the number of QS accounts across which any-gear QP would be distributed, it is likely that the maximum level allowed would not be attained. Previous analysis on the SaMTAAC QP alternative shows an example of the number of QS accounts from which any-gear QPs would have to be acquired in order to reach the maximum ([Agenda Item C.5., Attachment 3, September 2021](#)). Over time as legacy status expires (see discussion in Section 3.2.3), the likelihood of reaching the maximum gear switching amount would decline, as the remaining any-gear QPs would be distributed proportionally across all non-legacy accounts under Options 1 and 2. Under QP Distribution Option 3, there would be no gear switching allowed after the legacy status expires.

Under the seasonal approach, the amount of gear switching will primarily be driven by the factors that influence gear switching levels under No Action but capped by the seasonal limit. There would be no limitations on an individual vessel's gear switching outside of the annual vessel limit

(4.5 percent). Gear switching attainments have averaged 29 percent **of the trawl allocation** from 2011-2022, with six of twelve years exceeding 29 percent. As a reminder, the 29 percent gear switching limitation was based on the average gear switched percentage **of the total available pounds** (allocation + surplus carryover) between 2011-2016 (i.e., full years prior to the control date). If market conditions were positive and the allocations were at a level where the fleet capacity is sufficient, then it is likely that the 29 percent maximum would be reached. However, if conditions were similar to recent years, then its likely that the 29 percent maximum would not be reached.

3.3.2 Nature of Changes to Access Privileges

Summary of main points:

- *Other than creating a gear restriction on QP and QS, Alternative 1 would not modify access privileges.*
- *In addition to creating a gear restriction on QP, Alternative 2 would associate an allocation privilege with the individual that would not be transferable to others (the legacy participant, for whose QS all QP would be issued as any-gear).*
- *Alternative 3 would modify the access privileges by specifying that a seasonal restriction may be imposed, as necessary to ensure a certain level of gear-switching is not exceeded (the possibility of a restriction on the time of year during which the privileges conveyed by QS/QP could be fully exercised).*

Under No Action, access to and harvest of the trawl allocation is controlled by a system of trawl LEPs, QS, and the QP that are issued annually to the QS owners. Each of these assets is transferable to anyone eligible to own a US fishing vessel, although QP can only be transferred to and among vessel accounts. Any legal groundfish gear can be used to harvest the trawl allocation, as long as a trawl LEP and QP are properly registered to a vessel. QP owners have relatively unlimited flexibility with respect to their time and pace of fishing. The action alternatives would each modify or place a different type of constraint on access privileges (Table 13).

Alternative 1 would limit the gear used to catch the northern sablefish trawl allocation by creating gear-specific QS and QP (trawl only and any-gear). Alternative 2 would create only gear-specific QP and Alternative 3 would not impose a gear limitation on QS or QP.

After the initial implementation step, Alternative 1 would make no other substantive changes to the system of access privileges. Alternative 2 requires a means by which the gear-specific QP would be distributed among QS that is not gear specific. This would be done based on the status of the individual QS owners as either legacy or non-legacy participants (see Section 3.2.2 on initial allocation criteria and Section 4.2 on the distribution of QP among different types of participants). The legacy participant status would not be transferable to others and, in addition to the initial non-qualifiers, all new entrants to the fishery would receive non-legacy status (those entering after the control date). Legacy participants would “exit” the fishery by divesting themselves of their QS. As they did so, the amount of any-gear QP issued for legacy participants would decline.

Alternative 3 would modify the privilege by putting a new seasonal constraint on retaining northern sablefish while fishing with non-trawl gear.

Table 13. Changes to the nature of the trawl allocation access privileges for each of the action alternatives.

	Alternative 1	Alternative 2	Alternative 3
Long-term Access Privilege—Permit	Trawl LEP (no change)	Trawl LEP (no change)	Trawl LEP (no change)
Long-term Access Privilege—Quota	Gear Specific QS	QS (no change)	QS (no change)
Annual Access Privilege—Quota	Gear Specific QP	Gear Specific QP	QP (no change)
Other Changes	No change	Nontransferable allocation privileges tied to the individual: gear switching history-based any-gear QP allocations provided to legacy participants. Option for attrition (Partial or complete expiration of gear-switching opportunities over time.)	Season closure on sablefish retention while gear switching

3.3.3 Opportunity For New Entrants

Summary of main points:

- *Under Alternatives 1 and 3, new entrants would be able to acquire the same mixes of gear-switching access privileges (QS and/or QP) as those already in the fishery (including qualified gear-switching participants, under Alternative 1).*
- *Under Alternative 2, new gear switchers would have some substantial disadvantages relative to legacy participants.*
 - *Under QP Distribution Options 1 and 2, to acquire the same level of gear-switching opportunity as those who qualify as legacy participants, new entrants would either have to acquire more QP on the market each year or acquire more total QS (since only a portion of the QP non-legacy participants receive would be any-gear QP). The three percent cap on QS ownership would place an upward limit on new entrant ability to secure access to any-gear QP through QS ownership that is lower than for legacy participants.*
 - *Under QP Distribution Option 3, the only way for new entrants to gear switch would be to buy any-gear QP on the market each year. Eventually, as legacy participants divest of their QS, any-gear QP would no longer be available.*

Under No Action, individuals are able to start gear switching by acquiring a vessel and the required access privileges (trawl LEP and QP). They are able to secure long-term access to QP by acquiring QS. Through such investments, new entrants can equip themselves with the same suite of access privileges as any other participant in the fishery, including those who received initial allocations.

Under Alternatives 1 and 3, new entrants would be able to continue to establish themselves as gear-switchers on a par with existing gear-switchers. Under Alternative 1, those who receive an initial allocation of any-gear QS might have some initial financial advantage over those who later acquire their any-gear quota. The financial advantage for those receiving an initial allocation under Alternative 1 would occur if the cost of acquiring any-gear QS is greater than the cost of acquiring QS before it became gear specific. Under Alternative 3, there would be no such difference (because there would be no gear specific QS).

Under Alternative 2, new entrants would not be able to establish themselves on a par with legacy participants and their opportunity would vary depending on the QP distribution option chosen by the Council. Under all QP distribution options, compared to legacy participants, non-legacy participants would receive a lesser amount of any-gear QP for a given level of QS owned. Given this, the three percent cap on QS ownership would place an upward limit on new entrant ability to secure access to any-gear QP through QS ownership that is lower than for legacy participants—because only a portion of the QP they receive for their QS will be any-gear QP. To gear switch at a level similar to a legacy participant, a new entrant would have to either acquire more QS (in amounts in excess of the desired QP amount—as only a portion would be issued as any-gear) or be more reliant on the any-gear QP market (Table 14). Under QP Distribution Option 1, the amounts of any-gear QP potentially available on the market would start and stay at 29 percent; under QP Distribution Option 2, start at 29 percent and decline as legacy participants leave; and, under QP Distribution Option 3, start at 6.5 or 12.6 percent and decline to zero as legacy participants leave (Table 15). The amounts of QP effectively on the market may be diminished by transaction costs. For non-legacy participant owned accounts with small amounts of QS (and hence receiving even a smaller amount of any-gear QP), the effort and costs associated with selling QP in comparison to the potential sale revenues might not provide a net gain sufficient to make it worthwhile (see Section 3.2.1 for further discussion). After legacy participants leave, new entrants would have the same opportunity to gear switch as non-legacy participants already in the fishery, though under QP Distribution Option 3, no opportunity would remain.

Table 14. Opportunity for new gear switching participants relative to established participants receiving an initial allocation of opportunity based on history.

		Alt 1	Alt 2	Alt 3
Possibility for new entrants to acquire gear switching opportunities at the same level as qualified gear switchers already owning QS as compared to those qualifying gear switchers	Short-term (QP)	On a par	For any given amount of QS owned or acquired, would need to acquire more any-gear QP	On a par
	Long-Term (QS)	On a par (acquire any-gear QS on the market)	Lesser opportunity (more QS required to receive the same annual issues of any-gear QP)	On a par
Financial Differences		Possibility of some disadvantage (if, due to the action, acquiring any-gear QS is more costly than what existing participants paid for QS)	To establish a level of gear-switching similar to legacy participants, non-legacy participants would need to acquire more QS and/or be more reliant on the QP market.	On a par

Table 15. For Alternative 2, the amounts of QP potentially available for any participant to acquire on the market and proportion of any-gear QP that non-legacy participants would receive for their QS, by QP distribution option.^{a/}

	QP Dist Opt 1	QP Dist Opt 2	QP Dist Opt 3
Total Any-Gear QP Issued for Fleet in Year 1	29%	29%	6.5% to 12.6% ^{a/}
as Legacy Participants Divest	Remains at 29%	Declines to either 18.8% or 24.1% ^{b/}	Declines to 0%
Proportion of Any-Gear QP Issued to Each Non-Legacy QS Owner QS Account	Starts at 18.8% or 24.1% ^{a/} & increases to 29 percent as legacy participants divest	Starts and stays at either 18.8% or 24.1% ^{b/}	Starts and stays at 0%

a/ For related information, see Table 9, Table 22, and Table 23

b/ Depending on legacy participant qualification options selected.

3.3.4 Fisherman Flexibility

Summary of main points:

- *Relative to No Action, the impacts of Alternatives 1 and 2 on fishermen flexibility to scale the size of their individual gear-switching operations occur through dynamics similar to those described for impacts on new entrants.*

- *Under Alternative 1, for the gear-switching fleet as a whole, constraint is determined by the amount of any-gear QS and QP issued. Flexibility for individual operations would be similar to No Action: individual vessels would have flexibility to determine their amount of gear switching and whether to support their gear switching plans only with annually issued QP or to also secure long-term stability by acquiring QS. Competition for the necessary quota will be greater than under No Action.*
- *Under Alternative 2, QP Distribution Options 1 and 2:*
 - *The opportunity for a participant to scale up gear switching levels by acquiring more QS would be significantly more costly than under Alternative 1, because only a proportion would be issued as any-gear QPs; and*
 - *This, in combination with the three percent cap on QS control, would mean that someone who attained the QS control limit would secure the long-term access to less QP eligible for use in gear switching than they would under status quo.*
 - *While individual vessel ability to use QS ownership to secure long-term access to any-gear QP would be limited, they would still be able to fish at levels similar to No Action through the annual acquisition of any-gear QP, although competition for the necessary QP will be greater than under No Action.*
- *Under Alternative 2, QP Distribution Option 3, the only opportunity for a participant to scale up their level of gear switching would be by acquiring any-gear QP (not QS). This opportunity would be very limited and diminish over time as legacy participants divest themselves of QS and an increasing portion of the QP becomes trawl-only (eventually all of the QPs would become trawl-only).*
- *Under Alternative 3,*
 - *Flexibility for individual operations and competition for the necessary quota would be similar to No Action.*
 - *Rather than competing for quota, gear-switchers would compete to fish first. As a result, flexibility to gear switch any time of year could become more constrained.*

Under Alternative 1, individuals would have flexibility to set their own time, place, and volume of gear switching similar to what that they would under No Action. Some historic gear-switching participants will not receive an initial allocation of gear-switching opportunity commensurate with their historic fishing volumes. These historic participants might be QS owners or others that do not qualify as gear-switching participants (including those entering after the control date) or those that qualify but receive an amount of any-gear QS that is less than what they typically use (e.g., those that relied more on acquiring QP each year than on owning QS). The general flexibility provided under this alternative would allow many of these individuals to restore their previous levels of gear switching if they so desired. Any-gear QS and QP would be available from both gear-switching and non-gear-switching participants. However, due to the limited amount of northern sablefish quota available for gear switching (at or just below 29 percent of the trawl allocation), the fishery would likely not be able to support as many operations and the cost of the any-gear quota is likely to be somewhat higher than the cost of quota under No Action—assuming

that around 29 percent or more of the trawl allocation would be gear switched if there were not a constraint.

