

Analysis to Inform Selection of Final Preferred Alternative for Sablefish Gear Switching

Analysis of the range of gear-switching alternatives and preliminary preferred alternative (PPA) adopted by the Pacific Fishery Management Council (Council) at its November 2023 meeting.

Table of Contents

1.0	Introduction.....	9
1.1	Purpose and Need.....	9
1.2	Guiding Principles.....	9
1.3	Key Considerations and Where They Are Addressed in this Document.....	10
1.4	Public Process	10
2.0	Description of the Fishery and Analysis of Problem.....	14
2.1	Fishery Context and Sectors.....	14
2.2	Trawl/Non-trawl (Fixed Gear) Sablefish Allocation: Origin and Levels of Gear Switching	16
2.3	History of Trawl Under Attainment.....	21
2.4	Potential Causes of Trawl Allocation Under Attainment.....	26
2.4.1	Trawl Vessel Participation as a Limit on Attainment (Including Relative Profits)	27
2.4.2	Market Limits – Domestic Markets and Competing Imports	29
2.4.3	Infrastructure Limitations (Physical)	35
2.4.4	Management System Design.....	37
2.4.5	Competing Uses for Sablefish QP, Including Gear Switching.....	40
2.5	Factors that Might Alter or Indicate Future Gear Switching Levels.....	51
2.5.1	Normal Variation and Extraordinary Events	52
2.5.2	Sablefish Biomass and Changing ACLs.....	52
2.5.3	Sablefish Market Prices (Exvessel and QP).....	54
2.5.4	Conditions in Cross-Over Fisheries	56
2.5.5	Latent and Underutilized Permits	61
2.5.6	New Entrants and Effects of Control Date	61
2.5.7	Trends in QS Acquisition by Gear Switchers.....	62
3.0	Alternatives	64
3.1	Description of Gear Switching Control Mechanism by Alternative.....	64
3.2	Alternatives and Options Considered but Rejected Early On.....	65
4.0	Summary of Analytical Results.....	66
4.1	Comparison of Action Alternatives Design and Mechanism.....	66
4.1.1	Impacts of Design– Differences Driven By Specific Design Elements	66
4.1.2	Impacts Tied to Gear-Switching Control Mechanism	71
4.1.3	Summary of Impacts from Action Alternative Design Elements and Gear Switching Control Mechanisms.....	79
4.2	MSA National Standard Analysis	83
4.2.1	NS1 – OY.....	83
4.2.2	NS 2 – Best Scientific Information.....	85
4.2.3	NS 3 – Management Units.....	86

4.2.4	NS 4 – Allocation.....	86
4.2.5	NS-5—Efficiency	93
4.2.6	NS-6—Contingencies	95
4.2.7	NS-7—Cost Minimization	97
4.2.8	NS-8—Communities.....	98
4.2.9	NS-9—Bycatch.....	100
4.2.10	NS-10—Safety	100
4.3	Other MSA Required Considerations	101
4.3.1	303(b) (Discretionary Provisions) & MSA 303A (Limited Access Privilege Programs).....	101
4.3.2	303(a)(9) Fishery Impact Statement	102
4.4	Groundfish FMP Goals and Objectives	103
4.4.1	Goal 1 – Conservation (Objectives 1-5).	103
4.4.2	Goal 2 – Economics (Objectives 6-8).	104
4.4.3	Goal 3 – Utilization (Objectives 9-11).....	105
4.4.4	Other Social Factors (Objectives 12-17).....	106
4.5	RIR Summary and Cost Benefit Analysis.....	108
4.5.1	Elements of the RIR and Their Location in this Document.....	108
4.5.2	Cost Benefit Analysis	108
4.6	Initial Regulatory Flexibility Analysis Summary	116
4.6.1	Description of why action by the agency is being considered.....	118
4.6.2	Statement of the objectives of, and legal basis for, the proposed rule.....	118
4.6.3	A description and, where feasible, estimate of the number of small entities to which the proposed rule will apply; and a description and estimate of economic effects on entities, by entity size and industry.	118
4.6.4	An explanation of the criteria used to evaluate whether the rule would impose “significant” economic effects.....	119
4.6.5	An explanation of the criteria used to evaluate whether the rule would impose effects on “a substantial number” of small entities.....	119
4.6.6	A description of, and an explanation of the basis for, assumptions used.	119
4.6.7	Reporting and recordkeeping requirements	120
4.6.8	Relevant Federal rules that may duplicate, overlap or conflict with the proposed rule: 120	
4.6.9	Certification	120
4.7	Other Applicable Law	120
4.7.1	Executive Order 13175 Consultation and Coordination with Indian Tribal Governments.....	120
4.7.2	Paperwork Reduction Act (PRA).....	121
5.0	Contributors	121
5.1	Primary Authors	121
5.2	Other Contributors.....	121
6.0	References.....	121
7.0	APPENDIX: Detailed Analysis of Impacts	123
7.1	Approach to Analysis of Impacts	123
7.1.1	Challenges.....	123
7.1.2	Analytical Scenarios and Short- and Long-Term Impacts.....	125
7.2	Physical Environment Impacts.....	126
7.3	Biological Impacts.....	127
7.3.1	Fishery Resources	127
7.3.2	Other Biological Resources	127

7.4	Overall Trawl Fishery Harvest, Exvessel Revenue and Attainment.....	129
7.4.1	Short Term Impacts: Gear Switching Scenarios.....	129
7.4.2	Long Term Impacts.....	133
7.4.3	Alternative Specific Short-Term Impacts.....	134
7.4.4	Alternative Specific Long-Term Impacts.....	139
7.5	Efficiency.....	139
7.6	Vessels and Vessel Groups.....	142
7.6.1	Harvester Flexibility.....	142
7.6.2	Sectors.....	144
7.6.3	Vessel Strategy/Size.....	144
7.7	Recent (Post-Control Date) and Future New Entrants.....	145
7.8	LEP and QS Owners.....	147
7.8.1	Trawl LEP Owners.....	147
7.8.2	QS Owners.....	148
7.9	Crew.....	158
7.10	First Receivers and Processors.....	159
7.11	Communities.....	163
7.12	Governance: Fishery Management System.....	167
7.12.1	Management Costs.....	167
7.12.2	Regulatory Complexity.....	172
7.13	General Public and Consumers.....	173
7.14	Impact Summary.....	174
8.0	APPENDIX: Alternative Design – Overarching Issues.....	174
8.1	Control Date.....	174
8.2	Allocation of Gear Switching Opportunities to QS Owners, Permits and Vessels.....	175
8.2.1	Alternative Specific Impacts.....	177
8.2.2	Recent Entrants.....	180
8.2.3	Additional Opportunities for Qualification.....	181
8.3	Determination of Qualification Criteria.....	182
9.0	APPENDIX: Alternative Design – Alternative Specific Issues.....	183
9.1	Alternative 1—Gear Specific QS.....	184
9.2	Alternative 2 and the PPA—Gear Specific QP.....	187
9.3	Alternative 3—Seasonal Management.....	187
9.4	PPA--Gear-Specific QP When Criteria Are Met.....	194
9.4.1	Impacts of Switching to Generic QP in Some Years.....	195
9.4.2	Analysis of ACL Trigger.....	198
9.4.3	Analysis Percent Gear-Switching Trigger.....	205
10.0	APPENDIX: Background Information.....	212
10.1	Trawl Sector Fleet Descriptors.....	212
10.2	DTS Haul Characteristics.....	217
10.3	Communities.....	219
10.4	VCNR for Trawl DTS and Other Strategies in Comparison to Fixed Gear.....	225
10.4.1	Additional Information on Sablefish Price Effects on Relative Profitability....	227
10.4.2	Nature of DTS Trips Most Likely Constrained by Gear-Switching.....	228
10.5	Additional Information on Markets for DTS Species.....	229
10.5.1	DTS Prices.....	229
10.5.2	Sablefish Prices by Grade.....	229
10.5.3	2007-2010 Dover Market Expansion.....	233
10.6	Petrale and Pink Shrimp Interaction With DTS.....	236
11.0	APPENDIX: Gear-Switching Endorsement Alternative.....	238

List of Tables

Table 1. Steps in the consideration of the trawl allocation attainment and gear switching issues, within the Council forum..... 11

Table 2. History of trawl/non-trawl sector allocations of sablefish..... 18

Table 3. 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 (GS) vessels and permits, 2011-2023 Source: catch from 2011-2022 GEMM; catch from 2023 IFQ database; participants from PacFIN..... 20

Table 4. Trawl sector attainment of annual QP allocations (values over 100 percent are covered with carry-over QP or deficit carry-overs)..... 24

Table 5. Presence of infrastructure by port, current and change (as of 2017) since implementation of the catch share program, along with presence of FR businesses, change over the course of the IFQ program and whether FRs in the port are receiving trawl or fixed gear deliveries. (Source: Catch Share Program Review, 2017; PacFIN; WCR Permit Data; and publicly available information on business ownership)..... 36

Table 6. 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, 2016-2019,2020, and 2023. Source: PacFIN 42

Table 7. Variable cost net revenue (\$) per 1,000 lbs of sablefish (quota earnings and costs are not included in analysis) (Source: NWFSC EDC Program)^{a/} 43

Table 8. VCNR per pound of sablefish by target by percentile for vessels by target strategy (2017-2021) (Source: NWFSC EDC Program). 46

Table 9. Variable cost net revenue per pound of sablefish by target by decile for trips (2017-2021) (Source: NWFSC EDC Program). 47

Table 10. Percent of **sablefish** landings by weight for trips grouped by decile based on variable cost net revenue per pound of sablefish, as displayed in Table 10 (2017-2021) (Source: NWFSC EDC Program). 48

Table 11. Variable cost net revenue per pound of sablefish by target by decile (DTS and gear-switching trips in 2017) (Source: NWFSC EDC Program). 49

Table 12. Effect on revenue per metric ton from increasing the proportion of sablefish in the catch. 50

Table 13. Number of IFQ gear switching (GS) vessels that also participated in the LEFG tier fishery by the number of tier permits registered in a given year, number of gear switching vessels that did not crossover to the LEFG tier fishery, and total IFQ gear switching vessels, 2011-2022. 58

Table 14. Range of number of vessels that only gear switched and did not participate in the LEFG tier fishery by gear type and average of gear switched landings, 2011-2014, 2015-2018, and 2019-2022. 59

Table 15. Annual sablefish north QS amount owned by gear switching permits and vessels within a given year, 2011- 2022. 63

Table 16. Amount of sablefish north QS owned by vessels that gear switched anytime between 2011-2022 64

Table 17. Amount of QS owned in 2015-2022 by vessels that GS anytime between 2015-2022 64

Table 18. Range of the amount of gear switching allowed in the short and long term by Alternative..... 67

Table 19. Summary of a preliminary assessment of some of the allocation related quantitative impacts of each alternative.....	69
Table 20. Changes to the nature of the trawl allocation access privileges for each of the action alternatives.....	74
Table 21. Summary of Impacts from Action Alternatives.....	79
Table . Allocational contrasts between the alternatives.....	89
Table 24. Maximum share of gear switching opportunity achievable.....	92
Table 25. Qualitative comparison of costs relative to no action.....	97
Table . Summary of indicators of potential constraints on attainment of the trawl allocations. (see Section 2.4).....	110
Table 27. Factors that indicate that future gear switching levels may be higher or lower than those seen thus far during the IFQ program.....	112
Table 28. Summary of costs and benefits of action alternatives in comparison to no action (including non-monetized impacts), assuming that gear-switching is constraining trawl allocations.	113
Table 29. Differences from Table 27 if gear-switching is not constraining trawl allocations (assuming that the sablefish QP go unused).	116
Table 29. Number of IFQ vessels (all landings) and number of trawl and gear switching vessels that caught sablefish north, 2019-2023.....	119
Table 31. Alternatives ordered by relative degree of restriction on gear switching.....	126
Table 32. Summary of changes under the indicated gear switching levels applied retroactively to 2013, 2019, and 2021, assuming gear switching is constraining trawl harvest and trawlers do not change their species mixes in response to changing sablefish availability. Changes in landings (millions of lbs) and revenue (millions of \$2022 dollars) for gear switching, non-whiting trawl competitive strategies, and overall net change. Change in non-whiting trawl attainment. Grey rows indicate where actual gear switching levels were already below the proposed gear switching level.....	130
Table 33. For a 6 percent reduction in gear switching in the specified year, changes to landings, exvessel revenue, and trawl attainment, based on the information provided in Table 32 (\$2022).	130
Table 34. Range of actual revenue per metric ton of trawl landings in strategies competitive to gear switching in 2019 and the hypothetical revenue per metric ton if gear switching were reduced to 0, 12, 20, or 29 percent retroactively and trawlers took the additional sablefish by increasing the proportion of sablefish in their catch, while average price per pound was maintained.....	131
Table 35. Summary of changes under gear switching levels applied retroactively to 2013, 2019, and 2021, assuming gear switching is not constraining trawl harvest and trawlers change their species mixes in response to changing sablefish availability. Changes in landings (millions of lbs) and revenue (millions of \$2022 dollars) for gear switching, non-whiting trawl competitive strategies, and overall net change. Change in non-whiting trawl attainment. Grey rows indicate where actual gear switching levels were already below the proposed gear switching level.	132
Table 36. For a 6 percent reduction in gear switching in the specified year, changes to landings, exvessel revenue, and trawl attainment, based on the information provided in Table 35 (\$2022).	132
Table 37. Amount of any-gear QS and corresponding QPs (including AMP) that GS and non-GS Participants would receive under QP Split Options, Conversion Options, and GS Participation Options for Alternative 1. Note- first receiver sub option qualifiers included.	135

Table 38. Maximum any-gear allocation under QP Split Option 2 (1.8 million pounds), expressed as a percentage of the estimated trawl allocation. ^{a/}	137
Table 39. Opportunity for recent (post-CD) or new (post-implementation) gear switching participants relative to established participants receiving an initial allocation of opportunity based on history—or, relative to all established gear-switching participants with respect to alternatives under which there would not be a direct allocation of the gear switching limit (Alternative 3 or the PPA in years for which the trigger is met).	146
Table 40. For Alternative 2 and the PPA for years in which trigger is not met, 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/}	147
Table 41. Number of gear-switching vessels that leased or owned the trawl limited entry permit used to fish, 2011-2021.	147
Table 42. Relative to No Action, impacts of the action alternatives on the opportunity to sell QP to gear-switchers and impacts on quota prices.	152
Table 43. Number of QSAs associated with non-qualifiers by gear switching score under Alternative 1 Gear Switching Participation Option 1.	156
Table 44. Number of QSAs associated with non-qualifiers by gear switching score under Alternative 1 Gear Switching Participation Option 2.	156
Table 45. Number of QSAs associated with non-legacy participants by gear switching score under Alternative 2 and the PPA.	156
Table 46. Classification of qualified gear switchers by QS ownership survey results (2021) by alternative and option.	157
Table 47. Classification of 2022 QSAs associated with qualified gear switchers (Table 34) by QS ownership groups by alternative and option.	158
Table 48. Classification of 2022 QSAs not associated with qualified gear switchers by QS ownership groups by alternative and option.	158
Table 49. Number of businesses that purchased IFQ deliveries from 2016-2019 by the average proportion of revenue paid to vessels in years actively purchased and the range of average ex-vessel revenue paid by those businesses (millions of 2021\$).	162
Table 50. Average revenue (millions) by port group and sector (GS= Gear Switched, Non-DTS= Bottom Trawl Other than DTS) from 2018-2022. Distinct count of vessels and dealers by sector and port group from 2018-2022. “c” denotes a confidential strata.	165
Table 51. Implementation and ongoing tasks related to costs for each alternative.	169
Table 52. Qualitative summary of relative complexity of the action alternatives (See Section 7.12.1(b) for additional discussion of complexity related to future modifications).	172
Table 53. Basic elements of Alternative 1 and 2 qualification criteria and post implementation criteria.	177
Table 54. Number of individuals qualifying under Alternative 1 and number qualifying and not qualifying under Alternative 2 (the PPA), by qualification option (qualification via group or co-op membership or qualified first receiver status not included).	178
Table 55. Number of individuals qualifying under Alternative 2 (the PPA) 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).	179
Table 56. Number of vessels that gear switched a given amount of sablefish north by the number of years (2011-CD)	183
Table 57. Number of permits that gear switched a given amount of sablefish north by the number of years (2011-CD).	183

Table 58. Number of Individuals Qualified by Alternative 1 Conversion Options and Gear Switching Participation Option.....	185
Table 59. Distributional impacts (amounts of any-gear QS and any-gear QP issued) of Alternative 1 Conversion Options, Gear Switching Participation Option, and QP Split Options across participant types.	186
Table 60. Number of individuals that would qualify under non-gear switching participation options based on each gear-switching participant option	187
Table 61. 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.....	187
Table 62. Gear-specific QP issuance decision rules, if the sub-option is included (also see Figure 33).	195
Table 63. Triggers within the range and corresponding trawl allocations.....	200
Table 64. Retrospective evaluation of years in which gear specific QP would be issued using the ACL criteria alone (GSp QP = gear specific QP would be issued, SQ QP indicates that QP would not be gear-specific, i.e. generic or status quo QP).	201
Table 65. Northern sablefish ACLs, gear-switching levels, and percent trawl attainment for 2023-2025.	201
Table 66. Retrospective evaluation of years in which gear specific QP would be issued using the ACL and gear-switching percentage criteria in combination (GSp QP = gear specific QP would be issued, SQ QP indicates that QP would not be gear-specific, i.e. generic or status quo QP underlined values are the results that changed when the criteria were combined).	201
Table 67. Retrospective evaluation of years in which gear specific QP would be issued using the ACL and gear-switching percentage criteria in combination (GSp QP = gear specific QP would be issued, SQ QP indicates that QP would not be gear-specific, i.e. generic or status quo QP underlined values are the results that changed when the criteria were combined).	211
Table 68. Number of vessels with sablefish north landings by sector compared to total IFQ vessels coastwide, 2011-2022. Note- vessels can be included in multiple sectors each year.....	213
Table 69. Number of trawl vessels by strategy, 2018-2022.	213
Table 70. Number of vessels by vessel category (bottom trawl only, midwater trawl and bottom trawl) by total west coast revenue bin (2018-2022).....	215
Table 71. Number of gear switching vessels by total west coast revenue (\$2022). 2020-2022 combined for confidentiality.....	217
Table 72. Coastwide Ports by IOPAC Port Group with Groundfish Landings by Sector. (Whiting= Shoreside whiting, DTS= Dover sole-thornyhead-sablefish, Non-DTS=Non-whiting trawl other than DTS, IFQ-GS= gear switching, LEFG= Limited Entry Fixed Gear, OA= Open Access groundfish) Average Revenue from all species (millions) and average revenue from groundfish (millions), 2018-2022. “X” denotes a groundfish landing in that sector from 2018-2022. “c” represents strata with fewer than three vessels or dealers.	222
Table 73. VCNR per pound of sablefish for 20 th percentile DTS vessels and corresponding percentile for gear-switching vessels.	228
Table 74. Percent of petrale landings by weight by decile defined by variable cost net revenue per pound of sablefish (2017-2021).	228
Table 75. Evessel prices per pound of sablefish north by sector and grade, 2009-2022, PacFIN ^{a/} (internal reference: Dahl_All_Prices(SABL_N)_GearGroupComb_Grades_RndDr.xlsx).....	230
Table 76. Millions of dollars of sablefish north by sector and grade, 2009-2022, PacFIN ^{a/} (internal reference: Dahl_All_Prices(SABL_N)_GearGroupComb_Grades_RndDr.xlsx).....	231

Table 77. Millions of pounds of sablefish north by sector and grade, 2009-2022, PacFIN ^{a/}
 (internal reference: Dahl_All_Prices(SABL_N)_GearGroupComb_Grades_RndDr.xlsx)..... 232

List of Figures

Figure 1. Shorebased IFQ utilization of non-whiting species, 2011-2023. 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 ...	22
Figure 2. Breakdown of unharvested shorebased IFQ of non-whiting species from Figure 1 into three species groups: Dover sole, midwater (canary, widow, and yellowtail) and all other non-whiting IFQ species, 2011-2023. Left panel: Percent of total allocations for all species left unharvested. Right panel: Total amount of quota pounds (QPs) left unharvested.	23
Figure 3. 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.	25
Figure 4. Trawl northern sablefish allocations and trawl gear catch and allocation attainment from 2005-2022.	26
Figure 5. Number of non-whiting trawl vessels using trawl gear, 2006-2022.	27
Figure 6. Average non-whiting trawl sector landings (mt; A) and revenue not adjusted for inflation (B) by period and vessel group (stable, re-entered fishery, entered fishery, or exited in following period).	28
Figure 7. Total cost net revenue per vessels while fishing in non-whiting strategies, 2009 through 2021. Source: The FISHEyE application maintained by NOAA Fisheries, NWFSC on Updated October 8, 2023.	29
Figure 8. 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.	32
Figure 9. Pounds of Dover sole landed and exvessel prices for fish delivered for the fresh market (2007-2011). (Source: PacFIN Comprehensive Fish Ticket Database). Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx;Average_Prices.....	32
Figure 10. Pounds of Dover sole landed above \$0.30 per pound and at or below \$0.30 per pound (2001-2020). (Source: PacFIN Comprehensive Fish Ticket Database). Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx; Dover_Prices (non-confid).	33
Figure 11. Import volume of processed fresh and frozen (top panel) and fresh (bottom panel) tilapia and catfish and limited entry trawl gear landings of Dover sole and northern sablefish (excluding gear switching). (Sources: NOAA Fisheries Foreign Trade Data and PacFIN Answers Database).....	35
Figure 12. Total volume of nonwhiting groundfish delivered shoreside on the west coast (round weight, 2001-2022).....	37
Figure 13. VCNRs for DTS trawlers and gear-switching vessels 2009 through 2021. Source: The FISHEyE application maintained by NOAA Fisheries, NWFSC, Updated September 29, 2023.	44
Figure 14. Trip-level variable cost net revenue per day by target and three years (2013 (green, circles), 2019 (orange, triangles), 2020 (purple, squares), 2021 (pink, pluses) (Source: NWFSC EDC Program).	45
Figure 15. Catch ratio of Dover sole to sablefish on bottom trawl hauls with Dover and sablefish north present, 2002-2022. Sources: WCGOP.	51

Figure 16. Average real price per round weight pound for trawl sector and LEFG sablefish north, by gear type (2009-2023) and QP prices per pound (2011- 2023). (Source: PacFIN and WCR Quota Pound Price Data). Internal reference: Sablefish and QP Prices_2024_02.xlsx.....	55
Figure 17. Levels of gear switching compared to difference between exvessel price per pound delivered and northern sablefish prices QP prices. Internal reference: Sablefish_TrawlAlloc_QP_Varability_StatAnalysis.xlsx.....	56
Figure 18. NPFMC Sablefish TACs (2011-2023).(Source: NMFS, Fisheries Catch and Landings Reports in Alaska).....	57
Figure 19. Number of tier permits that vessels which participate in gear switching and crossed over to the LEFG fishery would require to cover their gear switched landings, 2011-2022 (only includes vessels with 3 stacked permits).	59
Figure 20. Number of tier permits required to cover gear-switched landings made with pot gear by gear switching vessels that did not fish in the LEFG Tier fishery in the same year.....	60
Figure 21. Cumulative number (lines) compared to yearly count (bars) of permits and vessels with participation in the gear switching fishery, 2011-2022.	62
Figure 22. Gear switching “score” for the 170 QS accounts with sablefish north by year, 2011-2022.....	154
Figure 23. Number of FR licenses (solid line) and associated businesses (dashed line) by year, 2011-2022.	159
Figure 24. Percentage of IFQ bottom trawl and gear switched landings from 2011-2022 by type of IFQ GF purchased by FRs (All=midwater, bottom trawl, gear switched, BT=bottom trawl only, BT/GS=bottom trawl/gear switched, GS=gear switched only). Note that due to confidentiality, the “All” category in 2021 includes less than 3 FRs that purchased only bottom trawl and gear switched landings.....	161
Figure 25. Illustration of cycle of low demand and low utilization.....	162
Figure 26. Cumulative gear switched landings by month and year, 2011-2022.....	188
Figure 27. Cumulative distribution of gear switched landings of sablefish north annually by state and year, 2011-2022.....	190
Figure 28. Percentage of total gear switched catch of sablefish north by month, 2011-2022	191
Figure 29. Percent of sablefish north IFQ allocation gear switched by month and year, 2011-2022. 29 percent shown as reference line in black.	192
Figure 30. Percentage of total trawl catch of sablefish north by month, 2011-2022.....	193
Figure 31. Percentage of sablefish north IFQ allocation caught by trawl gear 2011-2022. 71 percent shown by black line.....	193
Figure 32. QP issuance based on ACL trigger only.....	195
Figure 33. QP issuance based on ACL criteria and the gear-switching level QP criteria.	195
Figure 34. Historic, current, and projected northern sablefish ACLs, 2011-2033 (dark lines indicate some of the threshold values that have been discussed within the 5,000 – 10,000 mt range). (Internal Reference: PPA_TriggerAnalysis.xlsx).....	202
Figure 35. Numbers of years (2011-2023) in which the PPA would not have met the policy objective (gear-specific QP would have been issued when gear switching was below 29 percent or generic QP issued when gear-switching was above 29 percent). (Internal Reference: PPA_TriggerAnalysis.xlsx)	203
Figure 36. Historical changes in stock assessment projections for coastwide sablefish OFL. (Internal Reference: PPA_TriggerAnalysis.xlsx)	204
Figure 37. Hypothetical time series of gear switching at relatively low levels (averaging 25 percent, about 25 percent less than values seen from 2014-2019) and the previous three-year	

average, lagged one year—because the average starts and remains below 29 percent, all QP issued would be generic. 207

Figure 38. Hypothetical time series of gear-switching at relatively **moderate levels** (similar to those seen from 2014-2019— averaging 33 percent) and the previous three-year average, lagged one year. 208

Figure 39. Hypothetical time series of gear switching at relatively **moderate** levels (averaging 33 percent, from Figure 38), as modified based on applying the PPA and 29 percent gear-switching criteria (i.e. issue generic QP when the three year average is below 29 percent)— assumptions: ACLs are below the trigger level and when gear-specific QP are issued 10 percent of the any-gear QP issued (**29 percent**) is not used for gear-switching. 208

Figure 40. The **same as Figure 39**, except when gear-specific QP are issued, **only 20 percent of the QP are issued as any-gear** because of the departure of most legacy participants. 209

Figure 41. Hypothetical time series of gear switching at relatively **high** levels (averaging 42% gear switching), as modified based on applying the PPA and 29 percent gear-switching criteria (i.e. issue generic QP when the three year average is below 29 percent)—assumptions: ACLs are below the trigger level and when gear-specific QP are issued 10 percent of the any-gear QP issued (**29 percent**) is not used for gear-switching. 210

Figure 42. Boxplot showing the distribution of the proportion of total west coast revenue associated with DTS landings (y-axis) by vessel category (bottom trawl only- left panel, midwater trawl and bottom trawl- right panel) and by total west coast revenue (x-axis) for 2018-2022. Outliers removed to protect confidentiality. 214

Figure 43. Boxplot showing the distribution of the vessel lengths (y-axis) by vessel category (bottom trawl only- left panel, midwater trawl and bottom trawl- right panel) and by total west coast revenue (x-axis) for 2018-2022. Outliers removed to protect confidentiality. 216

Figure 44. Boxplot showing the distribution of the proportion of total west coast revenue associated with gear switched landings (y-axis) by total west coast revenue (x-axis) for 2011-2022. Outliers removed to protect confidentiality. 217

Figure 45. Left panel shows continuous gradient of the average ratio of Dover sole to sablefish north on positive bottom trawl hauls from 2002-2022 in 0.5x0.5-degree cells; right panel shows binned average ratio of Dover sole to sablefish north on positive bottom trawl hauls in 0.5x0.5-degree cells (Source: WCGOP; WGS84 Coordinate System). 218

Figure 46. Average ratio of Dover sole to sablefish north on positive bottom trawl hauls, 2006-2022. 219

Figure 47. Commercial fishery reliance and social vulnerability scores in 2020 for communities in Washington, Oregon, and norther, central, and southern California. The five highest scoring communities for fishing reliance in each region are shown. Dotted lines equal 1 s.d. above the means for all communities. (2022-2023 California Current Ecosystem Status Report, p. 27)... 220

Figure 48. Annual VCNR for **vessels** while fishing in non-whiting strategies or using non-trawl gear to gear switch, 2009 through 2021. Source: The FISHEyE application maintained by NOAA Fisheries, NWFSC on September 29, 2023. 225

Figure 49. VCNR **per day** for vessels while fishing in non-whiting strategies or using non-trawl gear to gear switch, 2009 through 2021. Source: The FISHEyE application maintained by NOAA Fisheries, NWFSC on September 29, 2023. 226

Figure 50. Annual VCNR for **vessels per mt of catch** while fishing in non-whiting strategies or using non-trawl gear to gear switch, 2009 through 2021. Source: The FISHEyE application maintained by NOAA Fisheries, NWFSC on September 29, 2023. 227

Figure 51. Inflation adjusted exvessel prices for DTS species, 2002-2022, vertical line marks start of trawl catch share program (PacFIN Data). Internal Reference General GF Prices - Annual-InclNominal (hidden filters)-NominalGrpd_SppGrps.xlsx 229

Figure 52. Pounds of Dover sole landed by price category (2007, 2008, 2009, 2010). (Source: PacFIN Comprehensive Fish Ticket Database). Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx; Dover_Prices (non-confid)..... 234

Figure 53. Number of different prices paid for Dover sole (as reported on fish tickets), where more than 10,000 pounds was delivered at the price point (counts are for distinct prices rather than price categories). (Source: PacFIN Comprehensive Fish Ticket Database). Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx;Dover_Prices (non-confid). 235

Figure 54. Pounds of Dover sole landed by price category (2011). (Source: PacFIN Comprehensive Fish Ticket Database). Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx; Dover_Prices (non-confid). 235

Figure 55. Petrale sole ACL (solid line;mt) and trawl catch (dashed line; mt) from 2000-2022. 237

Figure 56. Oregon data on shrimp fishery CPUE from ODFWs 32nd Annual Pink Shrimp Review. 237

Figure 57. Pink shrimp landings in millions of lbs, 2000-2023..... 238

1.0 INTRODUCTION

The action alternatives would limit gear-switching. “Gear switching” occurs when a vessel fishes under a trawl limited entry permit but uses non-trawl gear to harvest trawl individual fishing quota (IFQ) in the Pacific coast groundfish fishery.

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 by consensus 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.

While these principles have informed the Council deliberations, they have not been formally adopted by the Council. The analysis covers the concept of each principle but does not formally evaluate the principles.

1.3 Key Considerations and Where They Are Addressed in this Document

- What is the rationale for separate sectors and what is the allocational history between them?.....Section 2.1
- How much gear switching has there been?.....Section 2.2
- To what degree is the trawl fishery under attained?Section 2.3
- What are the potential causes for trawl under attainment?Section 2.4
- What market distortions are introduced by the catch share programs? Section 2.4.4(a)
- What is the relative efficiency of trawl vs. gear switching vessels?.....2.4.5(b)
- What are the prospects for gear switching levels to increase or decrease in the future?Section 2.5
- National Standards AnalysisSection 4.2.
 - National Standard 1 (OY)Section 4.2.1
 - National Standard 4 (Allocations)Section 4.2.4
- Action Alternative – Analysis of Options and Specific Elements
 - Alternative 2 – Gear-Specific QP When Criteria Are MetSection 9.2
 - PPA – Gear-Specific QP When Criteria Are Met (Including Analysis of the Criteria).....Section 9.4
- Where is there information on the following and how they are impacted by the alternatives on
 - communities? Sections 7.11 and 10.3
 - the various segments of the trawl fleet most likely to be impacted?Sections 7.6.3 and 10.1.

1.4 Public Process

The following is a description of the process through which this issue was considered and developed.

Gear switching was identified as an issue of concern in workshops prior to and during the first review of the trawl catch share program (completed in 2017). The Council adopted a control date for gear switching at its September 2017 meeting (September 15, 2017, see Section 8.1). Following on that process, the Council appointed the SaMTAAC in April 2018 and gave it the following charge:

Identifying obstacles to achieving the goals and objectives of the catch share plan related to under attainment of non-sablefish trawl allocations and unharvested sablefish quota pounds (QP) south of 36° N. latitude. As appropriate to overcome identified obstacles, the committee will discuss and develop options, including but not limited to, actions that may modify rules for gear switching by trawl permit holders and QP leasing to vessels

using fixed gear, as well as options that may encourage increased utilization of sablefish QPs south of 36° N. latitude.

To address its charge, the Committee met six times: June 2018, October 2018, May 2019, October 2019, January 2020 and April 2020 (the last via webinar). Records for these meetings, including materials considered by the Committee and meeting summaries, are provided on a “[Gear Switching and Trawl Allocation Attainment](#)” webpage on the Council website.

While the Committee steadily progressed in its work, its process was interrupted by a government shutdown in the winter of 2018/2019.

The Committee’s final report was issued in June 2020 and considered by the Council at its September 2020 meeting. At that time, the Council adopted a purpose and need and decided to proceed with consideration of a range of alternatives (ROA), including status quo. In November 2020, the Council decided to first set a tentative policy for the maximum amount of gear switching to be allowed, with the idea that this would further guide development of the action alternatives. The Council set 29 percent as a maximum gear switching level at its April 2021 meeting that would be used in development of the range of action alternatives. The 29 percent gear switching level was calculated as the average annual percent of the available northern sablefish QP that were gear switched in full calendar years prior to the control date (2011-2016). At its September 2021 meeting, the Council reviewed the SaMTAAC report and adopted two alternatives for its ROA: a gear-specific quota share (QS) alternative and a gear-endorsement based alternative. At its June 2022 meeting the Council added a new alternative (a gear-specific QP based alternative) and split into two the previously adopted endorsement based alternative (permit based and vessel based qualification). At its November 2022 meeting, the Council eliminated the gear-specific QP based alternative and the endorsement based alternative with a vessel qualifier. At its April 2023 meeting, the Council added a simplified gear-specific QP alternative back to the range, stopped work on the endorsement-based alternative with a permit qualifier, and added an alternative based on a seasonal approach. At its June 2023 meeting, the Council selected No Action and the gear specific QP-based alternative as its initial preliminary preferred alternative (iPPA) (see Table 1 for links to key documents).

Table 1. Steps in the consideration of the trawl allocation attainment and gear switching issues, within the Council forum.

Step/Action	Meeting & Agenda Item	Key Documents	Decision Summary
Community Advisory Board (CAB) First Recommends a Control Date for Gear Switching	June 2017 Agenda Item F.2	Agenda Item F.2.c , Supplemental CAB Report	Trawl Catch Shares Review Draft Report and Intersector Allocation Report
Adoption of Gear Switching Control Date and Guidance on Catch Share Review Follow-on Actions	September 2017 Agenda Item E.7	Control Date Federal Register Notice Agenda Item E.7.a, CAB Report 1 : Community Advisory Board Report on Preliminary Range of Follow-on Actions Agenda Item E.7.a , Supplemental GAP Report 1	Adoption of Control Date and Other Actions/Guidance Related Follow-on Actions

Step/Action	Meeting & Agenda Item	Key Documents	Decision Summary
Council Decides to Create a Committee to Address Issues Related to Gear Switching	March 2018 Agenda Item H.2	Agenda Item H.2, Attachment 1 : Gear Switching and Trawl Sablefish Area Management—Preliminary Data Agenda Item H.2, Supplemental Attachment 2 : Expanded Agenda Item H.2., Attachment 1 Tables	Trawl Catch Shares - Gear Switching and Trawl Sablefish Area Management
Council Creates the SaMTAAC	April 2018 Agenda Item H.2	Agenda Item H.2, Attachment 1 : Creation of an ad hoc Committee on Issues Related to Trawl Allocation and Southern Sablefish Attainment	Membership Appointments and Council Operating Procedures
SaMTAAC Meets Six Times to Develop Alternatives	SaMTAAC Meetings June 2018; Oct 2018; May 2019 Oct 2019; Jan 2020; Apr 2020	Key documents	No related Council decisions.
Final SaMTAAC Report Provided	June 2020 Informational Reports	The SaMTAAC Final Report and an accompanying analysis were provided as informational reports 1 and 2. These informational reports were included in relation to Agenda Item D.1 at the September 2020 Council meeting (see next row).	No related Council decisions.
Council Decision on Whether to Continue SaMTAAC Related Deliberation and Adoption of Purpose and Need Statement	September 2020 Agenda Item D.1	D.1, Attachment 1 : Preliminary Assessment of Trawl Under-Attainment Issues and SaMTAAC Alternative Qualification Criteria (UPDATED), August 2020 D.1.a, SaMTAAC Report 1 Final Report to The Council	Gear Switching and Sablefish Area Management Scoping
Council Scheduled to Adopt Range of Alternatives (ROA) for Analysis (Instead Decides to First Decide on a Level of Gear Switching)	November 2020 Agenda Item G.2	o Key documents were reproduced for the September 2021 briefing book (see below)	Gear Switching for Sablefish in the Trawl Catch Share Fishery
Council Decision on Gear Switching Level to Use in Developing Alternatives	April 2021 Agenda Item F.4	F.4, Attachment 1 : Analysis of Gear Switching Levels	Sablefish Gear Switching Identify the Gear Switching Level to Use in Developing Alternatives
Council Selects ROA Adopted for Analysis	September 2021 Agenda Item C.5	C.5, Attachment 1 : SaMTAAC Recommended Alternatives C.5, Attachment 3 : Preliminary Analysis of Gear-Switching Alternatives C.5, Attachment 4 : Supplement to Preliminary Analysis of Gear Switching Alternatives	Sablefish Gear Switching Adopted two alternatives for the ROA: gear-specific QS (replacing SaMTAAC gear-specific QP alternative) and gear-switching endorsement.
Refine alternatives for analysis and provide guidance on analysis, as needed.	June 2022 Agenda Item F.5	F.5 Attachment 2 : Range of Gear Switching Alternatives... F.5 Attachment 3 . Provisions on Which Council Guidance is Needed	Sablefish Gear Switching Added a gear-specific QP based alternative to the ROA.
Revised alternatives published	September 2022 Informational Report 1	Informational Report 1	No related Council decisions.