As with Alternative 1, under Alternative 2, QP Distribution Options 1 and 2, vessels participating in gear switching would have flexibility to set their own time, place, and volume of gear-switching, similar to what that they would under No Action. This includes qualifying gear switchers that do not receive an initial allocation of gear-switching quota that is commensurate with their historic fishing volumes, as described for Alternative 1. Any-gear QP would be available from both legacy and non-legacy participants. However, the amount of any-gear quota available over the short and long term might be significantly more limited, as compared to Alternative 1 (starting at 29 percent over the short-term and running to as low as 18.8 percent over the long-term, depending on the QP Distribution Option and Legacy Qualification Option selected, Table 15). For those wishing to secure long-term access to more any-gear QP through control of QS, their ability to do so would be more limited than under Alternative 1 for two reasons. First, to secure access to a given percentage of any-gear QP, they would need to acquire substantially greater percentage of any-gear QS, since for any amount of QS acquired, only a portion of it would generate any-gear QP. Second, depending on the amount they want to acquire, they could be constrained by the three percent control limit. For example, if someone that owned a gear-switching vessel but not a permit (i.e., could not qualify as a legacy participant) wanted to acquire QS to secure ongoing access to any-gear QP, the three percent QS ownership limit would mean they could not secure QS-based access to more than between 0.6 and 0.9 percent any-gear QP (between 18.8 and 29 percent of 3 percent of the QS, depending on options selected). Gear switchers constrained in their ability to acquire any-gear QP through QS ownership would have to rely on the acquisition of any-gear QP issued across many accounts each year. There are currently between 117 and 124 QS accounts (based on 2021 data) not owned by legacy participants across which any-gear QP would be dispersed at a ratio of between 18.8 and 29 percent of all of the QP issued for each account.

Under Alternative 2, QP Distribution Option 3, gear-switching flexibility would be substantially more limited than for Alternative 1 or the other Alternative 2 QP distribution options. Between 6.5 and 12.6 percent of the trawl allocation would be issued as any-gear QP, all of which would be given to legacy participants (Table 15). The only opportunity an operation would have to maintain or increase its level of gear switching would be through the acquisition of QP from another legacy participant. This includes non-qualifying gear-switchers and legacy participants that did not have enough QS to support their typical levels of gear switching (i.e., acquired a portion of their QP each year). There would be no opportunity to acquire additional QS for which any-gear QP would be issued.⁸ Because of its limited supply, the cost of acquiring any-gear QP would likely be much higher. Over time, as legacy participants divested, gear switching opportunities would decline and be phased out.

Under Alternative 3, the direct change to flexibility would be with respect to the times at which gear-switching for sablefish could be conducted. If seasons are shortened to keep the fleet's gear switching to less than 29 percent, the flexibility for gear-switchers to fish later in the year would be reduced. However, as under No Action, if trawlers acquire more than 71 percent of the QP,

⁸ Except, if a legacy participant had less any-gear QS than they did on the control date, after initial implementation they could acquire additional QS and receive any-gear QP for those shares, up to the amount that they owned on the control date.

there would be no season shortening. The amount of gear-switching by any particular operation would not be directly constrained compared to No Action (4.5 percent annual vessel limit). Typically, well in excess of a quarter and up to over half of the gear-switching occurs in the last four months of the year and occasionally vessels using trawl gear have used in excess of 71 percent of the QP (see Section 4.3). Some of the timing of gear-switching activity may be driven by gear-switching vessels desired time of fishing and some by the availability of QP. For example, vessels in the whiting fishery often hold northern sablefish QP until late in the year, after their fishery has been completed, and then release the QP to others—at which time gear-switches often acquire it.

3.3.5 Manager Flexibility

Summary of main points:

If at some future time the Council determined that the amount of gear switching allowed should be either increased or decreased:

- *For Alternatives 1 and 2, the analytic, rule-making, and administrative burdens for changes are different but might be roughly comparable, as would be the direct impact of changes on QS owners and gear-switching operations. For the most part, changes would be a matter of changing the mixes of any-gear and trawl-only QP issued to QS holders. The programming task might be somewhat more complicated for Alternative 1, since it could involve giving QP of one gear-type to a QS owner of the other gear-type, or Alternative 2 in the short term, if the Council chose to modify the types of QP provided to legacy participants.*
- *For Alternative 3,*
 - *the analytic, rule-making, and administrative burdens would likely be lower than for the other action alternatives, since it would only involve changing the percentage of gear switching that triggers a seasonal limitation.*
 - *a substantial reduction in gear switching opportunity could elevate the importance of other issues (e.g., the date on which sablefish retention while gear-switching starts—season opening date) and substantially shorten the gear switching season (potentially leading to a more intense competition for the opportunity to gear-switch).*

Manager flexibility has to do with what it would take to modify a gear switching limitation policy in response to changing conditions or unanticipated impacts. Under each action alternative, how complicated would it be to revise the policy and to what degree might the changes create controversy or disrupt those who are impacted? Consideration of future flexibility is important for the purpose of evaluating a management system's ability to respond to contingencies, and particularly to unusual future conditions that might result from climate change. Policy revisions might be needed to either increase or decrease the gear-switching limitation.

For Alternative 1, it is uncertain how a change in the amount of any-gear QP issued might be achieved. Thus far, two possible approaches have been identified that would make temporary changes and NMFS input will be needed to determine their technical feasibility:

- Modification Approach 1: Issue QP of one gear type to the opposite QS gear type. For example, decrease the any-gear QP issued by issuing any-gear QS holders a portion of their QP as trawl-only QP. This leaves the total amount of sablefish QP issued for each unit of QS the same, but for those reliant on QP being available for gear, switching receiving trawl-only QP would likely find that QP less useful.
- Modification Approach 2: Increase the amount of northern sablefish QP issued to one QS gear type and reduce the amount issued to the other. Recall that after the implementation related conversion adjustments are completed, the any-gear QS will total to 100 percent and the trawl-only QS will total to 100 percent. The trawl allocation is then distributed between these two types of QS, which determines the amount of QP of each type issued. Note that this approach would be similar to what would occur under QP Allocation Split Option 2 and could result in a different amount of the total trawl allocation going to each QS owner, as compared to Approach 1.

Other approaches might be identified and explored. For example, making a permanent change by converting QS of one type to QS of another type. Such changes could be done in a constant ratio across all QS holders or for the QS in certain accounts based on criteria that would have to be developed.

For Alternative 2, changes could be made by changing the ratios of gear-specific QP issued to legacy participants, non-legacy participants, or both. A reduction in gear-switching opportunity could be achieved via legacy participants by issuing some trawl-only QP for their eligible QS. Implementing a gear-switching increase via legacy participants would not be possible, unless it were achieved by diverting a greater portion of the adaptive management program (AMP) QPs to legacy participants. With respect to non-legacy participants, the Council might achieve an increase by increasing the proportion of QP issued as any-gear to non-legacy participants—including starting to issue any-gear QPs to non-legacy participants in QP Distribution Option 3. A decrease via modification of the QP proportions received by non-legacy participants could be implemented under QP Distribution Options 1 and 2 but not 3, since they do not receive any-gear QP under Option 3.

If Alternative 1 Modification Approach 1 is feasible, the analytic, rule-making, and administrative burdens for changes under Alternatives 1 and 2 would likely be similar in the short term, as would be the nature of the direct impact on QS owners and gear switching operations (i.e., QS owners could receive gear-specific QP different from what they originally planned for, which might disrupt their operations). Alternative 1 Modification Approach 1 might involve some difficult programming modifications to allow QP of one gear-type to be distributed for QS of a different gear type and its feasibility will be determined by NMFS. Somewhat similar challenges might also be encountered for Alternative 2, if a modification were to be achieved by distributing trawl-only QP to the any-gear eligible QS of legacy participants. Alternatively, under Alternative 2, changing the proportion of any-gear to trawl-only QP among non-legacy participants would be simpler since it would just be a matter of changing the ratio of any-gear and trawl-only QP issued for all QS accounts.⁹ With respect to direct impact on QS owners and gear switching operations, if Alternative 1 Modification Approach 2 is the only Alternative 1 adjustment feasible, its reallocative effect (i.e., some individual receiving more and others receiving less total QP for their

⁹ After legacy participants leave the fishery, this would be the only means of making such an adjustment.

QS) could have a greater impact than would an adjustment under Alternative 2. The nature and amount of disruption to QS owners would depend on how the changes are distributed.

For Alternative 3, the amount of northern sablefish QP used for gear-switching that triggers a season closure for retention of gear switched sablefish north could be changed to increase or decrease total gear-switching opportunity. Of the three, Alternative 3 would be the simplest to change from analytical, rule-making, and administrative perspectives. It would also have the least direct impact on fishery participants (i.e., quota received would not change), though gear switching participants would be impacted indirectly by change in the amount of opportunity for which they compete. If it were determined that the amount of gear switching allowed should be substantially decreased, seasoning opening date choice may become an issue (due to geographic allocation effects, competing fishery opportunities, etc.); and there would be an increase in the likelihood of substantially shortened gear switching seasons—potentially leading to more of a race for the opportunity to gear switch.

3.3.6 Impact on Quota Values and Revenue from Selling QP to Gear Switchers

Summary of main points:

- *All of the action alternatives may have some impact on QS and QP prices relative to No Action.*
 - *Under Alternatives 1 and 2, relative to generic QP under No Action,*
 - *the price for any-gear QP is likely to increase, and*
 - *the price for trawl-only QP might decrease by a small amount, though prices could be...*
 - *notably lower if trawlers are unable to use most of the available trawl-only QP (by catching more of other species or increasing the ratio of sablefish in their catch), and*
 - *notably higher if the action has its desired effect in increasing the proportions of the trawl allocations of other species harvested (higher for both trawl-only and any-gear QP).*
 - *Under Alternative 3, the price for QP might decrease a slight amount relative to No Action, to the degree that QP demand from gear-switchers is constrained by the 29 percent limitation.*
 - *QS prices will generally be higher/lower if QP prices are higher/lower, though the result is difficult to predict for Alternative 2 where any-gear and trawl-only QP prices might move in opposite directions but would be issued for the same generic northern sablefish QS.*
- *Those who rely on revenue from selling or trading QP to gear switchers may be adversely affected if*
 - *under Alternatives 1 and 2,*
 - *trawl-only QP prices are lower than QP prices would have been under No Action (see previous set of bullets);*
 - *the proportion of their allocations they receive as any-gear QS and/or QP is less than the proportion they usually sell to gear switchers, the price of trawl-only QP is lower than No Action, and any increase in the price of any-*

gear QP relative to No Action is not sufficient to make up for reduced sales/trading opportunity—

- *for Alternative 1, the amount of a person's QS that is converted to any-gear QS is estimated to be 3.6-18.3 percent (Table 20), and*
- *for Alternative 2, the amount of any-gear QP received by non-legacy participants would be either zero (QP Distribution Option 3) or 18.8-29 percent (QP Distribution Options 1 and 2; Table 22 and Table 23);*
- *under Alternative 3, the seasonal constraint substantially reduces demand by gear switchers to levels below what it would have been under No Action and that demand is not made up by demand from trawl vessels (reducing the price of QP).*
- *For those who sell QP to gear-switchers, under Alternatives 1, there would be some opportunity to increase the amount of any-gear QP they receive by trading out (buying/selling) trawl-only for any-gear QS, but at a net cost. Under Alternative 2, the cost and difficulty would likely make such an adjustment prohibitive.*

The action alternatives may impact both the prices for QS and QP and the ability of QS owners to sell or trade their annual allocations of QP to gear switchers. QP prices will be impacted by the effects of the alternatives on the demand for the QP and the amount of QP available for use by gear switchers. QS prices will be impacted in part via the impact on QP prices and in part by the effect of the alternative on the amount of QP that can be sold to gear switchers for any given amount of QS owned. The long-term impact on those who annually sell or trade QP with gear switchers depends on the impact of the action on prices (including both any-gear and trawl-only) and the degree to which the QP they receive can be used by gear switchers. Taking into account these impacts are in line with the SaMTAAC principle of considering the impacts of a limitation on existing operations/investments—modification of quota values is not a purpose of this action.

Under No Action, any QP (i.e., all QP issued for QS) can be sold to and used by gear switchers. Section 2.4.3 provides a discussion of factors that might influence QS and QP prices under No Action. Impacts of the action alternatives, relative to No Action, are discussed in the following paragraphs and summarized in Table 16.

Under Alternative 1, any-gear QP would be issued to any-gear QS owners. Given a limitation on the amount of any-gear QP available, the price of any-gear QP might increase. The greater the amount of gear switching that would have occurred under No Action, the greater the price increase resulting from a limitation on the amount available QP that can be used for gear switching. An any-gear QP price increase would also increase the price of any-gear QS, relative to QS under No Action. The value of trawl-only QP and QS might decline relative to No Action. If market limits or other barriers prevent trawlers from using an increase in availability of QP to increase their harvest of non-sablefish species within trawl complexes, they would likely use the trawl-only QP by increasing the proportion of sablefish in their catch. In the event that those proportions could not be increased sufficiently to use most of the trawl-only QP available, there could be a more substantial decline in the price of trawl-only QP and the associated QS (see Section 4.6.2(a) of the November 2022 analysis for further discussion, [Agenda Item H.3, Attachment 3](#)). Little if any decline would be expected if markets for trawl complexes (e.g., DTS) are further developed as a

result of this action. Successful development of those markets could put upward pressure on the price for both any-gear and trawl-only QP.