Step/Action	Meeting & Agenda Item	Key Documents	Decision Summary
Selection of a PPA Scheduled – Instead ROA Revised	November 2022 Agenda Item H.3	H.3, Attachment 1 : Range of Gear Switching Alternatives ... H.3, Attachment 2 : Gear Switching Alternatives and Options List H.3, Attachment 3 : Initial Analysis of The Gear Switching Alternatives	Sablefish Gear Switching Gear-specific QP alternative and endorsement-based alternative (vessel qualifier) eliminated from the ROA.
Refine Range of Alternatives	April 2023 Agenda Item G.5	G.5, Attachment 1 : Synopsis of Gear Switching Alternatives, Options, Comparisons, and Issues G.5, Attachment 2 : Range of Gear Switching Alternatives Adopted for Analysis by the Council at its September 2021, June 2022, and November 2022 Meetings	Sablefish Gear Switching—Check-in and Refine the Range of Alternatives Gear-specific QP alternative added back to the range, work stopped on endorsement-based alternative (permit qualifier), seasonal approach added.
Select Initial Preliminary Preferred Alternative (iPPA)	June 2023 Agenda Item H.2	H.2, Attachment 1 : Synopsis of Gear Switching Alternatives, Options, Comparisons, and Issues H.2, Attachment 2 : Range of Gear Switching Alternatives Adopted for Analysis by the Council at its September 2021, June 2022, November 2022, and April 2023 Meetings H.2, Attachment 3 (Electronic Only) : Analysis to Inform Selection of Initial Preliminary Preferred Alternative for Sablefish Gear Switching	Sablefish Gear Switching – Initial Preliminary Preferred Alternative Two iPPAs selected: No Action and Gear-Specific QP. Refinements made to the latter.
Select PPA	November 2023 Agenda Item E.4	E.4, Attachment 1 : Synopsis of Gear Switching Alternatives, Options, Comparisons, and Issues E.4, Attachment 2 : Range of Gear Switching Alternatives Adopted for Analysis E.4, REVISED Attachment 3 (Electronic Only) : Analysis to Inform Selection of Preliminary Preferred Alternative for Sablefish Gear Switching	Sablefish Gear Switching – Preliminary Preferred Alternative A revised version of Alternative 2 was selected as the PPA (gear-specific QP would only be issued for years that met certain criteria).
Scheduled Selection of FPA and FMP Amendment Language.	April 2024 Agenda Item F.4	F.4, Attachment 1: Synopsis of Gear Switching Alternatives, Options, Comparisons, and Issues. F.4, Attachment 2: Range of Gear Switching Alternatives Adopted for Analysis. F.4, Attachment 3 (Electronic Only): Analysis to Inform Selection of Final Preferred Alternative for Sablefish Gear Switching. F.4, Attachment 4: Groundfish FMP Amendatory Language Proposed for the Council Preliminary Preferred Alternative On Gear Switching.	TBD

2.0 DESCRIPTION OF THE FISHERY AND 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. This constraint might be occurring in the current fishery or occur 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:

- Description of the fishery and sectors.
- 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 Fishery Context and Sectors

Fisheries tend to be diverse by nature, involving a variety of fish stocks and a wide range of commercial and recreational user groups. To efficiently and effectively manage this diversity, fisheries are often divided into sectors, for example commercial and recreational sectors, and these sectors are sometimes further divided into sub-sectors based on geography, gear types, and target species. Moreover, each sector has unique characteristics that requires specific management programs. As Pearse notes:

... fishing sectors benefit in different ways from the fish they harvest and so value them differently....Almost any regulation of fishing gear, seasons or locations affects commercial, recreational and aboriginal fishers differently. To achieve objectives of equity as well as conservation as they expanded their regulatory control, governments were forced to adopt different regulations for each sector. Doing so undoubtedly had the effect of defining, and in some degree creating, separate sectors and sub-sectors, each with its own permitted methods of fishing and regulatory regime. (Pearse, 2010, p. 126).

In the Pacific Coast groundfish fishery management plan (FMP), sectors are one of the primary tools used to organize management of the rockfish, flatfish, and roundfish that are part of the groundfish management unit off the Washington, Oregon, and California coast (over 100 species are managed under the groundfish FMP, including species in the rockfish families that are not specifically named). The groundfish FMP identifies 10 sectors that the Council initially considers in the development of total catch limits (PFMC, 2022, p. 77-78). In addition to the gears used, differences between the sectors include, but are not limited to, the mix of species caught, the markets they serve and related needs of those markets, and the nature of the benefits to the public (e.g., protein source or recreational experience). Fishery sectors are also affected by a history of past legal obligations and fishery access rules on which participants have relied (e.g., tribal fishing rights and the groundfish license limitations systems). In the context of the different needs of different groups, sector management helps the Council better achieve optimum yield (OY) by providing more ways to balance the various competing MSA mandates; FMP

goals and objectives, and other legal obligations—including those related to between sector equity.¹

Management of sablefish has been foundational to the groundfish FMP. The Council’s current prioritized goals for the groundfish FMP were established in the context of resolving sablefish allocation issues between trawl and nontrawl sectors in the late 1980s. In 1986, the Council adopted several objectives for sablefish management (these were not specified in priority order at the time):

1. To prevent overfishing by managing sablefish and the total groundfish complex within approved acceptable biological catches (ABCs).
2. Provide meaningful shares to historic user groups.
3. Minimize waste.
4. Maximize value of deep water complex.
5. Maximize value of sablefish.

During this time period, the Council continued to refine management of the sablefish fishery. In July 1989, the Council incorporated the five objectives previously identified for sablefish management into an overall rewrite project for the groundfish FMP (Amendment 4). In September 1989, the Council prioritized the five sablefish objectives noted above and expanded their application to all groundfish species. During the FMP rewrite process, the five prioritized *objectives* became the prioritized *goals* that are in the current groundfish FMP (italicized text was added after the September 1989 action):

Goal 1 - Conservation. Prevent overfishing and rebuild overfished stocks by managing for appropriate harvest levels *and prevent, to the extent practicable, any net loss of the habitat of living marine resources.*

Goal 2 - Economics. Maximize the value of the groundfish resource as a whole.

Goal 3 - Utilization. *Within the constraints of overfished species rebuilding requirements, achieve the maximum biological yield of the overall groundfish fishery, promote year-round availability of quality seafood to the consumer, and promote recreational fishing opportunities.*

Key to sablefish management was the establishment of the trawl and non-trawl sectors. The trawl sector currently includes two at-sea whiting sectors (mothership and catcher processor) and a shoreside sector that combines the shoreside whiting and nonwhiting fisheries under a single management system. Within the trawl sector, only the shoreside trawl segment is managed with an IFQ program, for reasons stated in [Amendment 20](#) (see [PFMC & NMFS, 2010, p. 56-57](#)). At-sea segments are managed with co-ops. The non-trawl sector is comprised of the limited entry fixed gear (LEFG) primary tier fishery (managed by a catch shares system that was completed

¹ § 600.310 (b)(2)(ii). "The determination of OY is a decisional mechanism for resolving the Magnuson-Stevens Act's conservation and management objectives, achieving an FMP's objectives, and balancing the various interests that comprise the greatest overall benefits to the Nation."

with the implementation of [Amendment 14](#)²) and trip limit fisheries (both LE and open access, OA).³

These sectors were established due to the differences between the needs of trawl and non-trawl gears and how they interacted with other fisheries, infrastructure, markets, and fishery dependent communities. Trawl trips targeting whiting tend to be single species trips, while the non-whiting trawl trips target complexes of species. The shoreside trawl sector catches the majority of its sablefish in complexes along with many other species. The non-trawl sector catches their sablefish with relatively little co-occurring incidental catch of other species (see footnote 13 on page 41). Prior to the trawl catch share program, the trawl fishery was managed with trip limits rather than seasons, so as to maintain year-round operations that landed many different groundfish species. Year-round operation of the trawl fishery was viewed as essential for groundfish marketing, avoiding the development of surplus shoreside capacity, and helping ensure that labor and services would be available for other groundfish and nongroundfish fisheries. The IFQ program was implemented with the idea that processors would have some ability to incentivize vessels to time their harvest with the availability of processing capacity and market needs and thus continue to meet the need for year-round trawl activity. The non-trawl fishery was initially managed with seasons, to allow vessels to achieve greater efficiency by harvesting more sablefish at one time. Later, the non-trawl fishery was converted to a management system based on cumulative landing limits, a portion of which is managed as a catch share program.

The current action on gear switching deals only with the shorebased IFQ program, which covers 30 groundfish stocks and stock complexes caught and landed by the trawl sector and bycatch of Pacific halibut. Gear switching provisions of the shorebased IFQ program reduced the barriers between trawl and non-trawl sectors, particularly with respect to access to the northern sablefish allocations.

2.2 Trawl/Non-trawl (Fixed Gear) Sablefish Allocation: Origin and Levels of Gear Switching

As discussed in the previous section, the trawl/non-trawl sablefish allocation has been an important element of the groundfish FMP, leading to the development of the groundfish FMP's prioritized goals that now apply to all species.

Regulation of the sablefish fishery began in 1982, but trawl/non-trawl sablefish allocation deliberations didn't begin in earnest until the mid-1980s (Table 2). As of 1983, the FMP required that trip limits be implemented whenever 95 percent of the OY was reached (for Monterey Bay or the West Coast as a whole). Effective July 29, 1984, the first separation of sablefish management by gear type was established: when 90 percent of the OY was reached, pot and longline gear landings would be limited to an additional 5 percent of the OY (after which retention would be prohibited) and trawl vessels would be placed on a percentage trip limit for

² Each LEFG permit is assigned to one of three tiers. The tier assignment determines the amount of sablefish that can be harvested with the permit. A single vessel can use up to three permits (harvesting the limit associated with each).

³ For northern sablefish before sablefish is allocated among the commercial sablefish a set aside is made for the recreational fishery.

sablefish.⁴ This policy remained in place until 1986. At that time, separate allocations were established based on the rationale provided in this passage from the Council's 1998 groundfish SAFE document.

In April [1986], both trawl and fixed gear fisheries expressed an interest in revising the management regime in the FMP.... There as a common desire to establish shares earlier in the year to permit fixed gear fishers adequate time to plan vessel operations and to set trip limit regulations for trawlers that would be significantly greater than those set under the FMP scenario....In July[1986], the Groundfish Select Group (GSG) recommended to the Council that the remaining unharvested balance of the 1986 OY be allocated between trawl and fixed gear abased on the share of total sablefish landings for a five-year (1981-1985) average. The GSG further proposed fixed gear landings continue without restriction until the fixed gear allocation was reached, and trawl trip limits be set at levels which would allow trawl fishers to continue to land sablefish for the remainder of the year without exceeding the trawl allocation....The rationale for the proposals was that fixed gear fishers landed only sablefish, had no alternative fishery and could not operate economically under trip limits. Conversely, sablefish are primarily an incidental species in the multispecies trawl fishery, and wastage would occur if landings were prohibited and catches were discarded at sea. (PFMC 1998, p. 7)

The first trawl/non-trawl split percentages that applied for an entire year were coastwide: 52 percent trawl/48 percent non-trawl (1987). In 1990, there was a reallocation between the sectors and the status quo non-tribal allocation became 58 percent trawl/42 percent non-trawl. The total proportion of the available harvest allocated to the trawl sector was reduced over time by a number of events. As larger amounts were provided to meet Tribal treaty obligations, the total tonnage split between the trawl and non-trawl sectors was reduced. Similarly, in 1994, when the coastwide sablefish allocation was split between north and south, the tonnage to which the 58/42 split is applied was further reduced. However, on a coastwide basis, the non-trawl sector was able to access more total sablefish after the north/south split because it was more predominant in the south. Also in 1994, the non-tribal allocation was split between the OA and LE sector while the 58/42 split continued to be used to divide the limited entry allocation between trawl and fixed gear. Since the non-trawl sector previously included what became open access and limited entry fixed gear sectors, this effectively reduced the trawl share of the non-tribal sablefish north allocation to 54 percent. Additionally, in 2000, the OA allocation was increased from 6.6 to 9.4 percent, further reducing the trawl share of the non-tribal sablefish north allocation. Then, when the catch share program was established in 2011, the southern sablefish allocation was officially split 42 percent trawl/58 percent non-trawl. Thus as of 2011 the trawl portion of the non-tribal commercial fishery had declined from 58 percent of the coastwide non-tribal commercial allocation that was provided in 1990 to 53 percent of the northern sablefish allocation and 42 percent of the southern sablefish allocation.

⁴ This threshold was first reached on October 21, 1985, and limits were put into place on November 25th.

Table 2. History of trawl/non-trawl sector allocations of sablefish.

Date	Area	Portion Allocated: Share of...	Trawl	Non-trawl/ Fixed Gear (NT/FG)	Open Access (OA) (Non-Trawl ^{b/})
1986-Aug-22 ^{a/}	Coastwide	OY (for the amount remaining)	55%	45%	
1987-1988	Coastwide	OY	52%	48%	
1989	Coastwide	Non-Tribal Commercial	52%	48%	
1990-1993	Coastwide	Non-Tribal Commercial	58%	42%	
1994-1999	36 North	Non-Tribal Commercial	54%	39%	6.6%
	36 North	The LE Fishery	58%	42%	
	36 North	The LE Fishery	58%	42%	
2000-2010	36 North	Non-Tribal Commercial	53%	38%	9.4%
	36 North	The LE Fishery	58%	42%	
2011-Present	36 North	Non-Tribal Commercial	53%	38%	9.4%
	36 North	(LE Fishery Share)	58%	42%	

{ Fixed Gear Oppty
in Trawl Sector }

a/ First sablefish management regulations were implemented October 13, 1982.

b/ But also includes exempted trawl gears (halibut, sea urchin, and pink shrimp).

c/ More research is needed to find out what the OA allocation of sablefish during this period was.

With the Amendment 20 IFQ program, gear switching for non-trawl vessels became more viable and they began harvesting part of the trawl allocation. However, gear switching has been part of the LE program since it was first implemented in 1994. This program allowed vessels with trawl permits to use other gears but specified that any groundfish caught would be counted against trawl or LE 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 bimonthly cumulative limits and the high cost of trawl permits.

Continuation of gear switching under Amendment 20 was debated at a time when many perceived that a conservation issue connected to trawl gear impacts on habitat warranted substantial reduction in its use. The Council considered whether to maintain the opportunity for trawl permitted 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 in greater volumes than under the monthly and bimonthly cumulative limits. Over the course of the IFQ program, gear switching has averaged 29 percent of each year’s trawl allocation (Table 3). 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 a variety of causes including the COVID pandemic and changing sablefish market prices. At the same time, in 2022 the total trawl allocation increased by 28 percent relative to the previous year and was still fully utilized (97.8 percent), with trawlers taking 74.5 percent and gear-switchers 23.3 percent. Overall utilization declined to 69 percent in 2023, likely due to the high allocation. For gear-switchers despite low prices and a relatively small differential between the trawl and fixed gear prices (see Section 2.5.3), the catch amount was the second highest on record (1.91 million lbs) and is exceeded only by 2019—the highest utilization on record. See Section 2.5 for discussion of factors and trends that might impact future gear switching.

Table 3. 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 (GS) vessels and permits, 2011-2023 Source: catch from 2011-2022 GEMM; catch from 2023 IFQ database; participants from PacFIN.

Landing Year		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2011-2023 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	6.41	5.91	5.07
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	4.89	4.00	3.48
	GS	1.54	1.66	0.98	1.27	1.58	1.80	1.87	1.81	2.01	1.48	1.32	1.52	1.91	1.60
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	8.58	5.70
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%	74.4%	46.6%	62.1%
	GS	27.4%	30.5%	24.3%	28.9%	32.6%	33.9%	35.1%	32.5%	35.3%	25.4%	19.0%	23.0%	22.2%	28.5% ^{b/}
	Unharvested	5.8%	9.6%	-1.1%	5.7%	0.6%	5.6%	-4.4%	8.7%	1.3%	29.7%	27.2%	2.6%	31.2%	9.4%
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	8.58	5.82
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%	46.6%	60.6%
	GS ^{c/}	27.4%	30.5%	22.9%	28.0%	31.3%	33.0%	33.2%	31.9%	33.8%	24.6%	19.0%	23.0%	22.2%	27.8% ^{c/ d/}
	Unharvested	5.8%	9.6%	5.0%	8.7%	4.5%	8.1%	1.4%	10.4%	5.5%	31.9%	27.2%	2.6%	31.2%	11.7%
Gear Switching Participants	Vessels	17	20	11	15	14	16	16	15	15	9	7	10	10	13
	Permits	17	21	11	14	14	16	16	15	15	10	7	10	11	13

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%.

2.3 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 regulatory 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. 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 of attainment trends before and during the catch share program (Matson 2016 and the 2017 catch share review⁵) 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 including Dover sole and widow rockfish, and since 2017, trawl catch has also expanded (Figure 1).⁶ A good portion of this increase in catch 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. Even though since 2017 non-whiting quotas in aggregate were over 50 percent greater than in 2011-2014, the fishery was able to bring utilization rates close to 2011-2014 levels, reaching an average of 25 percent.

In recent years, the list of species that usually reach full attainment includes Pacific whiting, Petrale sole, sablefish north, and widow rockfish (Table 4) although Pacific whiting declined below 70 percent in 2022-2023. Most other species tend to be under attained (below 50 percent attainment), the primary exception being yellowtail rockfish and chilipepper and canary in 2023. The largest single species contributor to the overall underattainment percentage and pounds is Dover sole. Figure 2 shows the percent and amount of total QPs unharvested from 2011-2023 broken down into three species groups: Dover sole, midwater rockfish (canary, widow, and yellowtail), and all other non-whiting species (i.e., is a further breakdown of the black bars in Figure 1. Since 2015 when the ACL doubled, Dover sole has attributed to approximately half of the total unharvested IFQ quota, . As demonstrated by the comparison of 2011-2014 to 2017-2019, changing stock conditions affect attainment and will continue to affect it in the future. As an example, in the forthcoming years, the trawl sector is likely to see a reduction in canary

⁵ 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](#).

⁶ In 2015, the Dover sole 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.

rockfish allocations which may lead to lower attainments of other target species (e.g., widow and yellowtail).

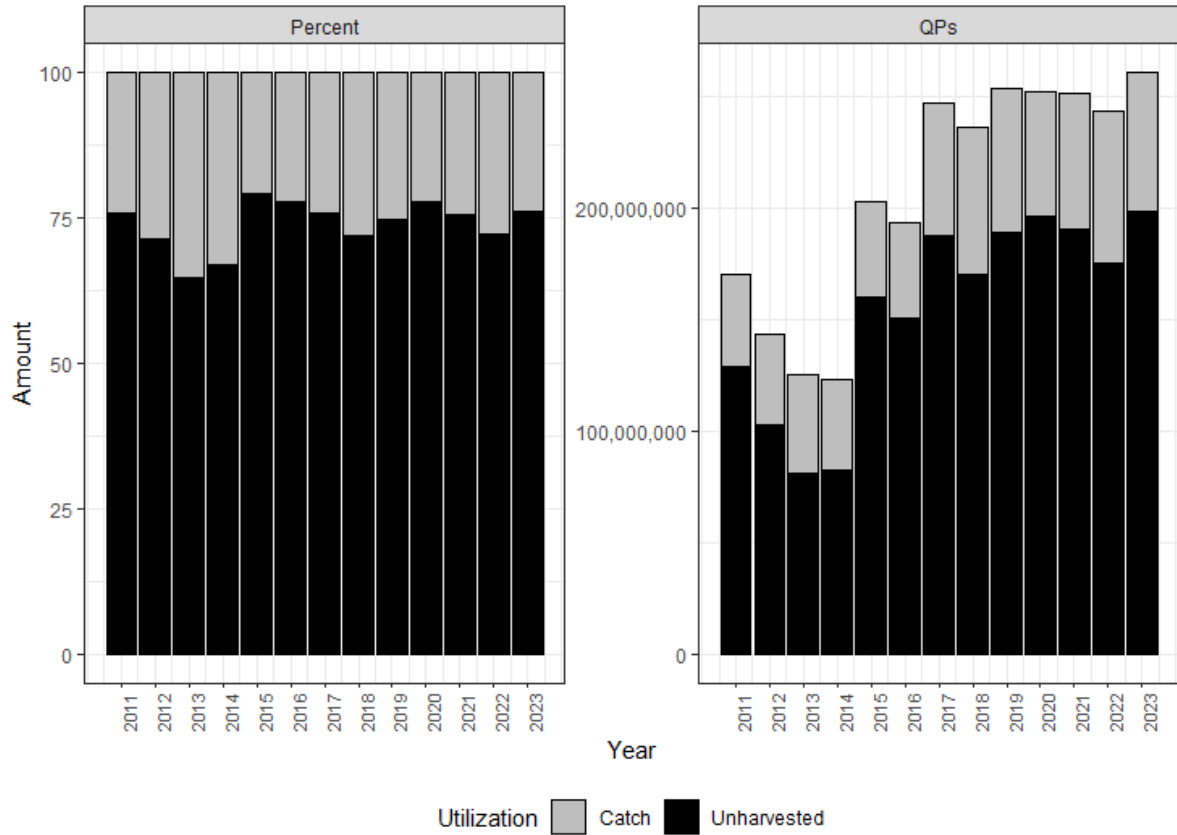


Figure 1. Shorebased IFQ utilization of non-whiting species, 2011-2023. Left panel: Percent of total allocations for all species caught and left unharvested. Right panel: Total amount of quota pounds (QPs) caught and allocation QPs unharvested. Internal reference: June Analysis.rmd

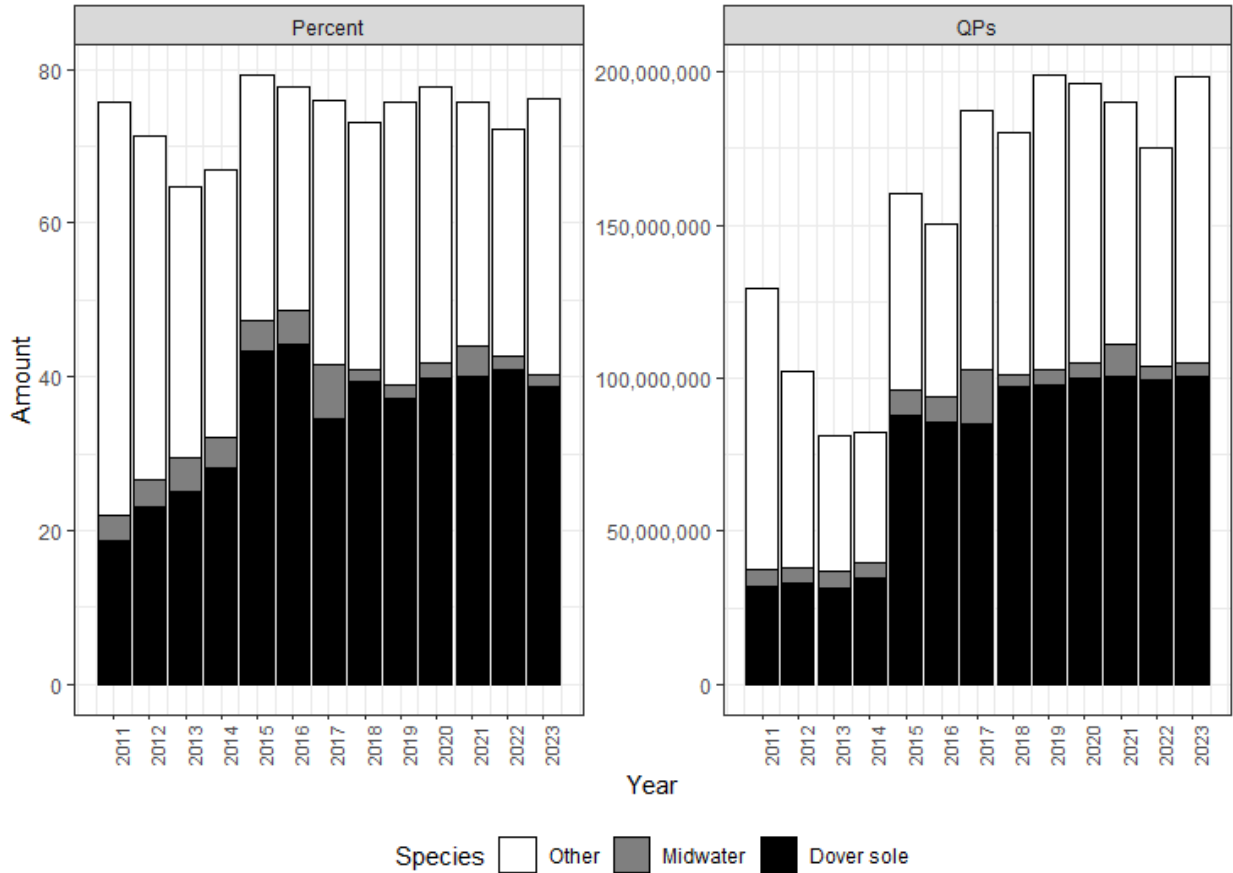


Figure 2. Breakdown of unharvested shorebased IFQ of non-whiting species from Figure 1 into three species groups: Dover sole, midwater (canary, widow, and yellowtail) and all other non-whiting IFQ species, 2011-2023. Left panel: Percent of total allocations for all species left unharvested. Right panel: Total amount of quota pounds (QPs) left unharvested.

Table 4. 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	2022	2023
Arrowtooth flounder	20%	26%	63%	50%	52%	47%	12%	9%	7%	6%	10%	12%	5%
Bocaccio rockfish South of 40°10' N.	9%	15%	17%	11%	47%	51%	30%	63%	40%	35%	38%	55%	36%
Canary rockfish	14%	28%	26%	26%	104%	48%	25%	45%	44%	38%	42%	59%	61%
Chilipepper rockfish South of 40°10' N.	21%	22%	36%	29%	16%	6%	6%	16%	27%	37%	43%	48%	61%
Cowcod South of 40°10' N.	1%	5%	22%	20%	26%	21%	27%	30%	35%	25%	11%	4%	7%
Darkblotched rockfish	36%	36%	44%	35%	43%	42%	36%	51%	50%	39%	35%	38%	28%
Dover sole	35%	33%	36%	29%	14%	16%	16%	14%	13%	10%	9%	9%	8%
English sole	1%	2%	3%	5%	4%	6%	3%	3%	2%	1%	2%	3%	3%
Lingcod	16%	21%											
Lingcod North of 40°10' N.			28%	21%	16%	24%	46%	35%	21%	17%	15%	13%	22%
Lingcod South of 40°10' N.			3%	4%	7%	6%	4%	10%	18%	15%	10%	10%	17%
Longspine thornyheads North of 34°27' N.	49%	48%	59%	50%	26%	23%	30%	14%	11%	5%	3%	3%	1%
Minor shelf rockfish North of 40°10' N.	3%	8%	6%	7%	3%	3%	21%	24%	40%	45%	48%	38%	39%
Minor shelf rockfish South of 40°10' N.	3%	15%	25%	12%	5%	2%	1%	3%	8%	12%	18%	9%	27%
Minor slope rockfish North of 40°10' N.	17%	27%	25%	23%	19%	13%	13%	16%	22%	18%	30%	23%	21%
Minor slope rockfish South of 40°10' N.	14%	33%	31%	26%	16%	12%	13%	17%	4%	10%	9%	13%	7%
Other flatfish	17%	16%	19%	20%	11%	14%	10%	10%	8%	9%	10%	9%	8%
Pacific cod	22%	35%	14%	15%	37%	37%	4%	1%	1%	0%	0%	2%	3%
Pacific halibut (IBQ) North of 40°10' N.	28%	43%	31%	26%	43%	38%	45%	39%	45%	38%	41%	32%	26%
Pacific ocean perch North of 40°10' N.	39%	45%	45%	36%	42%	44%	47%	45%	13%	14%	13%	12%	8%
Pacific whiting	98%	96%	99%	83%	47%	61%	87%	77%	86%	85%	89%	68%	57%
Petrale sole	93%	100%	92%	97%	98%	95%	100%	101%	98%	87%	76%	93%	93%
Sablefish North of 36° N.	94%	91%	101%	95%	100%	95%	105%	91%	99%	68%	73%	98%	69%
Sablefish South of 36° N.	86%	44%	15%	32%	24%	26%	14%	6%	10%	9%	11%	13%	10%
Shortspine thornyheads North of 34°27' N.	50%	50%	60%	50%	45%	48%	48%	42%	36%	24%	27%	31%	24%
Shortspine thornyheads South of 34°27' N.	17%	1%	7%	5%	2%	4%	0%	0%	0%	0%	0%	0%	0%
Splitnose rockfish South of 40°10' N.	3%	4%	3%	4%	2%	1%	1%	2%	1%	1%	1%	2%	1%
Starry flounder	2%	1%	0%	2%	1%	2%	1%	0%	0%	0%	0%	0%	0%
Widow rockfish	40%	45%	41%	66%	57%	59%	52%	97%	94%	89%	80%	95%	95%
Yelloweye rockfish	10%	6%	6%	6%	4%	5%	15%	12%	15%	11%	14%	22%	10%
Yellowtail rockfish North of 40°10' N.	24%	32%	27%	40%	32%	26%	58%	76%	74%	84%	66%	75%	76%

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 3). 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 3), 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 only 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. Among the trawl caught fishery complexes, harvest of Dover sole-thornyhead-sablefish (DTS) is most likely to be limited by the limited availability of northern sablefish QP (as shown in Section 2.4.5).

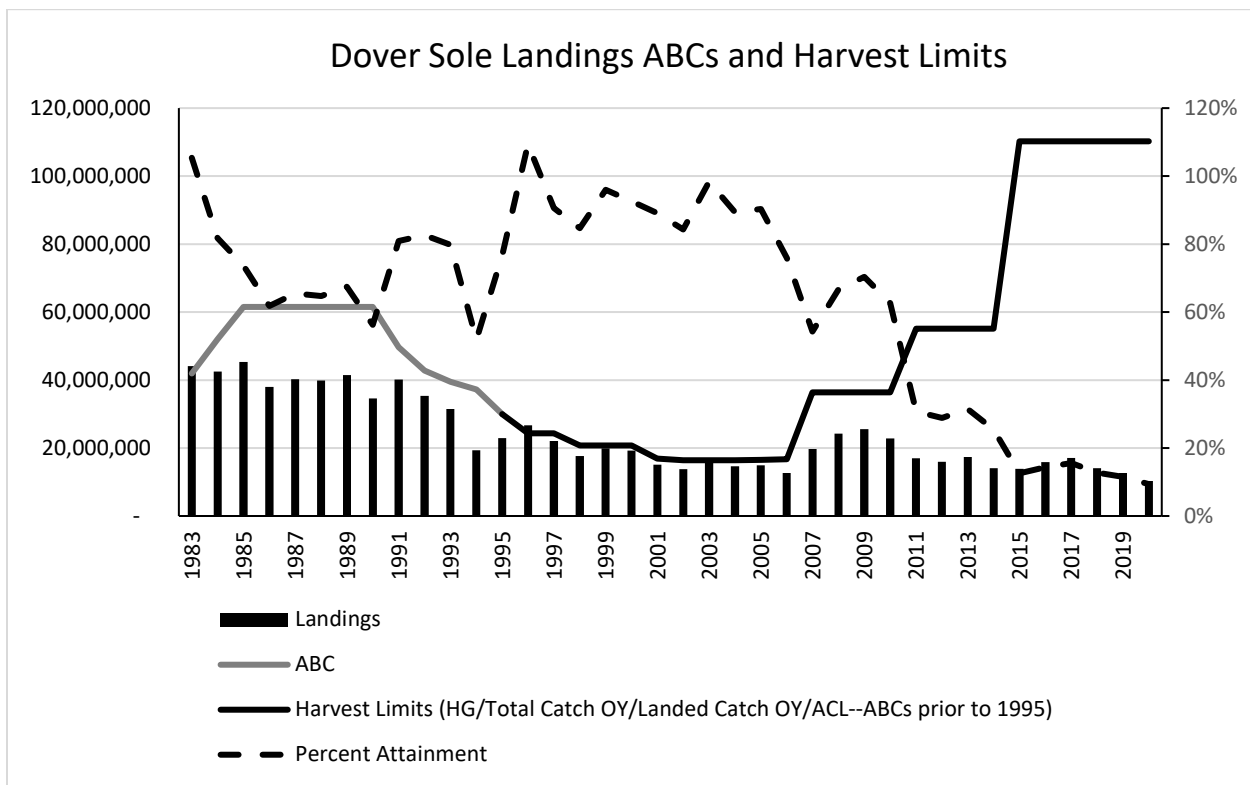


Figure 3. Trawl landings and percent attainment of Dover sole groundfish harvest limits, 1983-2020 (Source: Harvest Specifications and PacFIN Comprehensive Fish Ticket Database) ^{Internal}
reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx; Dover Harvest Limits-1983-2022.

Trawl harvest levels and attainment of its sablefish allocation have also varied over the years. Over a variety of conditions from 2005-2010, groundfish trawl gear landings of sablefish averaged 5.7 million pounds. After implementation of the trawl IFQ program, total QP use

averaged 3.4 million pounds from 2011-2022 (Figure 4). From 2005-2010, allocation attainment with trawl gear ranged from 65 percent to 106 percent and averaged 83 percent. From 2011-2022, allocation attainment with trawl gear ranged from 45 percent to 77 percent and averaged 63 percent. Thus, since the implementation of the trawl IFQ program, average trawl gear harvest has dropped by 2.3 million pounds and the range of percentage attainment by vessels using trawl gear has dropped 20 to 30 percent while the average attainment decreased by 20 percent and harvest and attainment variability declined. The chance appears substantial, but the degree of significance needs to be evaluated taking into account the different ways that discard mortality was accounted for and changes in the harvest of the trawl complexes to which sablefish contributes. Since implementation of the program, gear switchers have averaged 1.6 million pounds and harvested 29 percent of the trawl sector allocation (Figure 3, Table 3).

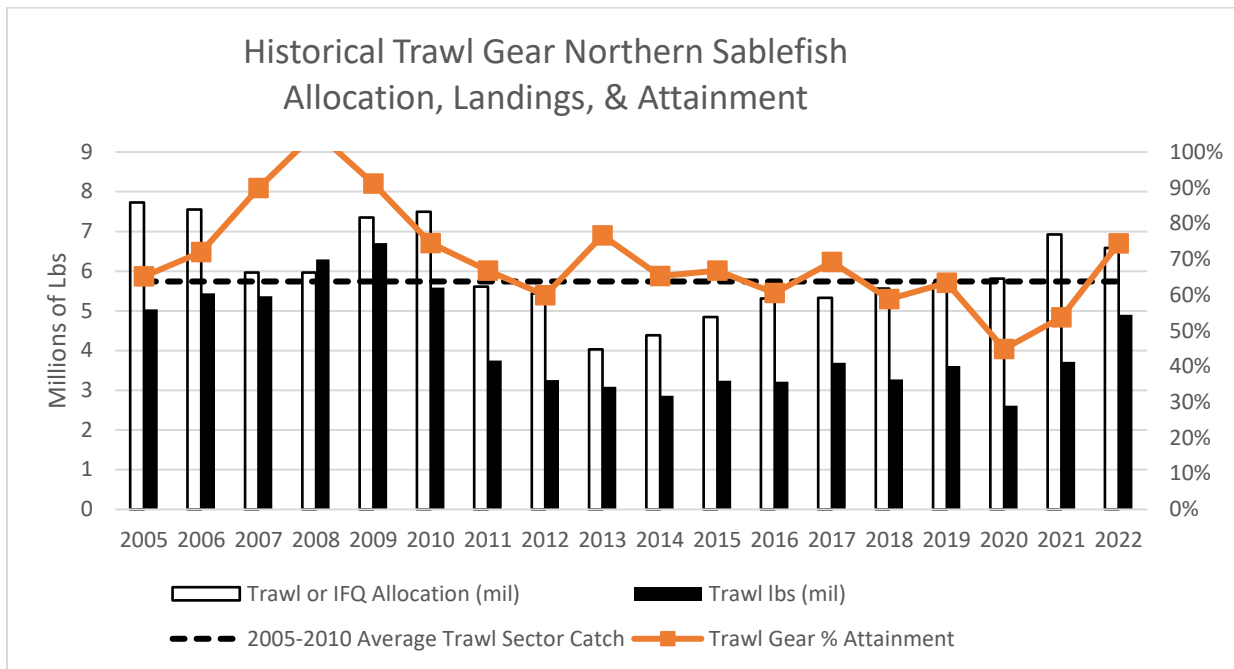


Figure 4. Trawl northern sablefish allocations and trawl gear catch and allocation attainment from 2005-2022.