Those who rely on selling any-gear QP to gear switchers could be adversely impacted under this alternative. While qualifying gear-switching participants would receive any-gear QS for all their eligible QS, only a portion of non-gear-switching participant owned QS would be converted to any-gear QS (estimated at 3.6-18.3 percent, depending on options selected Table 20). Therefore, only a corresponding portion of the QP received by those entities would be any-gear QP. If the portion of the QP they receive as any-gear is sufficient to cover their typical annual sales to gear-switching interests, there might be no loss of revenue opportunity (and potentially a gain if prices increased). Further, they might see a gain related to higher any-gear QP prices, or, if the portion they receive is not quite sufficient to cover previous transactions with gear-switchers, the revenue difference might be made up by a price increase in any-gear QP. Over the long-term, QS owners that sell to gear-switchers could make up a reduction in opportunity by divesting of trawl-only QS and replacing it with any-gear QS, though the QS cost differences may limit the profitability of such an exchange.

Under Alternative 2, legacy participants would receive all any-gear QP for their eligible QS and non-legacy participants would receive either a portion of their QP as any-gear QP (QP Distribution Options 1 and 2) or none of it (QP Distribution Option 3). One of the main factors influencing the price of both any-gear and trawl-only QP is the amount of any-gear QP issued each year (with the balance being issued as trawl-only QP). Under QP Distribution Option 1, a total of 29 percent of the QP would be issued as any-gear QP; and, as legacy participants divest of QS, the proportion of any-gear QP received by all others would increase (maintaining the total any-gear QP at 29 percent). For QP Distribution Option 2, 29 percent would be issued as any-gear QP at the time of implementation, but as legacy participants divest, the total amount of any-gear QP would decline to 18.8 or 24.1 percent (depending on the legacy participant qualification option selected). Under QP Distribution Option 3, 6.5 or 12.6 percent would be issued as any-gear QP at the time of implementation, but as legacy participants divest, the amount of any-gear QP would decline to zero (Table 15).

Relative to Alternative 1 QP Split Option 1 (29 percent), under Alternative 2, the total any-gear QP available and QP price would likely be

- Comparable under QP Distribution Option 1
- Generally comparable under QP Distribution Option 2, but over time lower in quantity and somewhat higher in price
- Substantially lower in quantity and declining over time (until there is no any-gear QP) and higher in price and increasing over time under QP Distribution Option 3.

Under Alternative 2 QP Distribution Option 1, while the amount of any-gear QP would be the same Alternative 1 QP Split Option 1 (29 percent), the price might be comparable but somewhat lower than Alternative 1 because the QP would be spread across more accounts. In contrast to Alternative 1, there would be no opportunity to consolidate the annually received any-gear QP by consolidating any-gear QS. This would mean higher transaction costs for consolidating the any-gear QP—reducing the value and, hence, selling price. The transaction cost effect would be expected under QP Distribution Option 2 as well and might be more pronounced over time because

there would be less QP in each account than under QP Distribution Option 1. Under QP Distribution Option 3, any-gear QP would have to be bid away from legacy participants, potentially resulting in more of an upward influence on price than if any-gear QP had to be bid away from trawl participants.

Under Alternative 2, while the value of any-gear QP would be expected to increase relative to QP under No Action, the value of trawl-only QP would likely decrease, though this decline would not be expected to be substantial unless trawlers are unable to utilize the available trawl-only QP (either by increasing harvest of complexes or the proportion of sablefish in their catch, as described for Alternative 1). The likelihood of a trawl-only QP decline would be greatest under QP Distribution Option 3 (for which the most trawl only QP, would be issued) and the likelihood of a decrease would increase over time under QP Distribution Options 2 and 3, as the amount of QP issued as trawl-only increases. At the same time, there is some possibility of an increase in the price of trawl-only QP, if the policy of limiting gear-switching is successful in meeting its objective, as discussed for Alternative 1.

Under Alternative 2, QS would not be distinguished by gear-type and therefore there would be a single QS market price, as under No Action. The QS price would be driven by the value of the combination of any-gear QP and trawl-only QP issued for the QS. The balance of impact on QS prices resulting from the increases and decreases in prices for QP for different gear types is difficult to evaluate. However, because Alternative 2 results in a diminishment in the flexibility for the use of the QS, the value would be expected to decrease somewhat—with a substantial decrease occurring only if trawlers are unable to utilize the available trawl-only QP. Alternatively, if constraining gear switching is successful in encouraging market and infrastructure development, there could be an increase in the value of the QS, relative to No Action.

Under Alternative 2, as with Alternative 1, for those who sell or trade QP with gear switchers, if the portion of the QP they receive as any-gear is sufficient to cover their typical annual sales to gear-switching interests, there might be no loss of revenue opportunity. Further, they might see a gain related to the higher any-gear QP prices, or, if the portion they receive is not quite sufficient to cover previous transactions with gear-switchers, the decrease in sales/trades might be made up by a price increase in any-gear QP. For Alternative 2, the amount of any-gear QP received by non-legacy participants would be either zero (QP Distribution Option 3) or 18.8-29 percent (QP Distribution Options 1 and 2; Table 22 and Table 23). The ability of non-legacy participants to restore their previous opportunity to sell or trade QP to gear-switchers would be much more limited under Alternative 2 than Alternative 1, because, for any amount of QS they acquire, any-gear QP would be issued for only a portion of it. Acquiring more QS solely for the purpose of restoring the amount of any-gear QP they have to sell to gear-switchers is not likely to be economically feasible and would be limited by QS control limits.

Depending on the business arrangements of QS owners, their ties to gear switching operations, and the prices for gear specific QP (trawl-only QP in particular) relative to No Action prices for generic QP, the impact of Alternatives 1 and 2 will vary. Utilizing a method developed by the Washington Department of Fish and Wildlife, Figure 10 shows the relationships between QS accounts and gear switching operations from 2011-2021. For a description of the method, see [Agenda Item E.2, Attachment 1](#) from the October 2019 SaMTAAC meeting. For each year, a QS

account is given a “score” that is based on “the amount of QP transferred to [vessel accounts] VAs in the trading network for a particular QSA, crediting the QSA for a certain portion of the QP in each VA within that trading network.” In other words, it shows how much of the QPs that were transferred from a QS account to a VA were used for gear switching (either directly by the initial VA or by other vessel through VA to VA transfer). QS accounts near the x-axis are those with a high degree of connectivity to gear switching operations (shown in purple). While some QS accounts appear to repeatedly have connections to gear switching operations (as indicated by the relative consistency of the color of the bars for each year), other QSAs might have variability in their ties (e.g., those in the middle of the graph). QSAs furthest from the x-axis are those with strong trawling connections. There are some caveats to consider with this analysis that are described in [Agenda Item E.2, NMFS Report 2 from the October 2019 meeting](#)- including how a QS account’s score may be “penalized” for unused QPs.

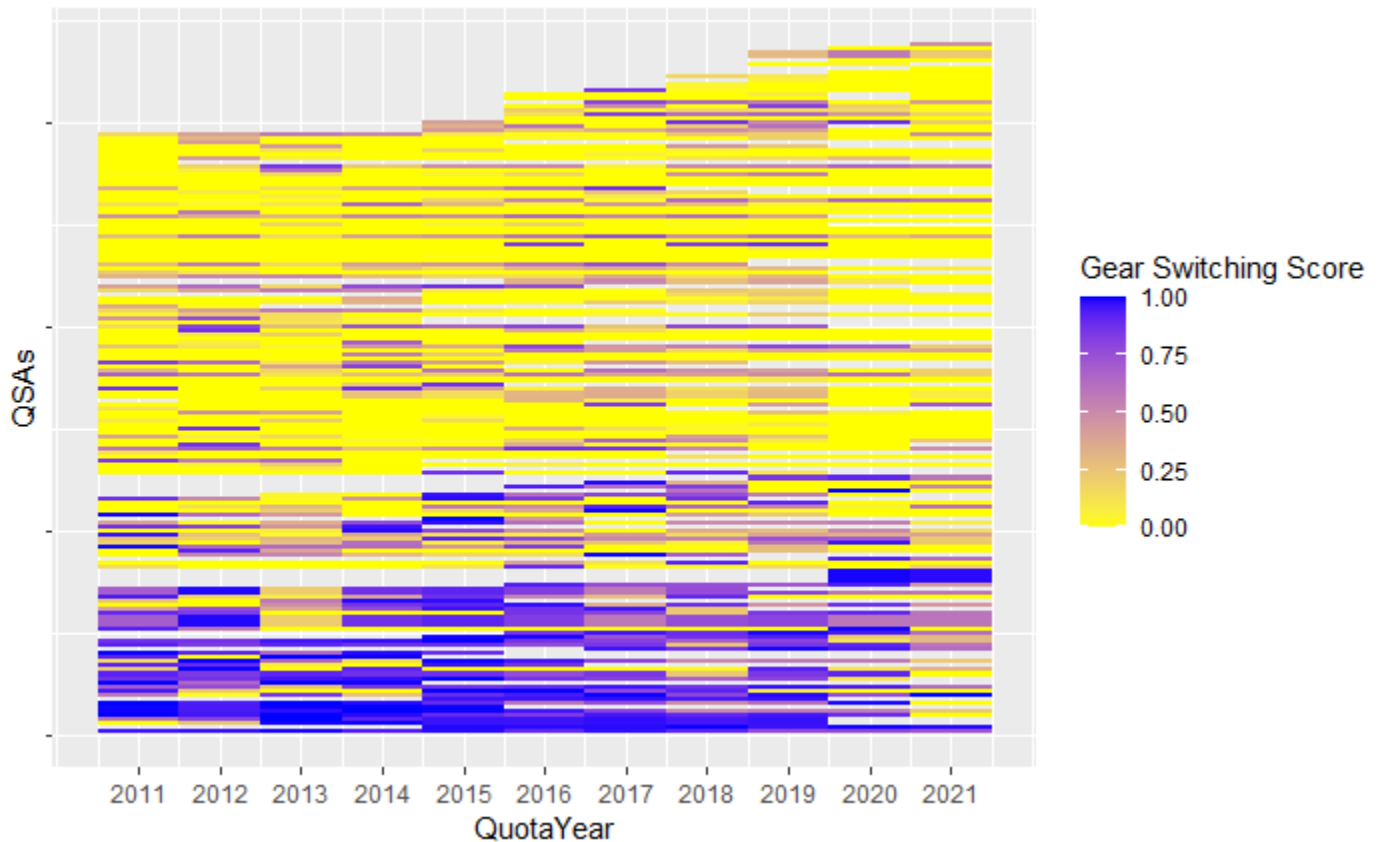


Figure 10. Gear switching “score” of sablefish north QS accounts by year, 2011-2021.

As an example of how this may influence entities under a particular alternative, Figure 11 shows the same information as Figure 10 except for it only portrays those QS accounts that are (or have been) tied to non-legacy participants under Alternative 2, Legacy Option 1 from 2011-2021. Alternative 2 was chosen compared to Alternative 1 as non-qualifiers under Alternative 2 would have the least opportunity to recover the opportunity of selling any-gear QP by acquiring QS as only a portion of the QS they acquire would be issued as any-gear QPs under QP Distribution Options 1 and 2. Those account owners near the x-axis, where there is a strong gear switching score, would potentially be more impacted than those higher up in the graph, depending on the amount of any-gear QPs they would be issued, whether that amount covers their typical

transactions, how much higher the any-gear price is relative to no action, and how much lower the trawl-only QP price is relative to no action, if it is lower (or how diminished the barter opportunities would be). Further investigation into these relationships and scores can be produced at a later date, including for Alternative 1.