2.4 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, as identified in the purpose and need statement. The causes mentioned in the purpose and need statement have been evaluated along with other potential causes (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.

2.4.1 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:

- *The number of participating 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 vessel 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 5).

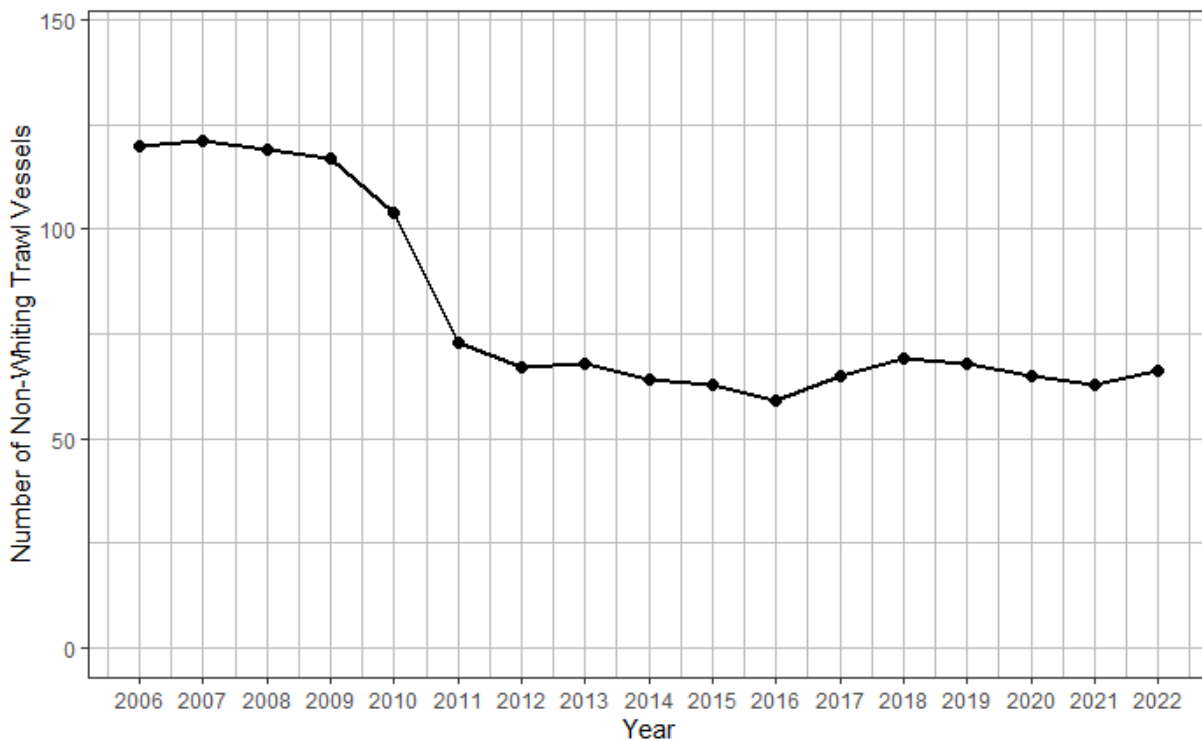


Figure 5. Number of non-whiting trawl vessels using trawl gear, 2006-2022.

One indicator of the capacity of the existing fleet is the harvest of those vessels that are “stable participants”⁷, 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. In the most recent period, the harvest levels for stable participants alone are nearly equivalent to the pre-IFQ harvest levels (Figure 6), indicating that the trawl catch share fleet likely had sufficient capacity to harvest at pre-catch share levels without even taking into account new entrants.

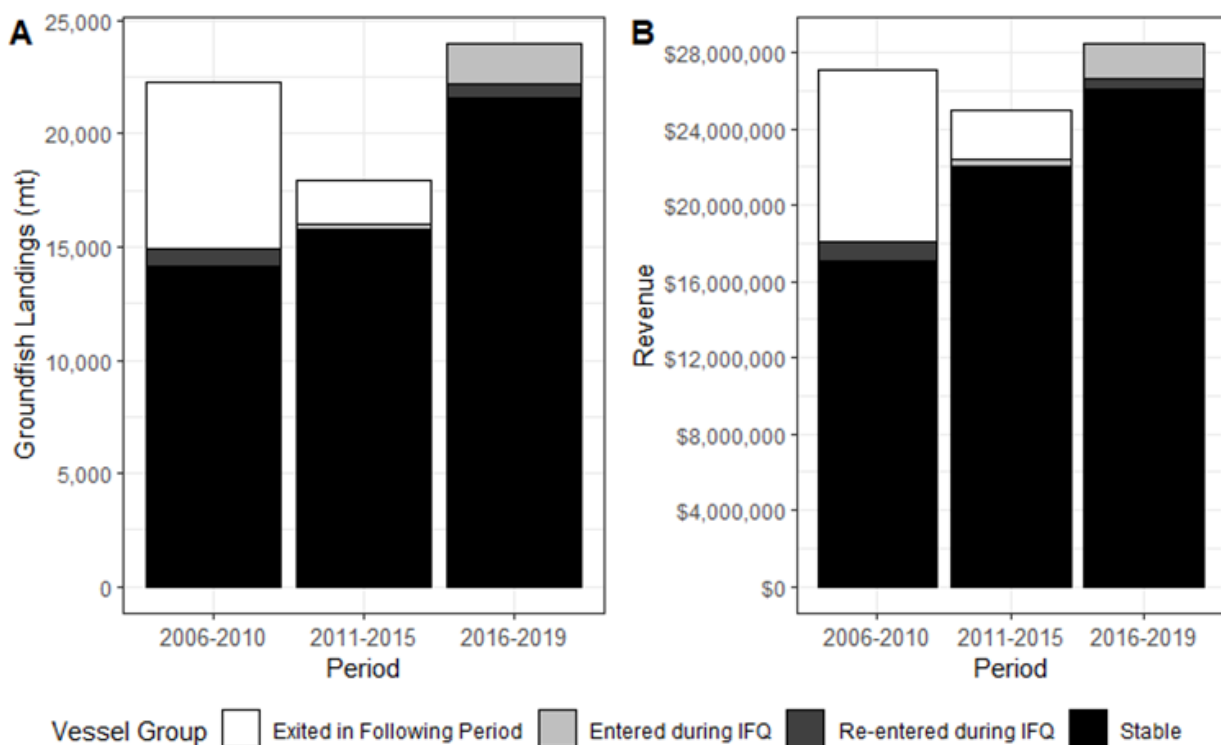


Figure 6. Average non-whiting trawl sector landings (mt; A) and revenue not adjusted for inflation (B) by period and vessel group (stable, re-entered fishery, entered fishery, or exited in following period).

While the trawl catch share fleet likely had sufficient capacity to harvest at pre-catch share levels, participation and attainment could still be constrained by low profitability. A recent analysis of two decades of data on 170 US fish stocks found that in many cases, fishers are fishing less of a species because they find it unprofitable (Oremus et al., 2023). With respect to profits from the harvester side, 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 fixed⁸ and variable costs⁹ (total cost net revenue, TCNR, Figure 7). In considering these results, it should be noted that some of the apparent increases in

⁷ Stable participants are those that had at least one non-whiting trawl landing in each of the following periods: 2006-2010, 2011-2015, and 2011-2015. For further description, see [page 44 of Agenda Item H.3., Attachment 3, November 2022](#)

⁸ E.g., fishing gear and on-board equipment

⁹ E.g., crew wages, fuel, monitoring costs, and cost recovery fees.

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 2.4.5. While vessels may have sufficient profitability at the exvessel prices offered, that leaves open the question of whether the volume of product sold could be expanded while maintaining those prices, i.e., whether vessel capacity and participation is sufficient but market limits are constraining total production.

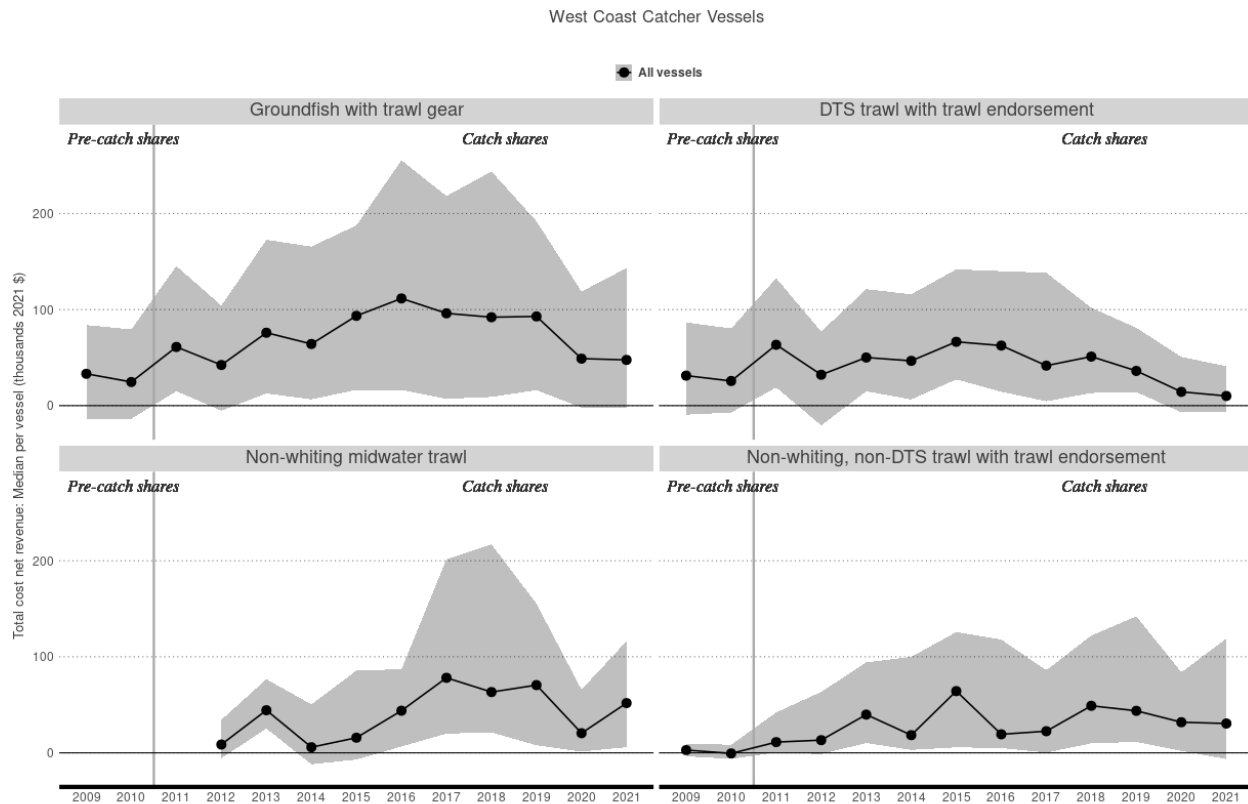


Figure 7. Total cost net revenue per vessels while fishing in non-whiting strategies, 2009 through 2021. Source: The FISHEyE application maintained by NOAA Fisheries, NWFSC on Updated October 8, 2023.

2.4.2 Market Limits – Domestic Markets and Competing Imports

This section explores information pertaining to whether market limits may be constraining attainment of trawl allocation, as posited as a possibility in the purpose and need statement.

Summary:

- *One of the species most likely impacted by competition with gear switchers is Dover sole. Therefore, a focus for this section is indicators of whether or not or the degree to which landings of Dover sole might be market constrained.*
 - *From 2007-2009, there was a dramatic increase in Dover sole landings and a pull-back that started in 2010.*

- *Amounts delivered at different market prices in 2009 and 2010 indicate that in the context of conditions at that time the market may have been at its limit for Dover sole for the fresh fish market.*
- *The volume pull back that started in 2010 may have been associated with this limit or, in addition or instead, may have been related to declines in Petrale sole opportunity, increases in pink shrimp catch per unit effort (CPUE), and a general downturn in the US economy (the great recession).*
- *In 2011, when the catch share program was implemented, prices recovered and most all the fish delivered was paid fresh prices.*
- *During the catch share program, the volume of Dover deliveries has not recovered to levels observed in the early years of the 2007-2010 expansion (i.e., 2007 and 2008, years prior to price signals that may have indicated substantial market limitations).*
- *Even if markets are currently limiting the expansion of harvest of species like Dover sole, it is also possible that uncertainty about availability of sablefish QP is limiting investments in efficient equipment and marketing that could expand market capacity.*
 - *See Section 2.4.4 for a discussion of possible ways the catch share system design is impacting investment.*
- *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 aquaculture products and imports. Developing markets for these trawl species requires that the fish be competitively priced.*
- *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.*

The purpose and need statement identifies a lack of markets as another factor that could be constraining trawl allocation attainment. If gear switching is constraining the attainment of trawl allocations, one of the species most likely impacted is Dover sole, typically taken as part of a DTS complex (see Section 2.4.5). Therefore, this section focuses primarily on the question of market limits contribution to under attainment of the Dover sole trawl allocation.

Historical information on the dynamics of the Dover sole market provides some clues about possible market capacity limitations on attainment of Dover sole allocations. However, numerous conditions play into these dynamics including cycles in the general economy, production and opportunities in other fisheries, and international trade. While there are various indications of limitations in the Dover sole market, the level and degree of these limitations over time is difficult to identify with certainty. Additionally, historic conditions may not reflect current market conditions. Together all of these factors make definitive determinations based on the indicators provided here difficult.

One of the historical events that has received much attention during these deliberations is the expansion of Dover sole harvest that occurred just prior to the catch share program and the contraction that approximately corresponded to trawl IFQ program implementation. It is thought that the reduction in availability of the trawl allocation of sablefish due to gear switching under the IFQ program might have reduced the amount of Dover sole landed after program implementation.

Dover sole harvest declined across the 1990s but as Dover sole OYs increased in 2007, an expansion began (Figure 8). Average Dover sole prices held relatively steady in 2007 and 2008 but then began dropping in 2009 and 2010, possibly indicating a market capacity limitation. There appear to be three predominant prices at which Dover sole is delivered: \$0.20 a pound, \$0.30 a pound, and a higher price for which there is more variability. Members of industry have indicated that the lower two prices are for fish that will likely be frozen and are the prices for amounts delivered in excess of what processors believe they can sell into the fresh market (these may be the market or delivery limits that are often discussed in public comment). Prices of fish delivered at the higher fresh market prices were relatively steady until 2010, at which time both the volumes delivered, and fresh market prices declined (Figure 9). The proportions of Dover sole delivered at the \$0.20 and \$0.30 price points for frozen markets increased substantially in 2009 and 2010 (Figure 10). These price patterns may indicate a limit to the capacity of Dover sole markets at that time. But in considering that possibility, it should be noted that: 1) the level of Dover sole production that occurred before negative price effects became apparent (2007 and possibly 2008, depending on whether there were lagging effects that did not show up until 2009, Figure 8) were well above levels that have been seen since implementation of the catch share program (indicating that the post implementation market might be able to absorb more Dover sole); 2) Dover sole processing and market capacity may have shifted since that time; and 3) coincident with the 2009 and 2010 changes in the Dover sole market were other changes in the national and fishery economies. As an aside, it is also worth noting that with implementation of the catch share program in 2011, while the amount of Dover sole landings declined, prices for fresh deliveries increased, and the amounts delivered at frozen prices returned to levels similar to those seen in 2008 and earlier. There are a number of possible reasons for the Dover sole price increase at the start of the IFQ program, including the possible increase in market leverage of trawlers but also the possibility that the supply of Dover sole was being constrained due to limited availability of sablefish QP.

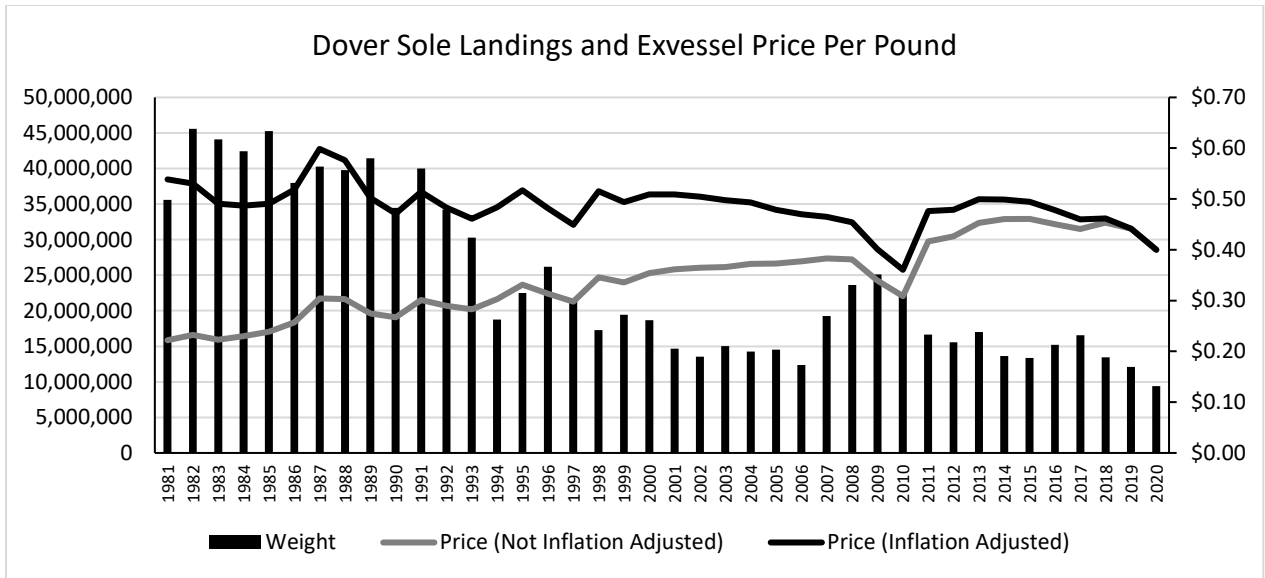


Figure 8. Dover sole landings and exvessel prices (1981-2020). (Source: PacFIN Comprehensive Fish Ticket Database). Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx;Average_Prices.

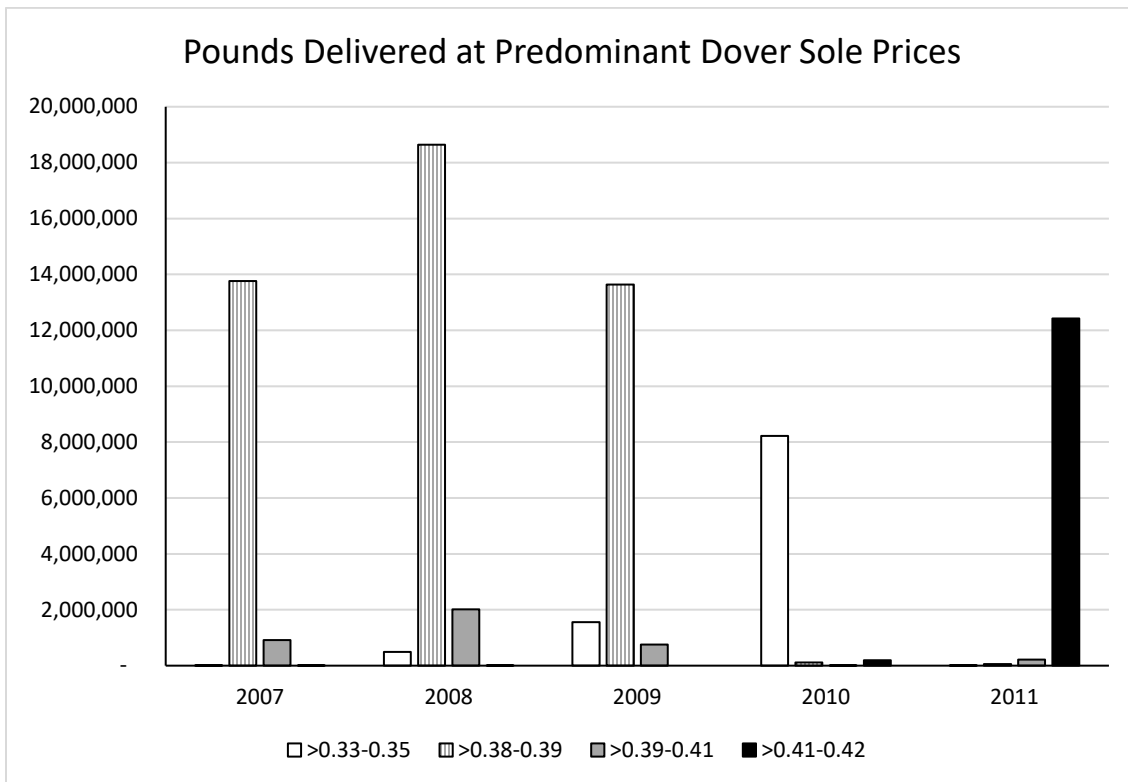


Figure 9. Pounds of Dover sole landed and exvessel prices for fish delivered for the fresh market (2007-2011). (Source: PacFIN Comprehensive Fish Ticket Database). Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx;Average_Prices.

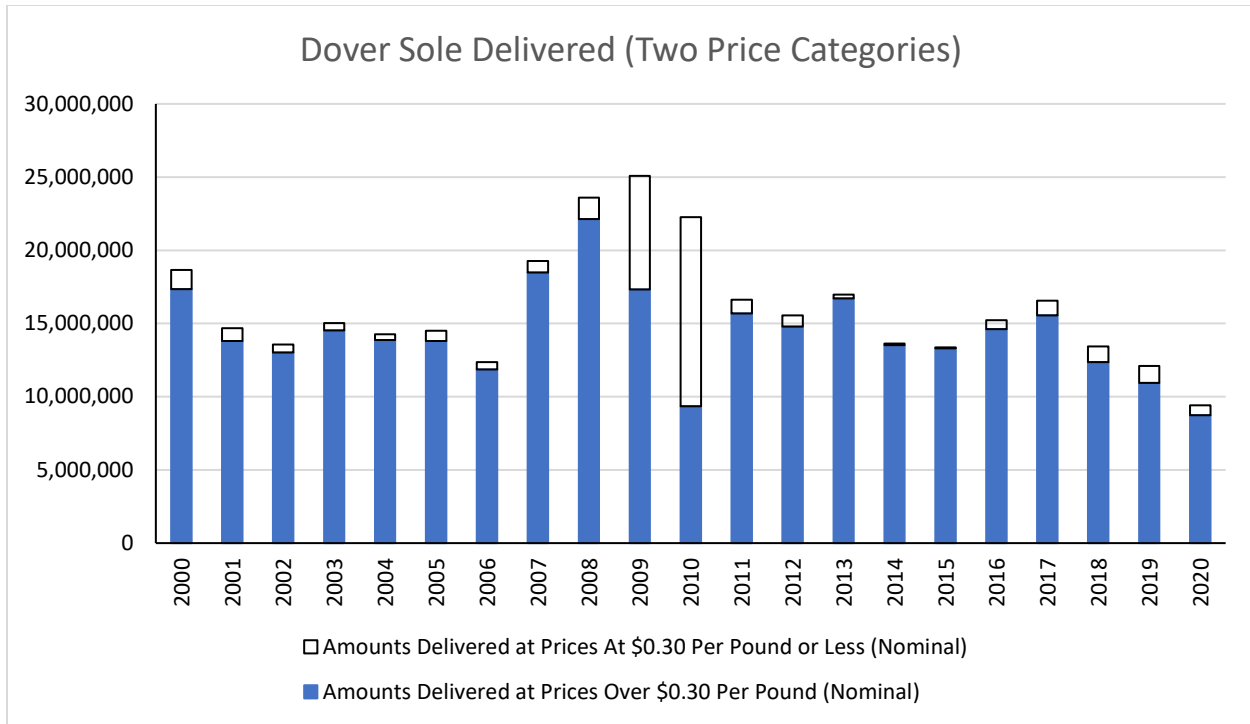


Figure 10. Pounds of Dover sole landed above \$0.30 per pound and at or below \$0.30 per pound (2001-2020). (Source: PacFIN Comprehensive Fish Ticket Database). Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx; Dover_Prices (non-confid).

Coincident with these changes in the Dover sole market were other changes in the national and fishery economies that may have contributed to Dover sole prices and levels of production. With respect to influences of the national economy, there was a major downturn that started in December 2007 and bottomed out in June 2009 (the “[Great Recession](#)”) with recovery occurring in the second quarter of 2011. This downturn might have influenced a reduction in demand for Dover sole and cut in production for fresh markets. Between October 2008 and October 2009, the urban consumer price index for fresh fish and seafood dropped by 4.1 percent and did not recover to its October 2008 level until April of 2010. Over a similar period, the Dover sole price dropped by about 20 percent, far more than the drop in the general index. These data suggest the possibility that if the Dover sole 2009 peak and 2010 pull back relates to a general limit in Dover sole market capacity at the time, it may also have been at least partially influenced by temporary national economic conditions. However, a determination of the influence and its degree would require evaluation of a multiplicity of factors and potential interactions that is beyond what is possible here.

Production and opportunities in other fisheries also influence prices and production levels in the Dover sole fishery. For example, Dover sole is often taken on trips with Petrale sole. From 2005 to 2008, 32 percent of all Dover catch by non-whiting trawlers was taken on trips with at least 1,000 lbs of Petrale. Therefore, when managers began constraining Petrale sole fishing due to overfishing concerns in 2009, the decline in Petrale sole catch may also have influenced the decrease in harvest of Dover sole. Opportunities to fish in other fisheries can also influence participation in the Dover sole. For example, in Oregon, beginning in 2009, there was a doubling of the pink shrimp CPUE which may have drawn effort away from other fisheries, including DTS. It is difficult to discern the degree to which this may be related to decreases in

Petrале sole opportunity or possible Dover market limitations. More detailed information on this history of the Petrале sole and pink shrimp fishery is provided in Section 10.6.

If there are market limitations that cause trawlers to yield sablefish QP to gear switchers, those limitations might be overcome with investments in processing equipment and marketing. It has been opined in public comment that gear switching creates some uncertainty around the reliability of the supply of trawl caught complexes, which may be dampening the type of capital investment and efforts needed to expand markets. See Section 2.4.4 for a discussion of how the catch share program design might impede market mechanisms normally employed when secure access to key inputs is needed to reduce risk and justify investments.

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., 2012¹⁰). It appears likely that Dover sole competes 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 imports¹¹ 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 decline or can be displaced.

¹⁰ 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.

¹¹ Close to 80 percent are reported as fillets (weighted annual average)

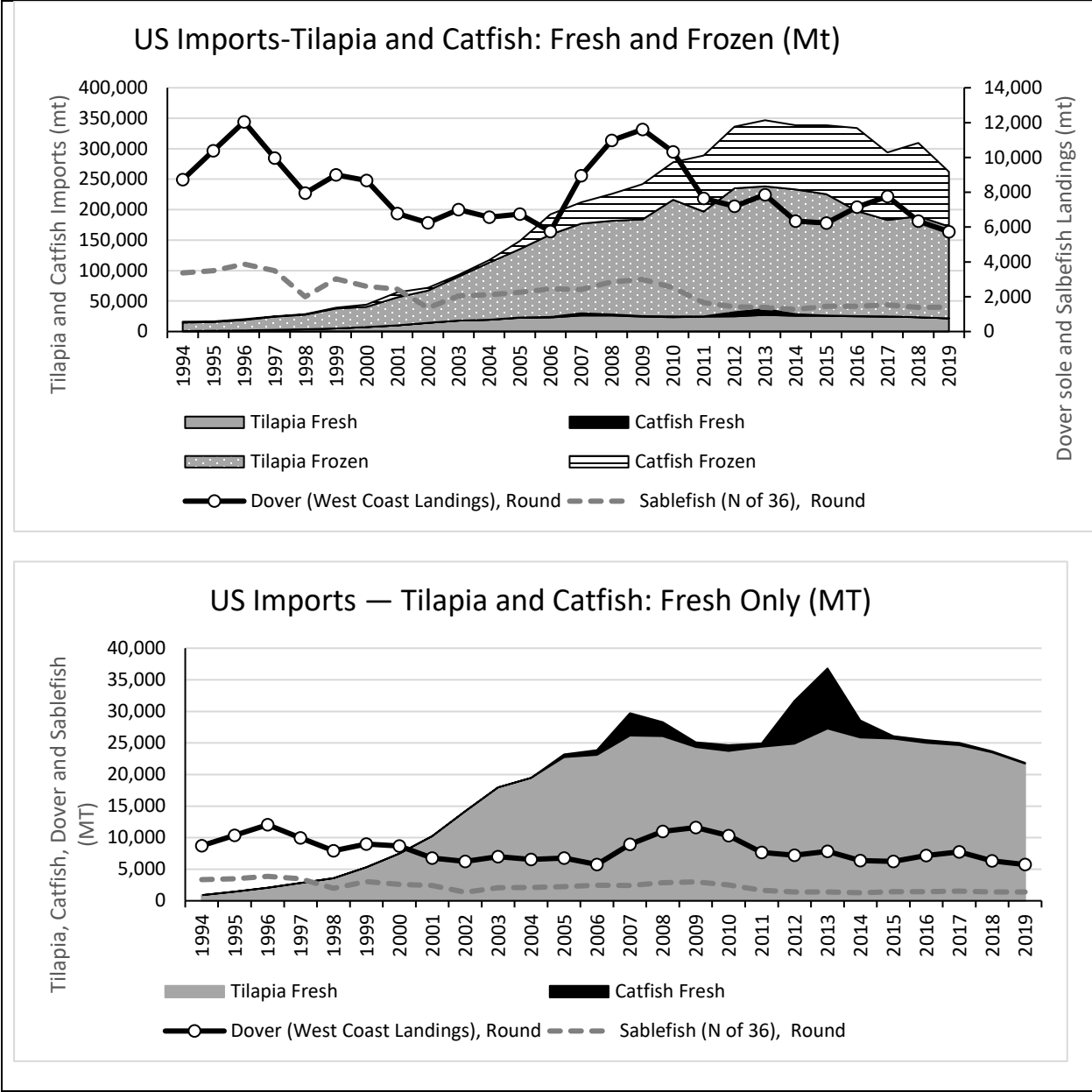


Figure 11. Import volume of processed fresh and frozen (top panel) and fresh (bottom panel) tilapia and catfish and limited entry trawl gear landings of Dover sole and northern sablefish (excluding gear switching). (Sources: NOAA Fisheries Foreign Trade Data and PacFIN Answers Database)

2.4.3 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 contributing to 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 (Figure 5).

Table 5. Presence of infrastructure by port, current and change (as of 2017) since implementation of the catch share program, along with presence of FR businesses, change over the course of the IFQ program and whether FRs in the port are receiving trawl or fixed gear deliveries. (Source: Catch Share Program Review, 2017; PacFIN; WCR Permit Data; and publicly available information on business ownership)

	Fuel Dock		Ice Plant/Cold Storage		Processors		Hoists, Lifts, and Cranes		Shipyard/Dry Dock		Marine Vessel Suppliers		Businesses Owning Licensed First Receivers Sites			IFQ Deliveries 2016-2019	
	Current	Change	Current	Change	Current	Change	Current	Change	Current	Change	Current	Change	IFQ FR	Change During IFQ Program	Current Count (2019)	Trawl Deliveries	FG Deliveries
Washington																	
Bellingham Bay, Whatcom County	Present	No Change	Present	No Change	Present	Decreased	Present	No Change	Present	No Change	Present	Decreased	Present	No Change	2	Present	Present
Neah Bay/N WA Coast	Present	Increased	Present	Increased	Absent	Decreased	Absent	No Change	Absent	No Change	Absent	No Change	Absent	No Change			
Westport	Present	No Change	Present	Increased	Present	No Change	Absent	No Change	Absent	No Change	Present	No Change	Present	No Change	1	Present	
Ilwaco/Chinook	Present	Decreased	Present	No Change	Present	No Change	Present	No Change	Present	Increased	Present	No Change	Present	No Change	2	Present	Present
Oregon																	
Astoria (Includes Hammond & Warrenton)	Present	No Change	Present	?	Present	Decreased	Present	Decreased			Present	No Change	Present	Decreased	5	Present	Present
Garibaldi	Present	No Change	Present	?	Present	?	Present	Increased	?	?	Absent	No Change	Absent	No Change			
Newport (Includes South Beach & Toledo)	Present	No Change	Present	Increased	Present	No Change	Present	Increased	Present	Increased	Present	?	Present	Increased	4	Present	Present
Coos Bay (Includes Charleston & South Bend)	Present	?	Present	?	Present	Decreased	Present	Increased	Present	?	Present	No Change	Present	Decreased	2	Present	Present
Brookings (Includes Harbor)	Present	No Change	Absent	Decreased	Present	?	Present	?	Present	No Change	Absent	No Change	Present	No Change	3	Present	
California																	
Crescent City	Present	?	Present	No Change	Present	Increased	Present	?	Present	?	Present	No Change	Present	No Change	3	Present	
Eureka (Includes Fields Landing)	Present	?	Present	?	Present	?	Present	?	Present	?	Present	?	Present	Increased	4	Present	
Fort Bragg	Absent	Decreased	Present	?	Present	Decreased	Present	No Change	Present	No Change	Present	?	Present	Increased	3	Present	Present
Bodega Bay	Present	Decreased	Present	No Change	Absent	No Change	Absent	No Change	Absent	No Change	Absent	?	Absent	No Change			
San Francisco (Including east bay)	Present	No Change	Present	?	Present	Decreased	Present	No Change	Present	No Change	Present	?	Present	Increased	5	Present	Present
Half Moon Bay/Princeton	Present	Increased	Present	?	Present	Increased	Absent	?	Absent	?	Present	?	Present	Decreased	3	Present	Present
Moss Landing	Present	No Change	Absent	?	Present	Decreased	Present	No Change	Present	No Change	Absent	No Change	Absent	Decreased			
Monterey	Present	No Change	Present	No Change	Present	Decreased	Present	Increased	Present	No Change	Absent	No Change	Present	No Change	1	Present	Present
Morro Bay	Present	?	Present	No Change		No Change	Absent	?	Present	?	Present	No Change	Present	Decreased	1	Present	Present
Avila	Present	No Change	Present	No Change	?	?	Present	No Change	Absent	No Change	Absent	No Change	Absent	Decreased			
Santa Barbara	Present	No Change	Present	No Change	Absent	?	Present	No Change	Present	No Change	Present	?	Present	Decreased			

Present =

Absent =

Increased =

No Change =

Decreased =

Pre-IFQ Comparison Information Not Available =

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. In some cases, the declines are a result of companies consolidating their processing

activities in fewer ports and in other cases processors have left the fishery. Given the decline, in some ports it is possible that there could be some limitations to trawl attainment with vessels having fewer options for delivering catch. However, the effect of declines in number of processors on attainment would be indicated by whether there was an accompanying reduction in the amount of trawl product delivered to wholesale markets. Studies cited and data provided in Section 2.3 show after implementation of the trawl catch shares program there has been a mixture with attainment for some of the main trawl species declining while that for other species increased (Figure 2 and Table 4).

Historical data on total volume of non-whiting trawl caught groundfish indicates that product through-put has varied between 37 and 58 million round pounds (Figure 12). This variation likely indicates the aggregate flexibility that the system has to physically handle larger volumes of fish. Since 2003, there have been two major expansions, the first associated with a temporary expansion of Dover sole from 2007-2010, and the second with the redevelopment of the midwater rockfish fishery, taking off in 2017. While the capacity may be present, there is a question as to whether the existing processing capacity is efficient enough and able to produce the right product forms to be competitive in global markets.

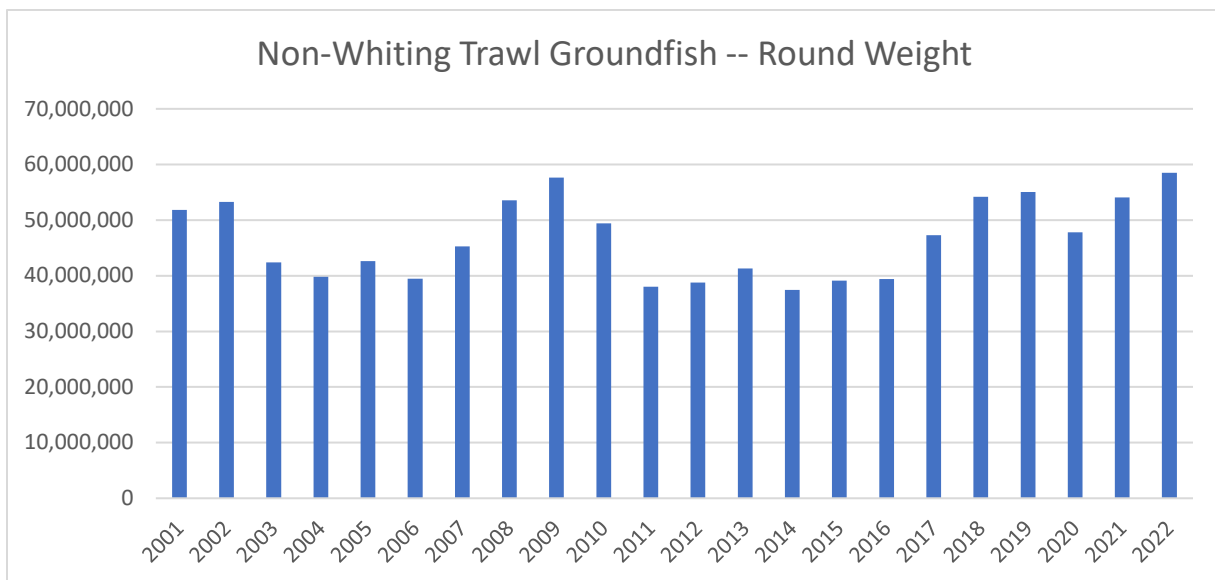


Figure 12. Total volume of nonwhiting groundfish delivered shoreside on the west coast (round weight, 2001-2022)

Overall, unless the concentration of control over fish buying and processing was so great that it interfered with market function (monopolistic control) or regulatory barriers interfere with normal market function, one would expect processing capacity and market development to expand if additional fish can be delivered at a competitive price. Possible sources of regulatory interference with market function are discussed in the following section.