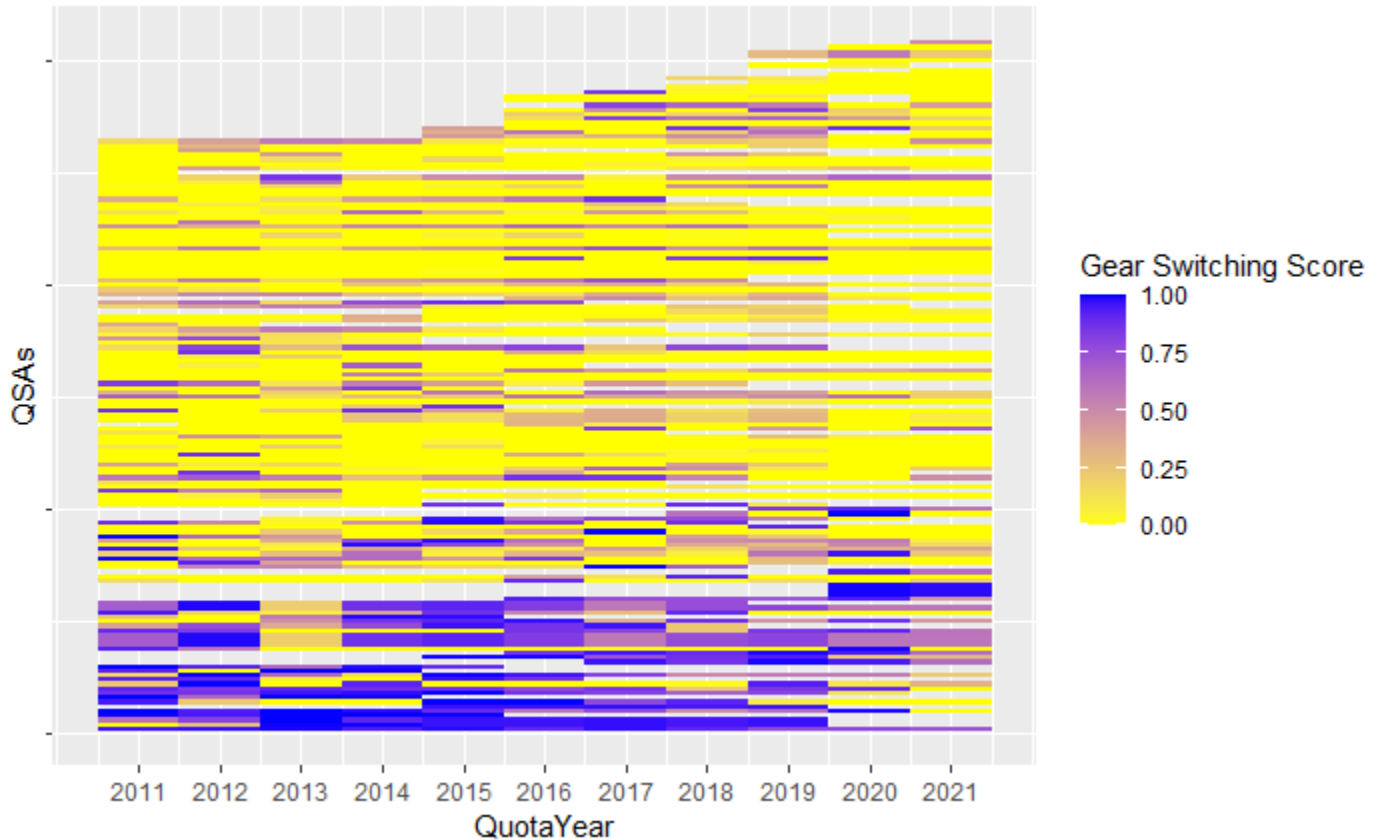


Figure 11. Gear switching “score” of sablefish north QS accounts that are linked to non-legacy participants under Alternative 2, Legacy Option 1 by year, 2011-2021.

Under Alternative 3, the gear switching constraint would be achieved through a season limitation. Relative to No Action, a season limitation might decrease gear switcher demand for QP, particularly if there would have been increases under No Action. This could have some downward influence on QP and QS prices relative to No Action. The degree depends on how constraining the 29 percent limit is. For example, the 2011-2022 gear switching average is 29 percent of the annual allocations. Thus, historically, in some years a 29 percent limit would not have been a constraint while it would have been in others. The maximum gear-switching percentage was 35.3 percent of the allocation, which was nearly fully attained in that that year (2019). It is uncertain how much a 6.3 percent reduction in QP usage by gear switchers (18 percent of all gear switching utilization) would have affected QP price. As market conditions and trawl allocations change, the degree to which a 29 percent limit is a constraint relative to No Action could change substantially, altering the degree to which the limitation impacts quota prices relative to No Action. Similar to what was described for Alternative 2, if constraining gear switching is successful in encouraging

market and infrastructure development, trawl vessel demand could put upward pressure on the value of the QS, relative to No Action.

Table 16. Relative to No Action, impacts of the action alternatives on the opportunity to sell QP to gear-switchers and impacts on quota prices.

	Changes Relative to No Action			
	No Action	Alt 1	Alt 2	Alt 3
QP Price	Driven by combination of trawl and gear-switching demand.	Any-gear QP: increase because of supply decrease. Trawl-only QP: possibility of some decreases (major decreases unlikely unless gear-switching would have grown substantially under No Action) major increases possible if action alternative policy is successful.	Any-gear QP: increase because of supply decrease (lowest for QP Dist Opt 1 and highest for QP Dist Opt 3). Trawl-only QP: possibility of some decreases (major decreases unlikely unless gear-switching would have grown substantially under No Action) major increases possible if policy is successful.	Possibility of a price decrease due to restriction of demand from gear-switchers – likely minor decreases unless gear-switching would have grown substantially under No Action; possibility of major increases possible if policy is successful.
QS Prices	Driven by combination of trawl and gear-switching demand and degree of certainty about future market conditions.	Any-gear QS and Trawl-only QS: similar to changes for QP.	Generic QS price depends on balance between changes in proportions of any-gear & trawl-only QP and their respective prices. For QP Dist Opt 3, overtime all QP becomes trawl-only. QS prices would be expected to decline some unless policy is successful and stimulates trawl demand.	Similar to changes for QP.
Selling QP to gear-switchers—opportunity	Any QP owned can be sold for any-gear	Non-gear switching participants: only a portion of their QS would be converted to any-gear and yield any-gear QP. Relative any-gear and trawl-only QP prices will affect size of impact.	Non-legacy participants: only a portion of their QP is issued as any-gear under QP Dist Opt 1 and 2 and none under Opt 3. The same proportions of any-gear QP under QP Dist Opt 1 and 2, but increasing over time under Opt 2. Relative any-gear and trawl-only QP prices will affect size of impact.	Same as No Action.
Opportunity to adjust amount that can be sold to gear switchers.	Buy more QS.	Replace trawl-only QS with any-gear QS (market transactions). Price differences will impose a cost for such adjustments.	Buy more QS (QP Dist Opt 1 and 2)—but only a portion will be received as any-gear QP—likely not financially feasible. No opportunity under Dist Opt 3.	Same as No Action.

3.3.7 Costs (Implementation and Ongoing)

Summary of main points:

- *NMFS will provide cost estimates after a PPA is selected.*

- *With respect to implementation costs,*
 - *Alternative 1 costs would be relatively low ([Agenda Item G.5, NMFS Report 1](#)).*
 - *Alternative 2 would likely have somewhat lower initial qualification determination costs than Alternative 1 but higher initial programming costs.*
 - *Alternative 3 would have lower implementation costs than Alternative 1 or 2.*
- *With respect to on-going costs,*
 - *Alternative 1 would require little new work ([Agenda Item G.5, NMFS Report 1](#)).*
 - *Alternative 2 would have some ongoing new tasks, but for the most part those tasks might be automated during the implementation phase.*
 - *Alternative 3 would require some ongoing season modelling and the issuance of a notice when closure is required.*

NMFS has stated that it will provide cost estimates after the Council identifies a PPA. For each action alternative, there will be one-time implementation costs and ongoing costs. Council staff generated an initial list of one-time and on-going tasks related to each alternative (Table 17). NMFS might alter these lists as it works through the implementation and on-going tasks more fully.

Evaluating those tasks, the one-time implementation costs appear to be the least for Alternative 3. Alternative 1, in its current form, includes some substantial implementation tasks related to determining initial qualification. At the same time, the NMFS April 2023 report ([Agenda Item G.5, NMFS Report 1](#)) stated that the implementation costs for Alternative 1 would be relatively low (note: the Alternative 2 reference in that report is different from the current Alternative 2). The current Alternative 2 does not contain the number of different allocation criteria included in Alternative 1 but would require developing a more detailed database on permit ownership and more computer program and database modifications to reduce future costs related to ongoing tasks.

With respect to the ongoing tasks, NMFS characterized Alternative 1 as requiring “little additional new work to monitor, manage, and enforce.” Alternative 2, appears to require some additional ongoing tasks, as reflected in Table 17. To a large degree, these tasks might be automated during the implementation phase, but there may be some need for non-programmable interventions. Alternative 3 would require some annual modelling effort to determine when to close the opportunity to retain sablefish while gear switching and the issuance of a notice when a closure is required. That modelling would need to take into account factors like the lag in mortality reporting for discarded sablefish and sablefish mortality that might be expected from sablefish discards by vessels gear switching to target other species (currently, there is little to none of the latter, but this could change over time).

Table 17. Implementation and ongoing tasks related to costs for each alternative.

<p>Alternative 1: Initial implementation costs—</p> <ul style="list-style-type: none"> • Rule changes related to implementation and ongoing tasks. • Modify system to track transfers of a new type of QS and QP (splitting northern sablefish QS/QP into any-gear and trawl-only). • Identify individuals qualifying as gear-switching, non-gear-switching, and if needed, other participants and the amount of QS each gear-switching and non-gear switching owned on the control date. • Convert northern sablefish QS in each account to trawl-only and any-gear QS. <p>Ongoing Costs—</p> <ul style="list-style-type: none"> • Transmit information on gear used on IFQ trips into the data system that monitors QP usage (landings tickets and observer data).
<p>Alternative 2: Initial implementation costs—</p> <ul style="list-style-type: none"> • Rule changes related to implementation and ongoing tasks. • Modify system to track transfers of a new type of QP (splitting northern sablefish QP into any-gear and trawl-only). • Identify individuals that qualify as legacy participants and the amount of QS they owned as of the control date. • Modify QS/QP tracking system to execute the ongoing QP allocation tasks. <p>Ongoing Costs—</p> <ul style="list-style-type: none"> • Transmit information on gear used on IFQ trips into the data system that monitors QP usage (landings tickets and observer data). • Execute any-gear and trawl-only QP allocations (might be automated to a large degree as part of initial implementation but may require non-programmable interventions¹⁰). <ul style="list-style-type: none"> ○ Track legacy participants and their QS holdings over time. ○ Compare legacy participant QS holdings to their control date holdings to determine the amount of QS which will receive 100 percent any-gear QP. ○ For Alternative 2, QP Distribution Options 1 and 2 (no comparable tasks for QP Distribution 3): <ul style="list-style-type: none"> ▪ calculate the ratio of any-gear and trawl-only QP to be issued for all other QS (not required for QP Distribution Option 2), and ▪ calculate a ratio for each account owned at least in part by a legacy participant but for which not all QS is eligible to be issued 100 percent any-gear QP.¹¹ ▪ If the QS attributable to the individual legacy participant is more than owned on the control date and the legacy participant takes part in the ownership of more than one account, request that the legacy participant identify that quota for which 100 percent any-gear QP will be issued (or come up with a default way to address this issue).
<p>Alternative 3: Initial implementation costs—</p> <ul style="list-style-type: none"> • Rule change to specify closure of non-trawl retention of northern sablefish after 29 percent of trawl allocation is projected to be gear switched. • Develop process and mechanism for inseason tracking and projection of gear-specific QP use <p>Ongoing costs—</p> <ul style="list-style-type: none"> • Modelling to project attainment of 29 percent (including projection for outstanding West Coast Groundfish Observer Program discard estimates and post-closure mortality related to discard of sablefish taken while taken with non-trawl gear while targeting on other species—80 percent survival). • Announcement of closure dates.

¹⁰ For example, a legacy participant divests of all QS but reenters the fishery at a later time. Revalidation of the legacy participants status might be required.

¹¹ I.e. legacy participant owned QS accounts where the legacy participant’s QS is more than what they owned on the control date or the account is also owned by a non-legacy participant.

3.3.8 Impacts to First Receivers (Including Processors)

Summary of impacts:

- *Alternative 1 provides FRs and others dependent on gear switching with the opportunity to secure long-term access to the needed any-gear QP by acquiring any-gear QS. It also includes a suboption that would provide an initial allocation of any-gear QS for qualified FRs.*
- *Alternative 2 QP, Distribution Options 1 and 2, provides FRs and others a very limited ability to secure such long-term access but no other avenues for qualifying.*
- *Alternative 2 QP Distribution Option 3 phases out gear switching, and provides FRs no opportunity to secure long-term access to gear-switched landings through QS ownership.*
- *No Action and Alternative 3 do not provide any particular opportunity to secure gear-switching deliveries. Other than capping total gear switched landings, Alternative 3 would not likely disrupt current activities, unless the northern sablefish retention season for gear-switching is substantially shortened.*
- *All the action alternatives are being proposed with the hopes that they will increase harvest of trawl allocations, which benefit FRs receiving those deliveries. If a gear-switching restriction is effective in that regard, Alternative 2 QP Distribution Options 2 and 3 are the two options that would place the greatest limitations on gear switching.*

Under No Action, securing gear-switched caught sablefish requires negotiation with a gear switching vessel, which can be enhanced by owning northern sablefish QS or QP.