2.4.4 Management System Design

In its June 2022 statement, the Scientific and Statistical Committee (SSC) stated that “the analysis should address whether and why the current market-driven allocation of sablefish quota pounds is undesirable, and what problems the proposed alternatives are trying to correct by constraining the market.” A review of the program shows that the trawl catch share program

provides a constrained market such that a market driven solution will not necessarily generate the greatest net revenue and benefits to the nation. Further, the catch share program interacts with the LEFG program, another constrained market catch share program. Market constraints in the LEFG program provide incentives for additional cross-over by those vessels into the trawl program. Finally, the barrier between the two programs is itself a market constraint that interferes with an efficient outcome. The reason for these market constraints are the mandates of the MSA that go beyond conservation and efficiency to address other public concerns that are not necessarily captured in market determined solutions. The following sections look at these issues in more detail.

2.4.4(a) Trawl Catch Share System Design

Summary of main points:

- *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. See Section 7.10 for further discussion of the importance of certainty of supply to processors. 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](#)).

2.4.4(b) LEFG Stacking Program Design

Summary of main points.

- *The LEFG Program limits stacking to three permits and the license limitation program from which the LEFG program was designed included a very limited number of pot permits.*
 - *Fixed gear vessels that have reached their three-permit limit and want to further increase revenue or that want to use fishpot gear but cannot get an LEFG permit can pursue those activities in the trawl fishery as gear switchers.*
- *Market resolution of the trawl/fixed gear allocation dispute is inhibited because trawl vessels cannot use trawl gear in the LEFG program.*

The current management system allows fixed gear vessels to fish on the trawl allocation but does not allow trawl vessels to fish on the fixed gear allocation. This sets up a sablefish quota market situation that impedes market driven efficiency and alters the between gear allocations. Although on average gear-switching vessels are more profitable per day than bottom trawlers, there is a wide range in profitability among both fleets EDC data shows that one gear type is not wholly more efficient than another but rather that some gear--switching vessels are more efficient than most trawl vessels and some trawl vessels are more efficient than most gear-switching vessels (see Section 2.4.5(b)). About half the gear-switching vessels have reached their permit stacking limit in the LEFG fishery (virtually all vessels that cross over from the LEFG fishery to gear-switch, see Table 13 in Section 2.5.4) and are likely crossing into the trawl fishery to further expand their harvest. These vessels are likely among the more efficient/competitive vessels in the LEFG fishery. Additionally, having covered many of their fixed operating costs with their LEFG harvest they are likely taking the additional trawl harvest at fairly low marginal costs (not including the additional costs of operating in the IFQ fishery).¹² The other main group of gear-switching vessels are not crossing over from the LEFG fishery and tend to use pot gear. There are relatively few pot permits available in the LEFG fishery (36 pot or longline/pot combined, compared to 128 longline permits). The trawl fishery provides an opportunity to fish pot gear without having to compete for the few pot permits available in the LEFG fishery (discussed further in Section 2.5.4). If fixed gear vessels gear switching in the trawl fishery are outcompeting trawl vessels for the purchase of sablefish QP, it is likely the trawl vessels of lesser efficiency that are being displaced. Because trawl gear cannot be used to catch the LEFG sablefish quota, these trawl vessels do not then have an opportunity to see if they can outbid some of the LEFG vessels of lesser efficiency for that quota. Thus, the one-way entry opportunity for crossing between the fisheries may be resulting in some gain in efficiency but the gain is limited by the unidirectional access and the result is an intersector allocation that is still not fully market driven but rather impeded by the management measures intended to address the nonmarket objectives and considerations specified by the MSA.

¹² Paying for observers and cost recovery fees.

2.4.5 Competing Uses for Sablefish QP, Including Gear Switching

The previous sections considered other causes for the under attainment of the trawl allocation. One of the main potential causes at issue in this action is whether a constraint is created by the use of sablefish by gear switching vessels. 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?

- *Up until 2019, sablefish QP could basically be considered fully utilized. Due to COVID and escalating ACLs, that may have changed in more recent years.*
- *Trawl and gear-switching vessels have comparable levels of total profitability, with some trawlers being more profitable than some gear-switchers and vice versa.*
- *Profit per day earned by each strategy has a similar overlap in distribution of profitability.*
- *On a per mt of catch basis, for the most part, gear-switching vessels bring in much higher revenue and profit (variable cost net revenue, VNCR).
 - *Trawl revenue per mt is lower because each mt includes only some sablefish and a substantial amount of other species of lower value (petrale sole being a potential exception).**
- *Profits per pound of sablefish influence what a vessel is willing to pay for sablefish QP.
 - *On average, vessel and trip profits per pound (VCNR) of sablefish for DTS trawl tend to be higher than for gear-switched vessels and trips but for a portion of DTS trawl vessels and trips the profits are lower than for gear-switching vessels and trips.*
 - *The trips on which trawl profits per pound of sablefish are lower than for gear switching tend to be those in which there is a higher portion of sablefish in the catch (and therefore less revenue from co-occurring species).*
 - *Years of high sablefish prices increase the proportion of the gear switched trips that are more profitable than DTS trips.**
- *If gear switchers are acquiring sablefish QP that would otherwise be used by trawlers the effect would be to either
 - *Reduce the amounts of the complex caught and trawler profits, OR*
 - *Reduce the amount of sablefish trawlers take while fishing some complexes (encouraging sablefish avoidance) and thereby reduce trawler profits.**
- *If gear switchers are acquiring sablefish QP that would not otherwise be used by trawlers, they are contributing to attainment of the sablefish allocation and hence the overall trawl allocation attainment.*
- *There was a substantial and consistent reduction in the Dover/sablefish ratio that occurred with implementation of the trawl catch share program, potentially indicating DTS trawler avoidance of sablefish.*

2.4.5(a) Attainment of Sablefish Allocation

In most years the sablefish allocation can be considered fully attained, creating competition among different strategies for the available sablefish QP. On average from 2011-2019, 96.4 percent of the trawl sablefish allocation for each year was caught (Table 3). Attainment was much lower in 2020 and 2021, likely due to COVID. In 2022, even with a trawl allocation that had increased to 30 percent above the 2011-2019 average, overall attainment was above the 2011-2019 average (97.8 percent compared to 96.4 percent). With another 30 percent increase in 2023, overall northern sablefish trawl allocation attainment declined to 69 percent. The gear-switched portion of the harvest increased enough to maintain the gear-switching share of the allocation relatively unchanged compared to pre-COVID years, while at the same time trawl harvest of sablefish declined by 18 percent and the trawl share declined from 74 percent to 47 percent (Table 3). In catch shares programs, it is not unusual for there to be some quota left unused. As an example, the LEFG primary fishery is typically considered “fully attained” but averaged only 91.2 percent from 2015-2020 ([2022 LEFG Review](#)). For 1995-2019 (years covered in program review, NPFMC/NMFS, 2016), the Alaska IFQ Programs for fixed gear sablefish and halibut took an average of 90 percent and 96 percent of their allocations, respectively.

2.4.5(b) Relative Revenue and Profitability, By Strategy

Vessels use trawl gear in a variety of strategies that catch different species complexes, usually including some sablefish, while gear switching operations primarily target sablefish, with little to no additional retained harvest of other species.¹³ To compare the economics of these strategies, this evaluation looks primarily at exvessel revenue and profits as measured by VCNR. VCNR is net revenue calculated as total exvessel revenue minus variable costs and relates to daily decisions on whether or not to go fishing and what strategies to pursue.¹⁴ Of all the trawl strategies, DTS is most likely to be limited by the availability of sablefish because on per pound of sablefish it brings in the least revenue amongst the trawl gear strategies (Table 6), the lowest VCNR (Table 7), and highest volume of sablefish (Table 9). Whiting and midwater rockfish on the other hand are observed to have the highest revenue and VCNR per pound of sablefish, suggesting that they should be willing to pay more than other strategies to obtain sablefish QPs they need. This makes DTS more vulnerable to competition with gear switching vessels than other trawl gear strategies, as well as being subject to competition with those other trawl gear strategies. While DTS is more subject to competition with gear-switchers than other strategies, on average gear switchers have lower average levels of revenue and VCNR per pound of sablefish than DTS and the other trawl strategies (Table 7).

¹³ For gear switching vessels, sablefish comprised an annual average of 99.3 percent of the total revenue and 97.1 percent of total landings for 2016-2019.

¹⁴ Fixed costs (e.g., equipment or gear purchases) are not subtracted VCNR. TCNR, which subtracts fixed costs from revenue to determine the net, is related to decisions on whether or not to stay in business.

Table 6. 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, 2016-2019,2020, and 2023. 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 ^{a/}	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
2023			
DTS	50.3	5.0	3,878
Flatfish	16.0	13.7	9,559
Mixed Slope	17.6	7.5	5,736
Whiting	6.8	895.9	77,713
Mixed Shelf	8.3	11.5	7,883
Midwater Rockfish	1.0	816.1	280,859
	Trawl Total= 100%		Trawl Weighted Average=
Gear Switching			1,014

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

a/ Includes canary, widow, bocaccio, and yellowtail rockfish.

Table 7. Variable cost net revenue (\$) per 1,000 lbs of sablefish (quota earnings and costs are not included in analysis) (Source: NWFSC EDC Program)^{a/}

Target	2016-2019	2020
DTS	\$2,702	\$2,583
Flatfish	\$5,780	\$6,741
Mixed Slope	\$5,205	\$4,180
Whiting	\$40,171	\$23,438
Mixed Shelf	\$14,450	\$3,595
Midwater Rockfish	\$29,561	\$21,186
Gear Switching	\$1,593	\$589

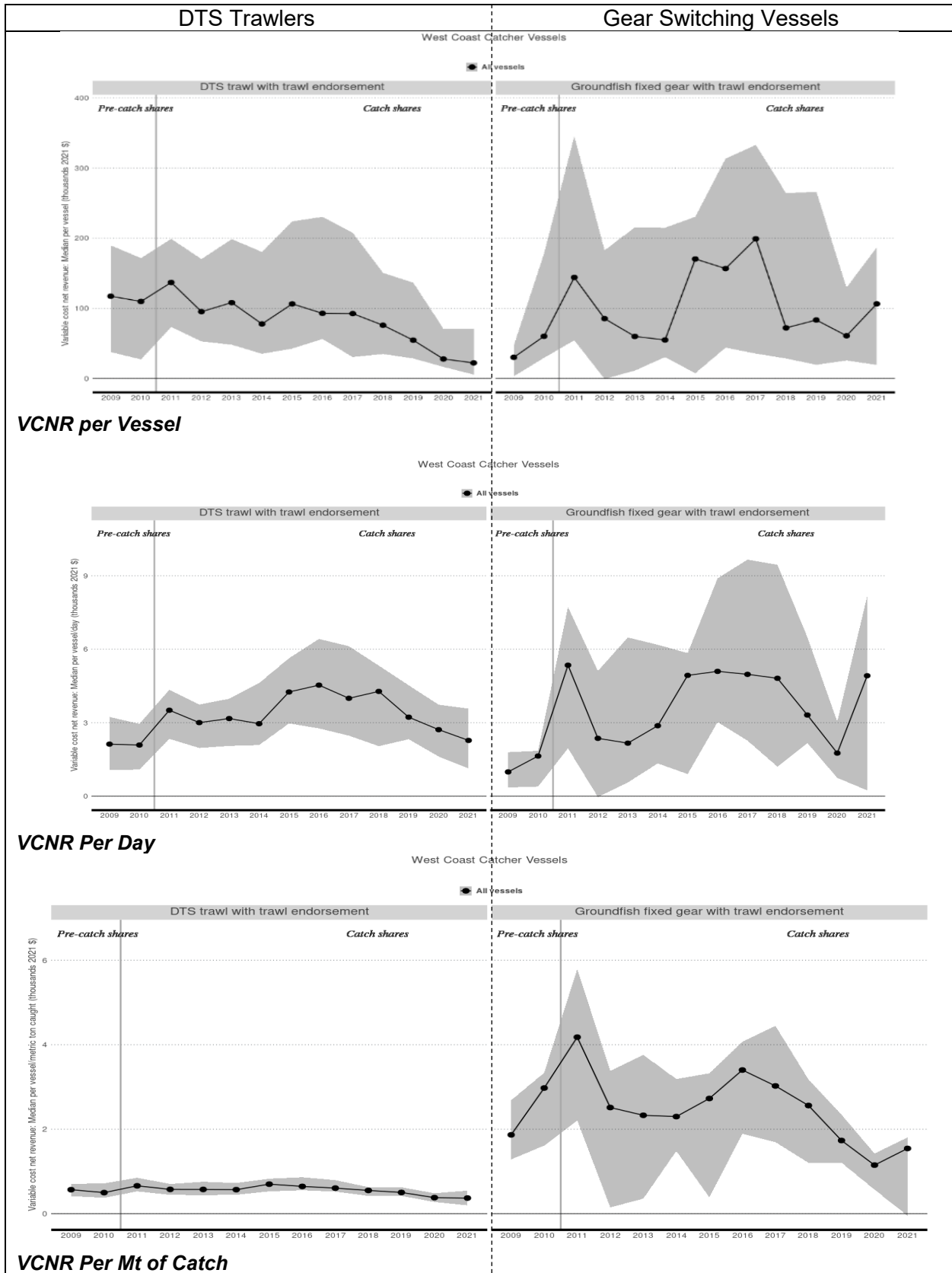
a/ Data summary provided by Erin Steiner, September 2023.

The low VCNR per pound of sablefish might be interpreted as indicating that there is little chance that gear-switching vessels would be able to outbid trawlers for their QP. However, the situation is complex and consideration of the issue at the individual vessel level reveals different possible outcomes. Here we focus on annual vessel, per day, per metric ton, per pound of sablefish VCNR, primarily for DTS and gear-switching vessels. Additional detail can be found in Section 10.4.

VCNR data per vessel and per day reveals two important contrasts. First, in each strategy there are some vessels that have a profit advantage over vessels in the other strategies. Figures generated from EDC FISHEyE system (Figure 13) show median values (lines) bounded on the top by the 75th percentile and on the bottom by the 25th percentile (shaded areas). For example, the top graphs of Figure 13 show VCNR per vessel and there it can be seen that the DTS vessels operating near the 75th percentile are substantially more profitable than most median gear switching vessels and all of those operating near the 25th percentile.

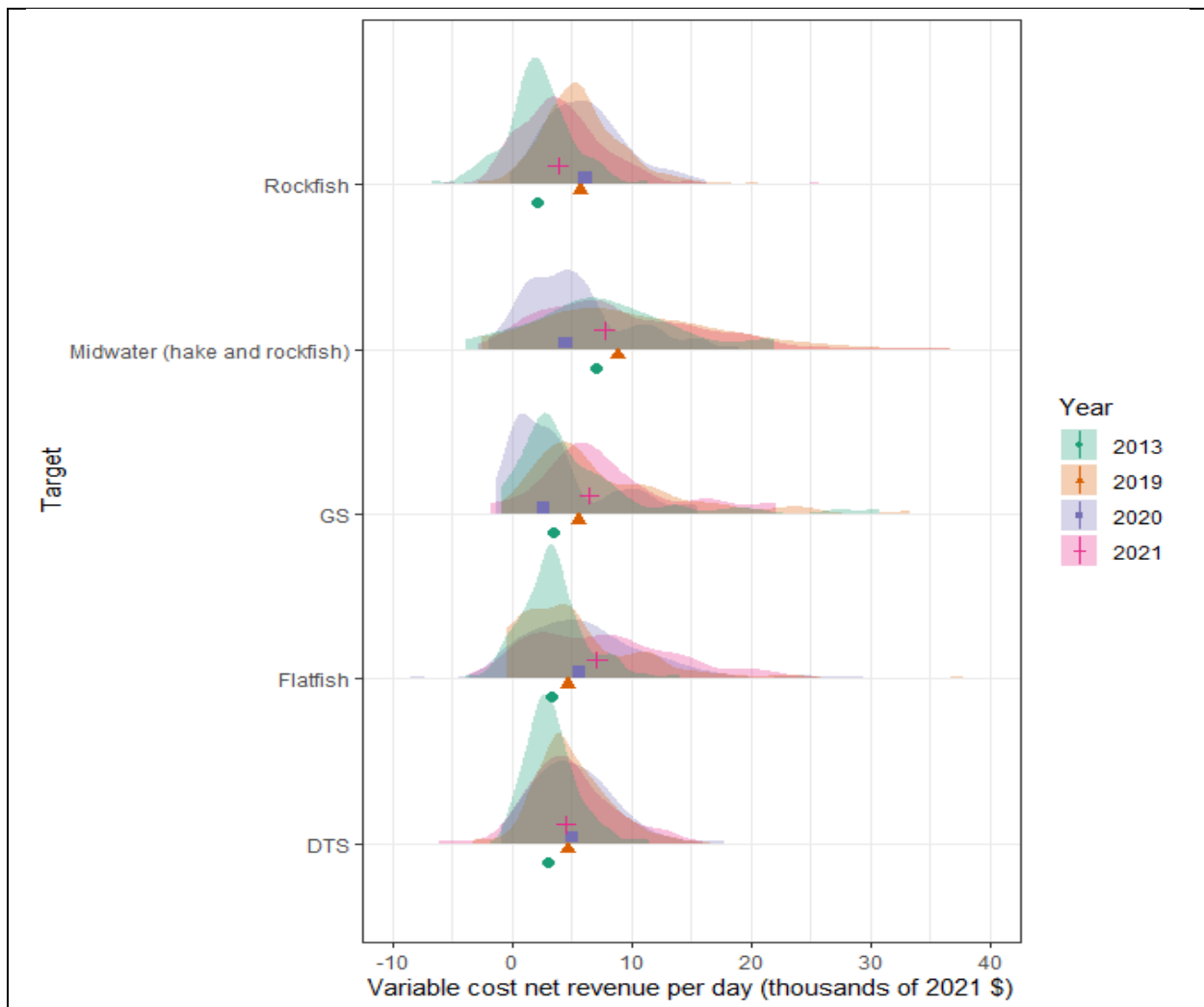
Second, there is a between year variability which indicates that over time, different sectors will experience different relative profit advantages in the use of sablefish QP. For example, on an annual vessel basis, the median gear switching vessel had greater annual profits than the median DTS trawl vessel in 2011 and 2015-2020, while the median DTS vessels were more profitable in other years.