Some FRs may qualify as gear-switching participants under Alternative 1 (based on history of vessel ownership) or under Alternative 2 (based on owning a permit with history) and receive 100 percent any-gear QS (Alternative 1) or 100 percent any-gear QP (Alternative 2) for their eligible QS. Alternative 1 provides FRs an alternative qualifying avenue that would allow them an opportunity to receive an initial allocation of any-gear QS either as a gear-switching participant or as a non-gear-switching participant. Alternative 2 provides no alternative qualifying avenues for legacy participant status. Under Alternative 1, FRs, or anyone else, that wants to secure their ability to receive or direct the disposition of gear-switched sablefish can do so to a degree after initial implementation by acquiring any-gear QS (or any-gear QP in season). Because of the limited amount of any-gear quota that would be available for gear switching, ownership of such quota will likely enhance their ability to negotiate with a gear switching vessel. Under Alternative 2, QP Distribution Options 1 and 2, such entities could acquire additional northern sablefish QS, but only a portion of the QP they receive would be distributed as any-gear QP—limiting their ability to secure gear-switched sablefish. Under Alternative 3, the situation would be similar to No Action, except total gear-switched landings may be more limited and the season could be shortened, both of which may increase uncertainty for FRs that receive gear-switched landings.

With respect to securing trawl deliveries, under No Action and Alternatives 3, FRs and others can acquire QS, but such acquisition does not limit gear switching and ensure more quota for trawler deliveries until something around 70 percent or more of the QS is secured to be used for trawl deliveries. Under Alternative 1, an FR interested in ensuring that QP is available for trawlers, to

the exclusion of gear switchers, could secure any-gear QS. While that acquisition might benefit, as a whole, the group of those with an interest in trawl caught fish, it would not necessarily provide more trawl landings for the particular FR that acquires the any-gear QP. Under Alternative 2, QP Distribution Options 1 and 2, acquisition of QS as a way to pre-empt gear switching would be a tactic of even more limited value, since any-gear QP would be issued for only a portion of the QS. However, each of the action alternatives would provide a degree of certainty that gear switching will not expand and undermine FRs and other's opportunities to benefit from investments in equipment and marketing. Further, Alternative 2 provides options (QP Distribution Options 2 and 3) that would reduce gear switching the most, potentially eliminating it, which might provide more certainty of trawl access and therefore encourage investments that support trawl gear harvest.

3.3.9 Impact to Communities

Summary of main points

- *Under Alternatives 1 and 2, the impacts to communities will be driven by the distribution of gear switching opportunity to qualified gear switchers and how that distribution can change over time (e.g., consolidation of any-gear QS under Alternative 1 and exit of legacy participants from the fishery under Alternative 2).*
- *Under Alternative 3, seasonal approach, the impacts to communities will depend on whether the gear switching limitation results in changes in the location of gear switching.*

Gear-switching opportunities, whether increased, decreased, or eliminated, may impact communities through their effect on vessel and fish receiving activities in the community, including processors. The potential effects include changes in income for community residents that own vessels, permits, QS and FRs/processors; that work for those harvesting and fish receiving operations; and that own or work for businesses providing support to those business (e.g., a business providing maintenance services to vessels or processors). As the income of owners and those directly or indirectly employed in the harvest and fish receiving sectors change, their expenditures in the communities will change, impacting other residents and potentially amplifying the effect of the change on the community. While reduction or elimination of gear switching would likely reduce gear switching activity in some ports, it would also free up northern sablefish QP that might provide additional bottom trawl opportunities (unless other factors are constraining bottom trawling). If trawling activity increases, those ports with recent trawl landings might benefit from that expansion, depending on how additional trawl landings might be distributed. That distribution would be influenced by the geographic distribution of the trawl strategies likely to benefit from a reduction in gear switching (primarily DTS, but potentially other strategies as well) and whether the ports have the infrastructure to process larger amounts of trawl caught groundfish.

With respect to the effects on gear-switching operations and related economic activity in the communities, all three action alternatives may constrain the total amount of gear switching below what would have occurred under No Action. This constraint would be even greater if there would have been an expansion of gear switching under No Action (see Section 2.4 for discussion). Alternative 2, QP Distribution Option 3 would likely have the biggest immediate impact to gear switching dependent communities—as only legacy participants would receive any-gear QPs at levels lower than historic fleet gear switching levels. The distribution of the reduction in gear switching among communities is difficult to predict under any alternative, but analysis in [Agenda](#)

[Item H.3, Attachment 3, November 2022](#) provides a summary of existing geographic distributions of gear switching and the communities most likely to be impacted.

The disruption that Alternatives 1 and 2 may impose on gear-switching reliant communities will vary depending on the ability of gear-switchers in the community to acquire any-gear QP either through receiving a direct allocation (of any-gear QS under Alternative 1 or an annual allocation of any-gear QP under Alternative 2), acquiring any-gear QS (Alternative 1 only) or acquiring any-gear QP from others each year. Gear-switching operations that do not qualify as a historical gear switcher under either alternative or who qualify but also rely on acquiring QPs annually will be more reliant on acquiring any-gear QP each year. Communities that have more qualifying gear switchers that own the eligible QS necessary to cover their activities (whether selling or using themselves) will likely experience the least amount of disruption in the beginning. Other gear switchers will be reliant on the any-gear QS or QPs distributed across non-qualifiers. In addition to community income from gear-switching related activities, QS owner income may be redistributed among communities depending on where those QS owners live. Ultimately it is difficult to predict.

Over time, under Alternative 1, the ability to purchase any-gear QS allows communities to secure their gear-switching activity by acquiring and consolidating the any-gear QS. Thus, Alternative 1 provides an easier opportunity for the existing distribution to remain unchanged—if existing gear-switchers consolidate any-gear QS distributed among non-gear switchers, rather than having to aggregate the available any-gear QP each year. Under Alternative 2, there is only a limited opportunity to do so as legacy status is not transferable and for any amount of QS acquired, only a small portion of the QP issued would be any-gear QP (and none under QP Distribution Option 3). As legacy participants divest of QS, the distribution of any-gear QP will change. Under QP Distribution Option 1, the 29 percent will become more broadly distributed across all QS account holders and the communities in which the QS owners reside. Under QP Distribution Option 2, the remaining any-gear QPs will be similarly distributed—just at the reduced level. QP Distribution Option 3 would have no gear switching opportunity.

Overall, communities that are gear switching dependent will likely see more negative impacts related to disruption of gear switching under Alternative 2 compared to Alternative 1. However, they may be able to counter those losses with trawling or other fishing opportunities. If gear switching is limiting trawl attainment, then assuming that trawl communities utilize the available sablefish, those communities will likely see benefits due to increased landings into ports. If gear switching is not limiting trawl attainment though, then gear-switching communities may see an overall net loss.

Under Alternative 3, the seasonal approach, the impacts to communities could be similar to No Action as gear switching levels could fluctuate under both but would be capped at 29 percent under Alternative 3. Additionally, if the limitation at 29 percent were to change fishing behavior, in that gear switching vessels wanted to ensure that were able to gear switch before the cap was hit, they may shift their effort to earlier in the season. The ability to shift effort earlier in the season would be dependent on weather conditions and other competing opportunities—both for the vessels and the processors. If there is a shortening of the seasons under Alternative 3, differences in weather conditions and competing fishing opportunities for different regions of the coast could result in

changes in the geographic distribution of gear-switching activity along the coast, impacting ports in different regions differently. Section 4.3 provides an initial analysis on spatio-temporal patterns of gear switching and where shifts in activity may influence communities.

3.3.10 Biological Impacts

In terms of biological impacts, this section finds that:

- *With respect to the action alternatives, for a given level of gear switching,*
 - *the mechanism selected to limit gear switching would not be expected to result in substantially different biological impacts,*
 - *except that under Alternative 3, if the season substantially shorten, due to competition among gear switchers or with vessels using trawl gear, gear-switching effort might be shifted to earlier in the year and to different geographic areas, which might change the biological impacts.*
- *Impacts to sablefish will be similar to No Action under any of the action alternatives; and any changes to impacts to other groundfish species resulting from the action alternatives are uncertain and will be dependent on how trawlers respond to a limitation of gear switching and increases in available sablefish.*

The preliminary analysis of alternatives in November 2022 ([Agenda Item H.3, Attachment 3, November 2022](#)) provided a summary on previous analysis related to biological impacts of the range of alternatives being considered at that time.

For sablefish, it is likely that impacts to the stock resulting from changes in the gear used to harvest it would be similar to No Action under any of the action alternatives in the short and long term. Two previous analyses by former stock assessment teams showed similar depletion results whether 100 percent of the trawl allocation was taken by trawl or fixed gear. If gear-switching is limiting trawl activity, restricting gear switching could increase impacts to non-sablefish groundfish. Regardless, as all groundfish species are managed with QPs (for IFQ species) or trip limits (non-IFQ species), it is expected that all mortality will be within those impacts disclosed in the appropriate EA for the harvest specifications of the year of implementation.

Trawl and non-trawl gears typically interact differently with protected and prohibited species. Therefore, action alternatives that change the relative amounts of trawl and non-trawl effort within the IFQ sector may have some impact on protected and prohibited species. A preliminary evaluation indicates that there is not substantial reason for concern about the impacts to prohibited and protected species from the action alternatives effect on the relative amounts of trawl and non-trawl effort. These impacts will be discussed in more detail in the analysis produced for selection of the PPA and final preferred alternative. In terms of impacts that might distinguish between the action alternatives, the timing and area of gear switching activity could change depending on the mechanism used to limit it and other factors that influence when the gear switching may occur. As described in Section 3.3.4, Alternatives 1 and 2 would allow gear switching participants to operate when and where they wish—as long as they had the sufficient any-gear QPs to harvest sablefish. Under Alternative 3 though, there is the potential for regulation driven shift in timing and area of catch depending on whether changes in fishing behavior and conditions result in the season significantly shortening. Section 4.3 provides some details on the seasonality of the fishery

and how seasonality might change under changing fishery conditions. At this time there is not enough information to definitively distinguish between Alternative 3 and the other action alternatives based on biological impacts, but if Alternative 3 is selected as a PPA, a more in-depth evaluation will be conducted. Regardless of the possibility of a change to biological impacts, vessels would still be subject to mitigation measures, and the Endangered Species Workgroup would continue to report biennially on the status of the fisheries compared to current biological opinions.

3.4 Summary of Impacts from Action Alternative Design Elements and Gear Switching Control Mechanisms

The following table summarizes some of the main contrasts covered in Sections 3.2 and 3.3.

Table 18. Summary of Impacts from Action Alternatives

	Alt 1	Alt 2	Alt 3
Gear Switching Control Mechanism	Gear-Specific QS	Gear-Specific QP	Seasonal Management
Specific Design Elements			
Amount of GS Allowed	Up to 29% in short and long term	0-29%	29% in short and long term
Qualification			
Gear-Switching History Evaluated	Personal history as a vessel owner.	History of the permit a person owns on the control date.	N/A
Requirement to hold qualifying permit or vessel	May divest of vessel after qualifying landings made.	Must hold permit continuously from control date until implementation.	N/A
Requirement to hold QS	Must hold QS on the control date and at the time of implementation (may divest between).	Must hold QS on the control date and at least some QS through to the time of implementation.	N/A
Other bases for qualification as gear-switcher	Membership in a QS owner group ^a Membership in a registered Co-op ^b First Receiver	None	N/A
Expiration of gear switching opportunity	No	Yes, for legacy participants. Depending on options selected, could eliminate gear switching.	N/A
Breadth of Distribution of Gear Switching Opportunity			
Gear-switching opportunity initially provided for:	Gear-switching and non-gear-switching participants	Dependent on QP Distribution Option selected	Same as No Action

	Alt 1	Alt 2	Alt 3
Gear Switching Limitation Mechanism Driven Differences			
Likelihood of Attaining Gear Switching Maximums	Initially high for portion owned by gear switching participants; lower for QS/QP owned by others but increasing over time as QS/QP transfers and consolidation occurs	High for any-gear QPs owned by legacy participants, lower for QP owned by others and decreasing over time as legacy participants exit fishery (unless any-gear QP is only distributed to legacy participants)	Moderate (Under No Action, 29 percent was exceeded in 6 of 12 years—6 of 10 if COVID years are excluded)
Changes to Access Privileges	GS requires any-gear QP Long-term access to any-gear QP available through any-gear QS acquisition.	GS requires any-gear QP Only a portion or no any-gear QP (depending on options) will be issued for QS owned by non-legacy participants. Legacy participant status is not transferable.	No new access privilege required to gear switch.
Fisherman Flexibility	Gear-specific QS and QP divisible/ separately transferable. Easy to scale level of harvesting.	Generic QS (not gear-specific) and gear-specific QP. Flexibility to acquire any-gear QP similar to Alt 1 but limited ability to secure long-term access to any-gear QP due to generic nature of the QS.	Could become more constrained if seasonal measure becomes necessary.
Manager Flexibility— Responding to Changing Conditions by Changing Gear Switching Levels	Adjust by: allocating more total QP to one type of QS OR allocating opposite type of QP to a particular QS type (e.g., issue trawl-only QP to any-gear QS holders in order to decrease gear switching.)	Comparable to Alt 1 but simpler for some options and approaches under Alt 2, if adjustments need be made only for non-legacy participants.	The analytic, rule-making, and administrative burdens would likely be lower than for the other action alternatives. Increases would be uncomplicated but substantial reductions in gear-switching could trigger other management concerns (e.g., short seasons and timing of season opening dates).

	Alt 1	Alt 2	Alt 3
Impact on QS/QP Value	Split QS/QP Market with QS prices driven by QP values for the respective gear-specific quota. Relative to No Action, any-gear QP prices will likely increase. A successful policy could also result in trawl-only QP prices increasing.	A single QS market in which QS prices will be driven by a mix in the value of trawl-only and any-gear QP.	N/A
Costs—Implementation	Relatively low.	Determination costs likely somewhat lower than Alt 1, but programming costs likely somewhat higher.	Lowest.
Costs—Ongoing	Little new work required.	Some ongoing new tasks (many likely automated)	Some ongoing season modelling and closure notices.
Impacts to FRs/Processors	FRs considered in initial allocation. Opportunity to secure long-term access by acquiring any-gear QS.	FRs not explicitly included in initial allocations. Limited or no opportunity to secure long-term access by QS acquisition.	Same as No Action unless gear switching season is substantially shortened
Impacts to Communities	Any-gear QS can be aggregated and, depending on who acquires, redistributed to match the existing distribution of gear-switching or among different communities.	Any-gear QP will be more dispersed and cannot be aggregated. Might be more likely to result in a redistribution of gear-switching activity among communities.	Season limitations, if substantial, could result in geographic redistribution.
Biological Impacts	For sablefish, similar to No Action. For non-sablefish groundfish, dependent on trawl response. Uncertain for other species.	Similar to Alternative 1.	Similar to Alternative 1, unless season shifts significantly.

^a Requires at least one member to qualify based on vessel criteria.

^b Requires at least one member to qualify based on vessel criteria and for QP to be transferred to that member.

4.0 ANALYSIS OF SPECIFIC ELEMENTS OF THE ALTERNATIVES

This section is intended to provide a more detailed examination of some of the unique elements of each action alternative. If the Council chooses to select elements from one alternative and incorporate it into another alternative for the iPPA, this analysis should be able to provide a preliminary understanding of the impacts of that addition.

4.1 Alternative 1—Gear Specific QS

In November 2022, [Appendix 2.0 of Attachment 3](#) provided an in-depth analysis of how QS types would be issued across participant types under the QP Split Options, including both the individual and collective approaches. The following section provides a higher level assessment of the revised

participation options and QP Split Options adopted by the Council in November 2022 and April 2023.

As in November 2022, “current” QS holders are specified as those that owned northern sablefish QS at the end of 2021. Changes in the amounts of QS in the accounts between the end of 2021 and the implementation date may alter the results of this analysis. Additionally, the QP Split Option chosen affects the amount of QS converted (issued as) to any-gear and trawl-only. QS Split Option 1 issues any-gear QS in amounts equivalent to 29 percent of the trawl QP allocation (26.1 percent allocated QS plus 2.9 percent of the AMP QS). QP Split Option 2 issues any-gear QS in amounts equivalent to the smaller of 29 percent of the trawl QP allocation and 1.8 million pounds with the remainder issued as trawl-only QS. Therefore, for QS Split Option 2, any allocation in excess of 6.2 million pounds would be restricted to 1.8 million pounds of any-gear QPs. In 2021, the sablefish north allocation was 6,921,611 pounds and 29 percent of that allocation would be over 2 million pounds. Therefore, under QP Split Option 2 for this analysis, the cap would be 1.8 million pounds any-gear QPs. This poundage equates to approximately 26.0 percent of the QPs in 2021—which would be 23.4 percent of the QS being issued as any-gear QS. If the Council chooses Alternative 1 as the iPPA, the analysis can be updated with more recent data through 2022.

Table 19 below shows the number of individuals that would qualify as a gear-switching participant via the various pathways (as an individual with vessel history, being part of a QS ownership group, a co-op, or a FR) under each gear-switching participant and conversion option. Table 20 shows the distribution of any-gear QS among gear-switching and non-gear switching participants across the two conversion options, the gear-switching participant qualification options and for each QP split option. The first row only includes those individuals that would qualify based on individual vessel history or from being part of a QS ownership group (i.e., first two rows of Table 19). As noted in Table 9 above, participants involved in co-ops and the corresponding QS amounts would not be available until the time of implementation. As described in Attachment 1, Conversion Option 1 would issue 100 percent of eligible QS as any-gear to those qualifying under either gear-switching participant option where Conversion Option 2 would issue 100 percent of eligible QS as any-gear only to those qualifying under Gear-Switching Participant Option 2 and 50 percent to those under Gear Participant Option 1. For those qualifying only under Option 1, 50 percent of their eligible QS would be issued at the same ratio issued to non-gear switching participants.

For example, under Conversion Option 1 and Gear-Switching Participant Option 1, there would be 32 individuals that would qualify based on their personal gear switching history as a vessel owner and three that would qualify based on their history of being in a QS ownership group (Table 19). Those 35 participants would be issued a total of 19.8 percent QS (22 percent of the QPs) as any-gear QS (Table 20). There would be 6.3 percent QS (7 percent of the QPs) and 3.6 percent QS (4 percent of the QPs) that would be issued across all non-gear-switching participants under QP Split Options 1 and 2, respectively (to be reduced by any amounts of QS owned by those that would qualify as gear-switching participants via co-op memberships). Under Conversion Option 2, where both gear-switching participant options are chosen, 15 percent QS (16.7 percent of the QPs) would be issued as any-gear to qualified gear-switching participants. With the selection of the FR Suboption, an additional three individuals would qualify (Table 19) with an associated 1.3 percent of the QS being issued as 100 percent any-gear. This would reduce the amount received

by non-gear-switching participants, as can be seen by comparing values in the top of Table 20 with those on the bottom.

The amount of any-gear QS that could be issued to non-gear-switching participants is significantly affected by the conversion option, gear switching participation option, and the QP split option and will be impacted to a lesser degree by whether or not the FR Suboption is selected. Of note, under Gear-Switching Participant Option 1, which qualifies the most number of participants across either Alternative 1 or 2, there is relatively little any-gear QS that would end up in the accounts of non-gear switching participants. This is particularly true under QP Split Option 2, where, using 2021 as the example year, the total percentage of QS to be converted to any-gear is less than the 26.1 percent that would be converted under QP Split Option 1. Depending on the number of qualifiers resulting from co-op transfers, non-gear-switching participants could receive minimal, if any, any-gear QS. For some sets of options, a contingency policy might be needed in case the amount of QS owned by gear-switching participant qualifiers was in excess of the total amount of gear-switching to be allowed.

Table 19. Number of Individuals Qualified by Alternative 1 Conversion Options and Gear Switching Participation Option.

Conversion Option	Conversion Option 1		Conversion Option 2
GS Participant Option	GS Participant Option 1	GS Participant Option 2	GS Participant Options 1 and 2
Vessel History	32	13	32
QS Ownership Group	3	0	3
Co-Op	TBD	TBD	TBD
First Receiver	3	3	3

Table 20. Distributional Impacts of Alternative 1 Conversion Options, Gear Switching Participation Option, and QP Split Options across participant types.

	Conversion Option 1				Conversion Option 2	
	GS Participant Option 1		GS Participant Option 2		GS Participant Options 1 and 2	
	QP Split Option 1	QP Split Option 2	QP Split Option 1	QP Split Option 2	QP Split Option 1	QP Split Option 2
Total Any-Gear QS issued to						
GS Participants	19.8		7.8		15	
Non-GS Participants	6.3	3.6	18.3	15.6	11.1	8.4
Total	26.1	23.4	26.1	23.4	26.1	23.4
	With First Receiver Suboption (1.3% QS)					
GS Participants	21.1		9.1		16.3	
Non-GS Participants	5.0	2.3	17.0	14.3	9.8	7.1
Total	26.1	23.4	26.1	23.4	26.1	23.4

The decision on the non-gear switching participant option determines how the remaining any-gear QS (sixth row and second to last row of Table 20) is allocated. Under Non-Gear-Switching

Participant Option 1, it would be spread across all QS owners that owned QS on the control date. For Option 2, it would be spread across a smaller subset of individuals that were associated with sablefish north bottom trawl landings in the two years prior to implementation. Table 21 shows the numbers of individuals that would qualify under each non-gear-switching participant option. As in November 2022, this analysis uses 2019-2020 data for the bottom trawl landings history to develop the estimate for Non-Gear-Switching Participant Option 2. If the Council selected Alternative 1 as the iPPA, then this analysis could be updated to more recent data. Regardless of the years selected, if there is opportunity between Council action and the year of implementation, under Option 2, additional vessels could find ways to log bottom trawl landings in order to receive some any-gear QS as a qualified non-gear-switching participant. The Council could also include the FR Suboption to Non-Gear Switching Participant Option 2 (these entities would already be included under Option 1, since all that is required under that option is ownership of QS on the control date).

Table 21. Number of individuals that would qualify under non-gear switching participation options based on each gear-switching participant option

GS Participant Option	Number of Individuals that Receive Any-Gear QS Under..		
	Non-GS Option 1	Non-GS Option 2	Non-GS Option 2 with FR Suboption
GS Option 1	160	45	52
GS Option 2	179	51	58

4.2 Alternative 2—Gear Specific QP

Under Alternative 2, any-gear and trawl-only QPs would be issued to QS accounts holders based on their history as a qualified gear switcher (i.e., legacy participant). Legacy participants would receive 100 percent any-gear QPs for their eligible QS. QS owned by non-legacy participants (as well as any QS amounts owned by legacy participants in excess of their control date holdings) would be distributed in a ratio based on the QP Distribution Option selected and the qualification option for legacy participants (Legacy Option).

Under QP Distribution Options 1 and 2, the initial ratio issued for non-legacy participants would be the same and would result in 29 percent maximum level of gear switching at the time of implementation (second to last columns of Table 22 and Table 23, respectively). Under QP Distribution Option 3, no any-gear QP would be provided for non-legacy participants and the maximum at time of implementation would be determined by the amount of eligible QS owned by legacy participants. QP Distribution Options 1 and 2 differ in terms of how the ratios change as legacy participants divest themselves of QS. As that happens, QP Distribution Option 1 would maintain an overall any-gear QP level of 29 percent by increasing the any-gear QP portion of the ratio allocated to non-legacy participants until that portion is 29 percent any-gear QP. Under QP Distribution Option 2, the any-gear QP level would decline because the ratio would not be adjusted (last column of Table 22 and Table 23). This leads to a somewhat counter intuitive outcome when the over-time result from QP Distribution Option 2 combined with Legacy Option 1 (18.8 in the last column of Table 22) is compared to that result for Legacy Option 2 (24.1 percent in the last column of Table 23). Legacy Option 1 is less restrictive than Legacy Option 2, providing nearly double the amount of any-gear QP to legacy participants at the time of implementation (first

column of Table 22 and Table 23). Once the legacy participants leave, a more restrictive level of any-gear QP continues to be issued under Legacy Option 1, the less restrictive qualifying option (18.8 percent, last column of Table 22), as compared to result Legacy Option 2 (24.1 percent, last column Table 23).

Table 22. Distribution of any-gear QPs to legacy and non-legacy participants, ratio of any-gear and trawl only QPs issued to non-legacy participants, and maximum amount of gear switching at implementation and over time by QP Distribution Option for **Legacy Option 1**.

QP Distribution Option	Any-Gear QPs Issued to		QP Ratio Issued to Non-Legacy Participants (Initially)			Maximum Amount of Gear Switching	
	Legacy Participants	Non-Legacy Participants ^{a/}	Any-Gear	Trawl-Only	Changes Over Time?	At Implementation	Over Time
1	12.6	16.4	18.8	81.2	Yes ^{b/}	29	29
2		16.4	18.8	81.2	No	29	18.8
3		0	0	100	No	12.6	0

a/ Includes individuals that did not qualify as a legacy participant and the QP equivalent of the QS a legacy participant owns in excess of the control date holdings.

b/ Increases to a maximum of 29 percent.

Table 23. Distribution of any-gear QPs to legacy and non-legacy participants, ratio of any-gear and trawl only QPs issued to non-legacy participants, and maximum amount of gear switching at implementation and over time by QP Distribution Option for **Legacy Option 2**.

QP Distribution Option	Any-Gear QPs Issued to		QP Ratio Issued to Non-Legacy Participants (Initially)			Maximum Amount of Gear Switching	
	Legacy Participants	Non-Legacy Participants ^{a/}	Any-Gear	Trawl-Only	Changes Over Time?	At Implementation	Over Time
1	6.5	22.5	24.1	75.9	Yes ^{b/}	29	29
2		22.5	24.1	75.9	No	29	24.1
3		0	0	100	No	12.6	0

a/ Includes individuals that did not qualify as a legacy participant and the QP equivalent of the QS a legacy participant owns in excess of the control date holdings.

b/ Increases to a maximum of 29 percent.

4.3 Alternative 3—Seasonal Management

Under Alternative 3, retention of sablefish north via gear switching could continue until 29 percent of the allocation was attained or projected to be attained. This section attempts to provide a background on the historical trends of the seasonality of gear switching along with factors that could influence those trends in the future.

During the first seven years of the program, gear switched landings tended to be fairly flat through June (with the exception of 2012), with the landings amounts accumulating quickly after June (Figure 12). Starting in 2018 however, there appears to be more of an uptick in catch at the beginning of the year and having a more gradual slope throughout the year (until about September). This trend can also be seen in Figure 14, where the percentage of catch occurring in earlier months is higher in recent years.

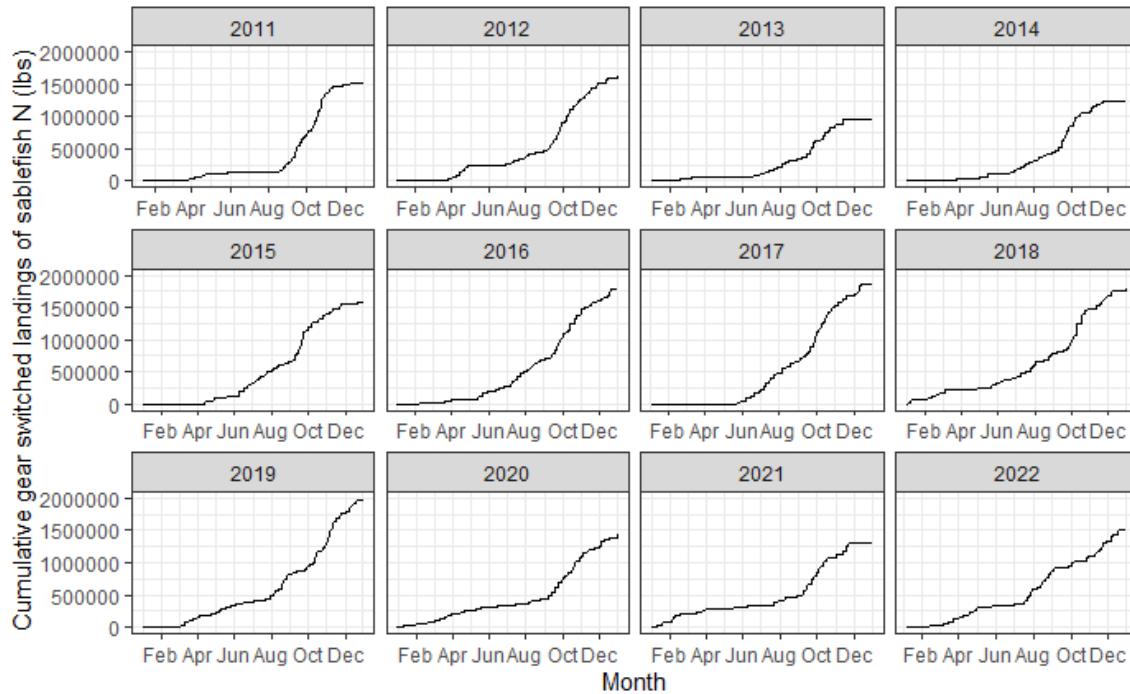


Figure 12. Cumulative gear switched landings by month and year, 2011-2022.

The majority of gear switched catch (both in terms of total catch and percent of allocation) has historically occurred in September and October with the exception of 2019 and 2022. The highest two months in those years were August and November. If under Alternative 3, the fleet was able and intended to harvest at least 29 percent or more of the allocation, it is likely that some of those vessels that typically operate in November and December (to the right of the black line in Figure 15) would have to adjust their fishing dates to fully harvest their intended amount. Ultimately, some vessels would have their desired fishing levels truncated. Historically, the majority of vessels in the gear-switching fleet have taken half of their total annual catches by September or October. Overtime, economic and fishery conditions that encourage vessels to gear switch at levels greater than 29 percent may lead to vessels fishing even more at the beginning of the year—potentially increasing the likelihood of reaching 29 percent and closing even earlier. If vessel behavior were to change and vessels fished more earlier in the year or if the fleet size were to expand (see discussion in Section 2.4 on factors that may influence future gear switching levels), it is possible that an early season closure could occur.

If the season shortens, not only could timing of gear switched landings be impacted temporally on a coastwide level, but also spatially. While the proportion of gear switching landings have been relatively stable over time (with Oregon taking the majority of landings each year), there have been shifts in the timing of those landings (Figure 13). Recently landings into California have shifted earlier in the year in the last four years where Oregon typically sees landings starting in June and Washington’s pattern has been inconsistent. If Alternative 3 were to result vessels fishing earlier to ensure the ability to gear switch, regional differences in opportunity related to weather and other conditions may influence the geographic distribution of landings.

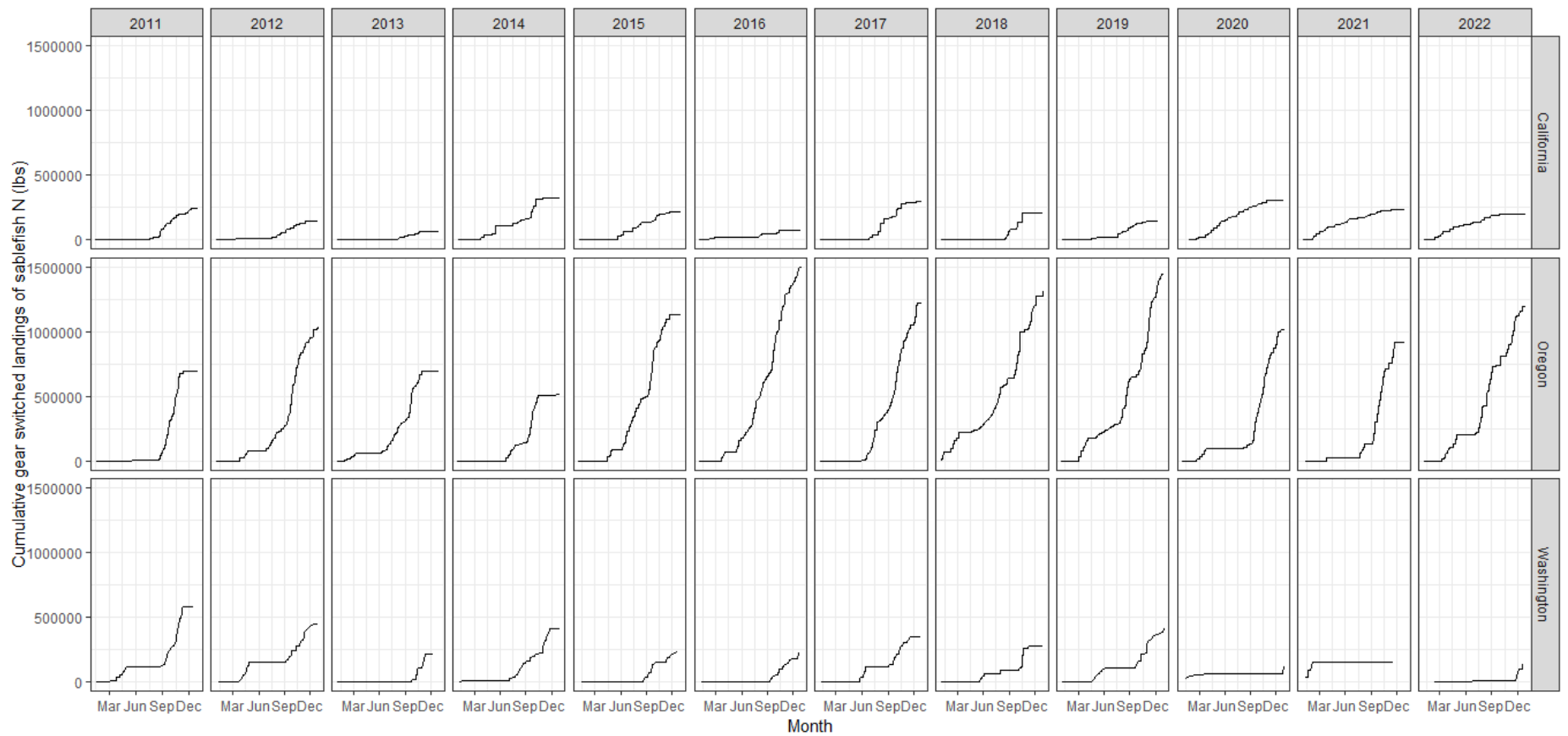


Figure 13. Cumulative distribution of gear switched landings of sablefish north annually by state and year, 2011-2022.

Competing opportunities (discussed in Section 2.4.4) may also influence the temporal distribution of gear switching. Vessels and processors may prioritize fisheries such as Dungeness crab or Alaska sablefish at the beginning of the year maintaining a similar start time as under No Action. The presence of these opportunities might inhibit the development of an early season emphasis on gear switching. On the other hand, given that tier sablefish could be taken later in the year starting in 2023, vessels that typically fished their tier quota and then IFQ may reverse the order to ensure access to the gear switching allocation in the IFQ sector.

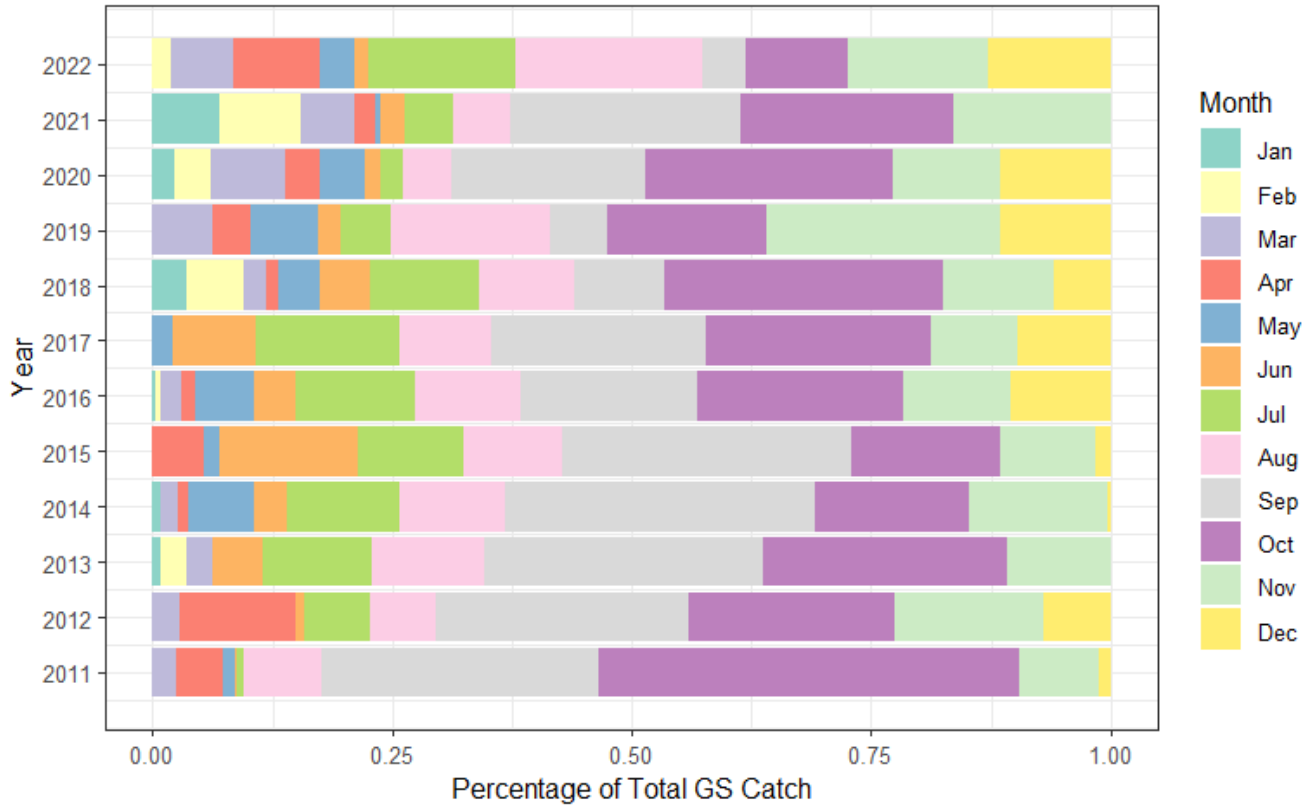


Figure 14. Percentage of total gear switched catch of sablefish north by month, 2011-2022

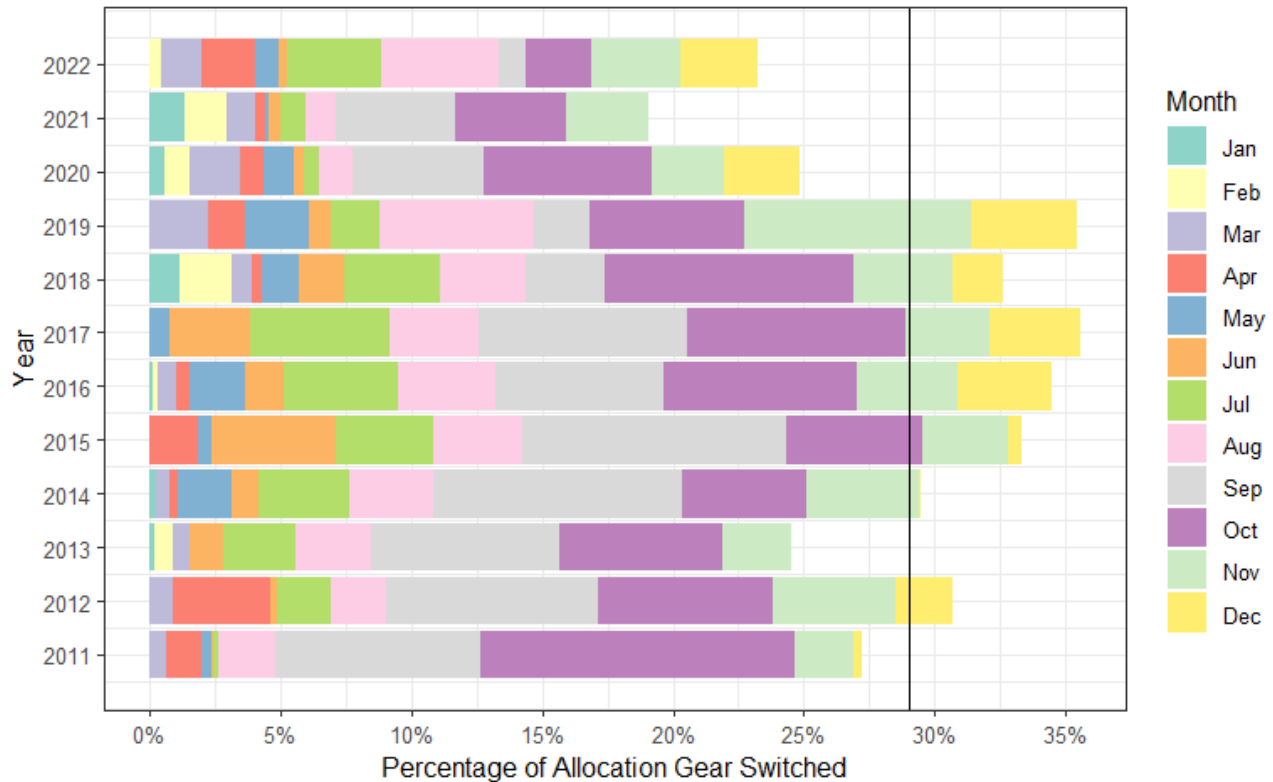


Figure 15. Percent of sablefish north IFQ allocation gear switched by month and year, 2011-2022. 29 percent shown as reference line in black.

While the 29 percent is a limit on gear switching, whether it reduces the season is ultimately dependent on whether or not gear switching vessels have the quota and capacity to catch the 29 percent. For example, if trawl vessels catch in excess of 71 percent of the allocation, it would further limit the amount that is available for gear switching. Looking at historical trawl catch of sablefish north by month (Figure 16), the trends over the 2011-2022 time series generally appears to be more stable compared to the gear switching trends (Figure 15). There have only been two years in which trawl catch of sablefish was greater than 71 percent—2013 and 2022 (Figure 17). These two years represent the lowest and the second highest allocations on record. In 2013, the year of the lowest sablefish allocation and level of gear switching (Table 1), the majority of catch was made by bottom trawl vessels (~76 percent) with whiting vessels taking 0.04 percent. In 2022 however, every fishery in the IFQ program utilized sablefish QPs and often at a higher rate—with shoreside whiting taking the most QPs over the time series (12.5 percent of the catch). If trawl vessels were able to utilize more than 71 percent of the allocation—whether through direct targeting of sablefish, increased bycatch, or lower allocations with similar vessel capacity—then the amount of gear switched landings would potentially decrease, reducing the chances that gear-switchers will exceed 29 percent and increasing the likelihood of year-round gear-switching.

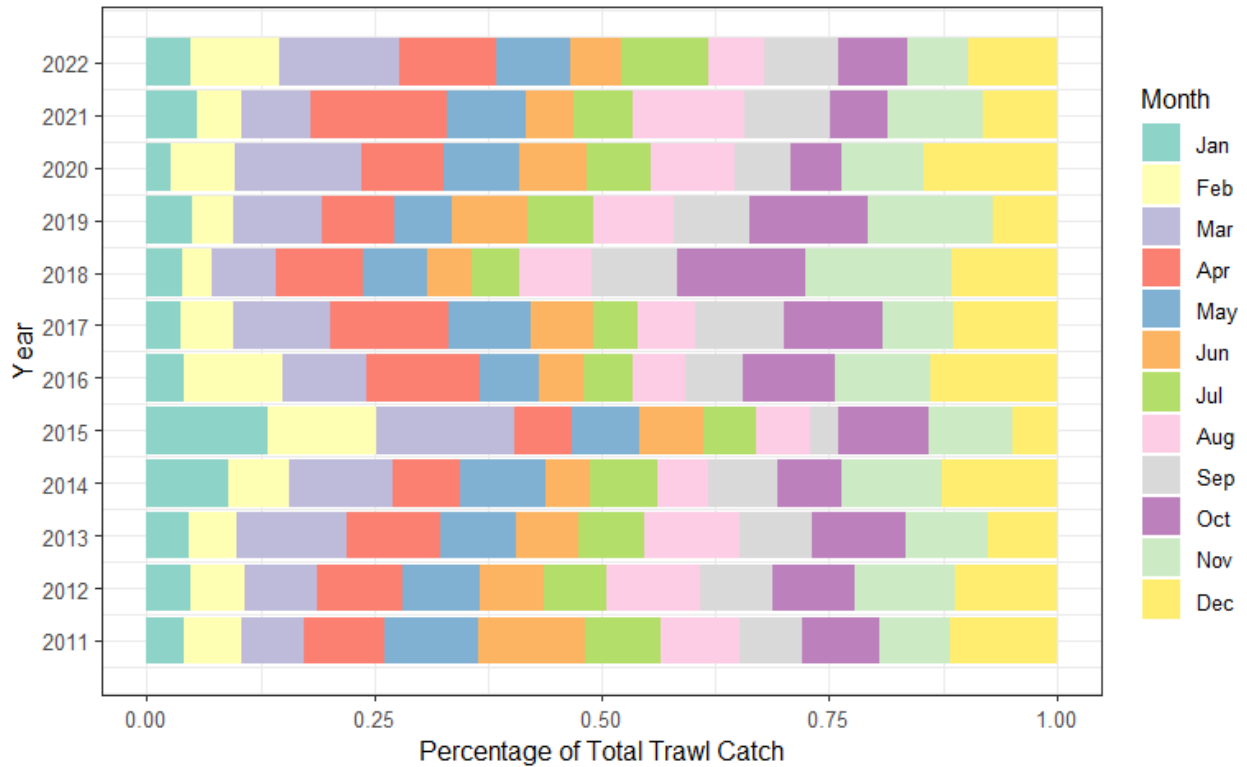


Figure 16. Percentage of total trawl catch of sablefish north by month, 2011-2022

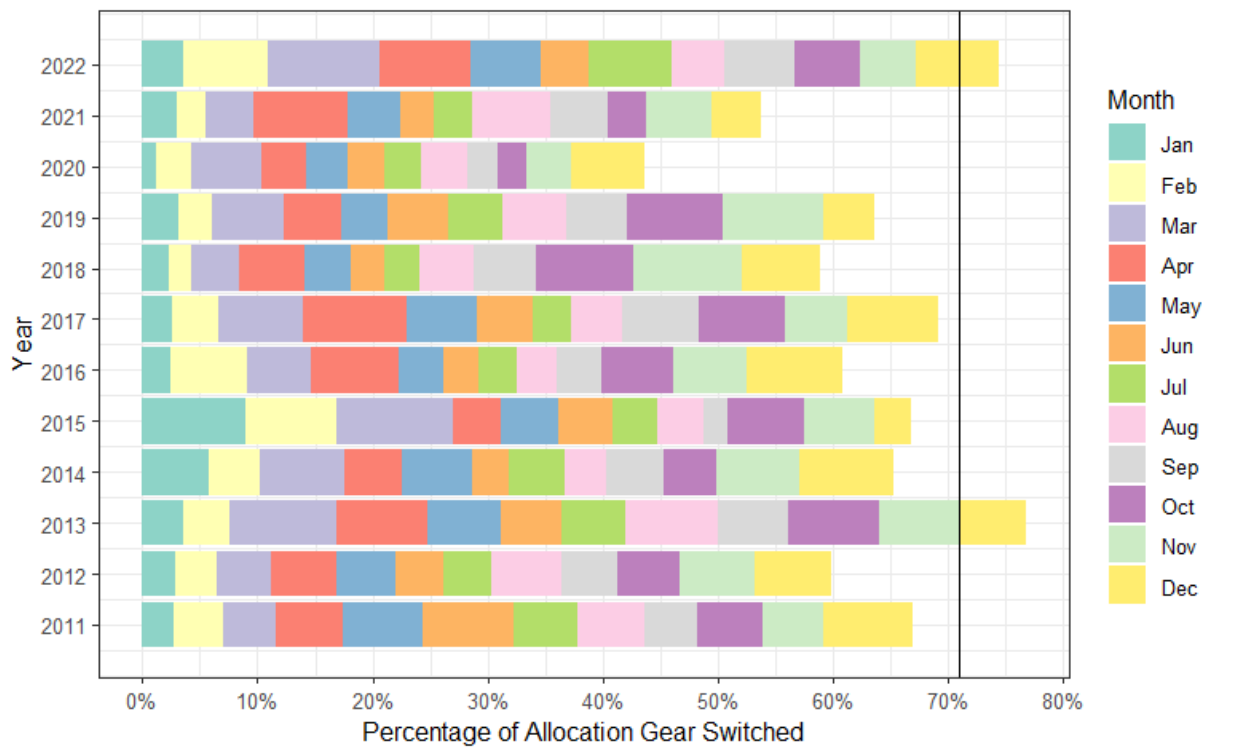


Figure 17. Percentage of sablefish north IFQ allocation caught by trawl gear 2011-2022. 71 percent shown by black line.

Overall, factors that might cause a shortening of the season include but are not limited to:

- How do gear switchers respond in the following year if they do not catch their intended amount of fish in a particular year because the fishery closes—do they
 - decide to fish a little earlier in the following year in order to utilize their QP or
 - buy less QP or plan to sell any QP they can't use.
- Number of pounds provided by the 29 percent limit (as ACLs decline 29 percent is a smaller total amount of QP).
 - If gear switchers buy and use the same amount of QP but the ACL has gone down, the 29 percent will be reached more quickly. (Then the bullet one question, in the following year do they arrange to hold less QP or fish earlier).
- Higher market prices for fixed gear caught sablefish and/or reduced profit opportunities in other fisheries.
- A Council decision to reduce gear switching by reducing the trigger that closes the season (see Section 3.3.5).

Overall, factors that might result in maintaining a year-round gear switching season include:

- Gear-switcher response – see previous list first bullet, second sub-bullet.
- Trawl gear vessel use of more than 71 percent of the QP.
- Lower market prices for fixed gear caught sablefish and/or greater profit opportunities in other fisheries.