VCNR per day or per trip indicates more about the choices vessels have each day and the differences in opportunities by the strategies. As with annual catch, there are some vessels using the DTS strategy that are more profitable on a per day basis than gear switchers and vice versa (middle graphs of Figure 13). Distributions of VCNR per day for other strategies indicate that even where there substantial differences in the medians there is still considerable overlap in the distributions (Figure 14). Thus, while for purposes of illustration and discussion we will focus on competition between the DTS and gear-switching strategies, there is still a potential for competition for sablefish QP between gear switching and the other trawl strategies, as well as among the trawl strategies.



Note: Median values shown by the line, top of the gray area denotes the 75th percentile value, and the bottom the 25th percentile.
 Figure 13. VCNRs for DTS trawlers and gear-switching vessels 2009 through 2021. Source: The FISHEyE application maintained by NOAA Fisheries, NWFSC, Updated September 29, 2023.

In contrast to the annual vessel and day/trip data, VCNR per mt of catch for gear-switching vessels is typically much higher than for trawl vessels. A metric ton of gear switched catch is comprised mainly of sablefish (high exvessel price) while a mt of trawl catch includes other species, most of which have a substantially lower exvessel price (one notable exception being Petrale sole). However, as with the per vessel and per trip data there is some deviation from the general pattern (note the lower bounds of the VCNR per mt distribution for gear switching vessels in some years compared to the range for the DTS vessels). Comparison of the annual vessel data to the per metric ton data (top of Figure 13 compared to bottom) indicates that volume of landings is important for the profitability of trawl vessels.



Note: Each shaded area represents the distribution of the trip data. Taller regions indicate more trips at the VCNR level indicated across the bottom. The range of VCNRs for a particular year (line) is indicated by how far the distribution extends horizontally. The markers represent the median for each year and target. The Rockfish category is a combination of the Mixed Shelf, and Mixed Slope targets.

Figure 14. Trip-level variable cost net revenue per day by target and three years (2013 (green, circles), 2019 (orange, triangles), 2020 (purple, squares), 2021 (pink, pluses) (Source: NWFSC EDC Program).

Landings in the DTS and gear switching strategies require access to sablefish QP. There are some vessels in each strategy that have an overall level of profitability that should be sufficient to allow them to outbid some vessels in the other strategy for sablefish QP (on the basis of annual or per day profitability). The question is whether it makes economic sense to do so and this depends on the expected return for each additional pound of sablefish QP purchased (the marginal profits, see Section 10.4).

For harvesters driven by profit maximization, willingness to pay for sablefish QP will be related to the VCNR for all species that vessels can land per pound sablefish caught. Table 8 provides 2017-2021 VCNR per pound of sablefish **for vessels** participating in the strategies shown in Table 7. For each strategy, vessels were ordered from lowest to highest VCNR per pound of sablefish and values are displayed at 10 percentile intervals. The VCNRs displayed for each percentile indicate on average the most we would expect a vessel to pay for sablefish. For example, for the DTS target strategy the vessel at the 10th percentile had a VCNR of \$0.66 per pound of sablefish, and the 90th percentile \$6.87. Vessels ranked in the 10th percentile or below would not be expected to pay more than \$0.66 per pound for sablefish QP. At the other end of the spectrum, a vessel ranked in the 90th percentile or above would be expected to be willing to pay at least \$6.87 per pound for a sablefish QP. While for every percentile rank the VCNR per pound of sablefish caught for DTS trawlers was higher than that for gear-switching vessels, gear-switching vessels at the 70th percentile or higher had greater values than the DTS vessels at the 10th and 20th percentile, giving an indication that many gear-switching vessels are more profitable than some DTS vessels. Also note that gear-switching vessels at the 30th percentile and higher were more profitable than the 10th percentile DTS vessel.

Table 8. VCNR per pound of sablefish by target by percentile for vessels by target strategy (2017-2021) (Source: NWFSC EDC Program).

Target	10%	20%	30%	40%	50%	60%	70%	80%	90%
DTS	\$0.66	\$1.23	\$1.70	\$2.13	\$2.41	\$2.75	\$3.52	\$4.59	\$6.87
Flatfish	\$1.31	\$2.40	\$3.55	\$4.67	\$6.43	\$9.07	\$13.21	\$26.30	\$64.93
Midwater (hake and rockfish)	\$2.68	\$6.92	\$11.98	\$21.11	\$37.16	\$54.01	\$77.79	\$176.93	\$326.77
Rockfish	\$0.72	\$1.72	\$2.60	\$4.20	\$5.56	\$7.43	\$11.24	\$15.12	\$27.44
GS	\$0.11	\$0.46	\$0.70	\$0.84	\$0.92	\$1.15	\$1.38	\$1.54	\$2.06

Table 9 provides VCNR per pound of sablefish **per trip** taken in the 2017-2021 period for the strategies shown in Table 7. For each strategy, trips were ordered from lowest to highest based on VCNR per pound of sablefish and values are displayed at 10 percentile intervals. The VCNRs displayed for each percentile indicate the most we would expect a vessel to pay for sablefish in order to make a trip like that for the indicated percentile. For example, for the DTS target strategy the trip at the 10th percentile had a VCNR of \$0.86 per pound of sablefish, and the 90th percentile \$10.79. A vessel expecting to make a trip similar to those that were ranked in the 10th percentile or below would not be expected to pay more than \$0.86 per pound for sablefish QP to support that trip. At the other end of the spectrum, a vessel expecting to make a trip similar to those that were ranked in the 90th percentile or above would be expected to be willing to pay at

least \$10.79 per pound for a sablefish QP to support that trip. It should be noted that Table 9 does not indicate the overall level of profitability for any particular trip made in a particular decile, but only the profit per pound of sablefish. As indicated above, on a daily basis a high volume of trawl catch can result in a high VCNR per day.

In general, trawl trips with lower VCNRs per pound of sablefish tend to use more total sablefish than those with higher VCNRs per pound of sablefish. This is because the lower VCNR trips have a higher proportion of sablefish in their catch, so each pound of sablefish caught is associated with fewer pounds of co-occurring species and thus less total revenue per pound of sablefish. Table 10 shows for each cell in Table 9 the amount of sablefish taken in the corresponding decile¹⁵ (for each corresponding cell the percentile in Table 9 defines the upper bound of the decile in Table 10). As an example, using the first column for the DTS row in both tables, it can be seen that 7.43 percent of the sablefish (Table 10) were taken on DTS trips that had VCNR of \$0.86 or less per pound of sablefish (the 10th decile value in Table 9). Conversely, DTS trips that had a very high VCNR per pound of sablefish (\$10.79 per pound, last column of Table 9) used very little sablefish (0.56 percent of the sablefish, last column of Table 10).

Table 9. Variable cost net revenue per pound of sablefish by target by decile for trips (2017-2021)
(Source: NWFSC EDC Program).

Target	10 th	20 th	30 th	40 th	50 th	60 th	70 th	80 th	90 th
DTS	\$0.86	\$1.41	\$1.85	\$2.34	\$2.90	\$3.58	\$4.73	\$6.48	\$10.79
Flatfish	\$1.17	\$2.86	\$4.60	\$7.74	\$13.06	\$23.45	\$44.57	\$104.91	\$363.11
Mixed Slope	\$1.11	\$1.89	\$2.87	\$4.15	\$6.11	\$9.79	\$16.34	\$31.71	\$75.90
Whiting	\$2.49	\$26.45	\$99.05	\$270.25	\$533.98	\$1,005.45	\$1,835.64	\$3,281.66	\$6,111.63
Mixed Shelf	\$0.14	\$1.22	\$2.55	\$4.46	\$9.02	\$19.62	\$40.21	\$66.26	\$163.37
Midwater Rockfish	\$2.49	\$4.87	\$15.93	\$24.43	\$68.34	\$134.07	\$288.65	\$1,180.13	\$7,358.60
GS	\$0.36	\$0.63	\$0.79	\$0.98	\$1.12	\$1.36	\$1.62	\$1.87	\$2.14

¹⁵ Deciles are created by ranking the data (in this case from lowest to highest VCNR per pound of sablefish) and splitting that ranking 10 equal groups.

Table 10. Percent of **sablefish** landings by weight for trips grouped by decile based on variable cost net revenue per pound of sablefish, as displayed in Table 10 (2017-2021) (Source: NWFSC EDC Program).

Target	[0-10 th]	[10-20 th]	[20-30 th]	[30-40 th]	[40-50 th]	[50-60 th]	[60-70 th]	[70-80 th]	[80-90 th]	[90-100%]	Total
DTS	7.43%	7.68%	6.67%	5.67%	4.67%	3.94%	2.99%	2.30%	1.66%	0.56%	43.58%
Flatfish	1.00%	3.09%	1.62%	0.93%	0.45%	0.24%	0.14%	0.05%	0.02%	0.00%	7.55%
Mixed Slope	1.66%	1.86%	1.63%	1.11%	0.64%	0.42%	0.24%	0.13%	0.08%	0.02%	7.80%
Whiting	4.12%	1.62%	0.21%	0.07%	0.03%	0.02%	0.01%	0.01%	0.00%	0.00%	6.09%
Mixed Shelf	0.13%	0.63%	0.41%	0.29%	0.17%	0.07%	0.05%	0.03%	0.01%	0.00%	1.79%
MWT Rckfish	0.56%	0.42%	0.15%	0.06%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	1.23%
GS	1.55%	3.08%	3.90%	4.06%	3.14%	3.96%	3.52%	2.81%	2.23%	3.71%	31.95%

Between 2017 and 2021, over one third of the sablefish used in the DTS strategy was landed on trips with VCNR per pound of sablefish that was at the 20th percentile or lower (total of percentages in the first two columns of the DTS row in Table 10 divided by the total percentage for the row). Considering all the strategies and deciles in Table 10, the greatest proportion of sablefish (7.68%) was landed on DTS trips that earned between the 10th and 20th percentile of the VCNR per pound of sablefish.

For any given decile, the VCNR per pound of sablefish is lower for gear switchers than trawl strategies. However, comparing target strategies across columns shows that the vessels making the more profitable gear-switching trips would be willing to pay more for a pound of sablefish than vessels making the less profitable DTS trips. For example, for 2017-2021 trips, the VCNR values for gear switchers above the 70th percentile are higher than values for DTS trips below the 20th percentile (see dark boxed areas in Table 9).

As fishery and market conditions change, relative profitability¹⁶ changes and this can be demonstrated by comparing the distribution of VCNRs and sablefish landings for different time periods. Here we will compare a high sablefish price year (2017, see Section 2.5.3) to the 2017-2021 averages¹⁷ (a lower price period of time, on average). For the 2017-2021 period, the percentage of the trawl allocation and total pounds gear-switched in 2017 was second only to 2019 (Table 3). The year 2017 and comparison to an average that includes 2017 are used in order to allow the data to be disaggregated sufficiently to demonstrate the market effects without running into confidentiality issues. In 2017, when sablefish prices were higher, more than half of the gear-switching trips had a greater VCNR per pound of sablefish than did the bottom 20 percent of DTS trips (Table 11). For the 2017-2021 period, only 30 percent of gear switching trips had a greater VCNR per pound of sablefish than did the bottom 20 percent of DTS trips

¹⁶ The relative profitability between DTS vessels and gear switchers is influenced by exvessel prices of all catch in hauls and other conditions such as fuel prices, CPUE, species mixes, etc.

¹⁷ Our ability to make comparisons to a single more recent lower price year is limited due to confidentiality but more aggregated single year information is provided in Section 10.4.1.

(Table 9). Thus, gear switchers in 2017 were much more able to compete with trawlers for sablefish QP as compared to the during the 2017-2021 period as a whole.

Table 11. Variable cost net revenue per pound of sablefish by target by decile (DTS and gear-switching trips in 2017) (Source: NWFSC EDC Program).

Target	10%	20%	30%	40%	50%	60%	70%	80%	90%
DTS	\$1.40	\$1.78	\$2.23	\$2.78	\$3.15	\$3.98	\$4.85	\$6.37	\$9.53
GS	\$0.42	\$0.98	\$1.42	\$1.62	\$1.86	\$1.98	\$2.09	\$2.34	\$2.49

While the preceding analysis focused on variable costs, fixed costs may also affect the competitive dynamics between gear switchers and trawlers. The data summarized above includes some trawlers that only or primarily participate in the trawl fishery. For these trawlers, some of the income from trawling is needed to offset fixed costs (costs incurred regardless of how many trips are taken). Taking into account fixed costs reduces their average profit and may be a more appropriate measure of marginal profit for trawlers that do not have additional revenue sources from other fisheries. With respect to gear-switching vessels, approximately half of the gear switching vessels are those that maxed out their opportunity in the LEFG tier fishery (Table 13). It may be that they cover most or all annual fixed costs during the primary sablefish season. Such vessels would have higher profits at a given level of exvessel revenue than those that rely on gear switching to cover fixed costs. Therefore, for LEFG vessels that crossover and gear switch in the trawl fishery, average profit, excluding fixed costs, might be the best measure of marginal profit. In contrast, for vessels that are primarily or only trawlers, average profits including fixed costs might be the best measure. To the degree that this is the case, trawlers would be less competitive than indicated in the above analysis based on VCNR.

2.4.5(c) Trip and Revenue Modification from DTS/Gear Switcher Competition

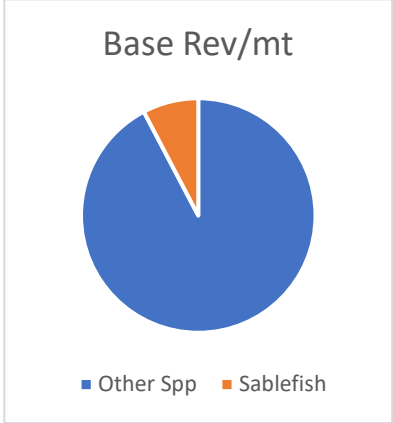
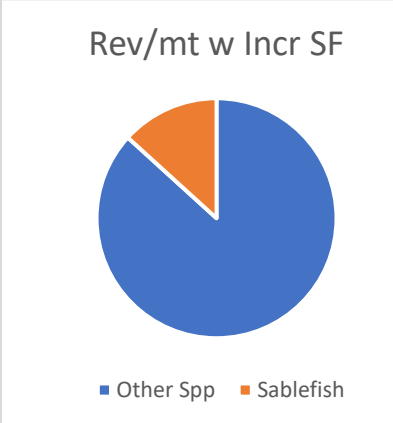
The previous section identifies the potential for some gear switchers to economically compete with and displace trawl activity. Of particular concern here is the impact of any displacement that occurs. Focusing on DTS activity, how does gear switcher acquisition of sablefish QP impact on DTS vessels? Does it have no impact because gear switchers are using sablefish QP that would otherwise have gone unused, impact trawlers by encourage DTS vessels to avoid sablefish but not change the amount of the complex caught (reducing revenue per metric ton of catch), or cause a reduction in the amount of the complex caught due to a sablefish QP constraint?

Gear switching use of sablefish QP might have no impact on attainment of non-sablefish species allocations if DTS vessels are not able to use the available sablefish QP to fish the DTS complex due to other limiting factors, such as limits that processors place on the amount of dover and thornyheads they are willing to receive (or pay fresh fish prices for, see Section 2.4.2).

If other factors are constraining harvest of complexes, gear switching could contribute to attainment of the sablefish allocation if without it, sablefish QP would go unused. However, if instead gear switcher use of sablefish QP is causing DTS vessels to avoid sablefish (as might be indicated by the sudden reduction of sablefish in the DTS catch with the implementation of the trawl catch share program, Figure 15) then rather than coming from QP that would otherwise go

unused, the sablefish QP used by gear switchers might be diminishing the ratio of sablefish in the trawl catch and therefore trawler revenue per metric ton of catch. To illustrate the nature of the impact, consider the possibility that DTS trawlers are currently avoiding sablefish and a reduction in gear switching allowed them to reduce avoidance. Consider a hypothetical trip with a Dover:sablefish ratio of 4.6:1 (typical for the range observed since the start of the program , Figure 15) and typical prices¹⁸ that yields an exvessel value of \$1,380 per mt or \$24 per pound of sablefish caught (Table 12). If the DTS vessel was able to increase its catch of sablefish and reduce its Dover to sablefish ratio to 2.5:1 (a value within the range of the pre-IFQ fishery), the exvessel value per mt would increase to \$1,438 while the value per pound of sablefish caught would decrease to \$14. Further, if vessels are spending time and fuel avoiding high sablefish bycatch areas there could be cost savings as well. Thus, if amounts of DTS landings are limited by market factors,¹⁹ gear switching may not be impacting attainment of dover and thornyheads but competition for sablefish QP could be impacting trawl revenue and profits. These issues are explored further in the context of the analysis of the alternatives (see Section 7.4.1).

Table 12. Effect on revenue per metric ton from increasing the proportion of sablefish in the catch.

Base Per Mt (4.6 lbs of Dover/lb of sablefish)		Increase the Proportion of Sablefish (2.5 lbs of Dover/lb of sablefish) ^{a/}	
<p>Base Rev/mt</p>  <p>■ Other Spp ■ Sablefish</p> <p>\$1,380 exvessel value \$24/lb of sablefish</p>		<p>Rev/mt w Incr SF</p>  <p>■ Other Spp ■ Sablefish</p> <p>\$1,438 exvessel value \$14/lb of sablefish</p>	

^{a/} The ratio change adds 217 lbs of sablefish per mt of catch.

If processor limits or other conditions are not constraining, gear switcher acquisition of sablefish QP could be constraining harvest of DTS or other complexes and attainment of trawl allocations. The degree of gain in attainment and trawler revenue that results from a gear-switching restriction would depend on the nature of DTS trips made using the increased availability of sablefish QP (see Section 10.4.2). DTS VCNR may vary widely due to geographic and seasonal differences in dover/sablefish ratios (see Section 10.2), vessel operator knowledge and techniques, sablefish encounter rates that are different than expected when the trip and tactics decisions were made, and other factors. Geographic and temporal variations in the

¹⁸ Example typical prices adjusted for inflation: Dover sole \$0.51; longspine \$0.49; shortspine, \$0.76, and sablefish \$1.87 (2011-2022).

¹⁹ If DTS is limiting the amount of a complex taken, using the hypothetical examples provided here the typical exvessel of the complex that is lost per pound sablefish would be \$24.

dover/sablefish ratios indicate opportunity for trawlers to have some control over Dover sole encounter rates. 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 for those trips with both Dover and sablefish present—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 2020 (averaging 4.56 from 2011 through 2020—Figure 15).

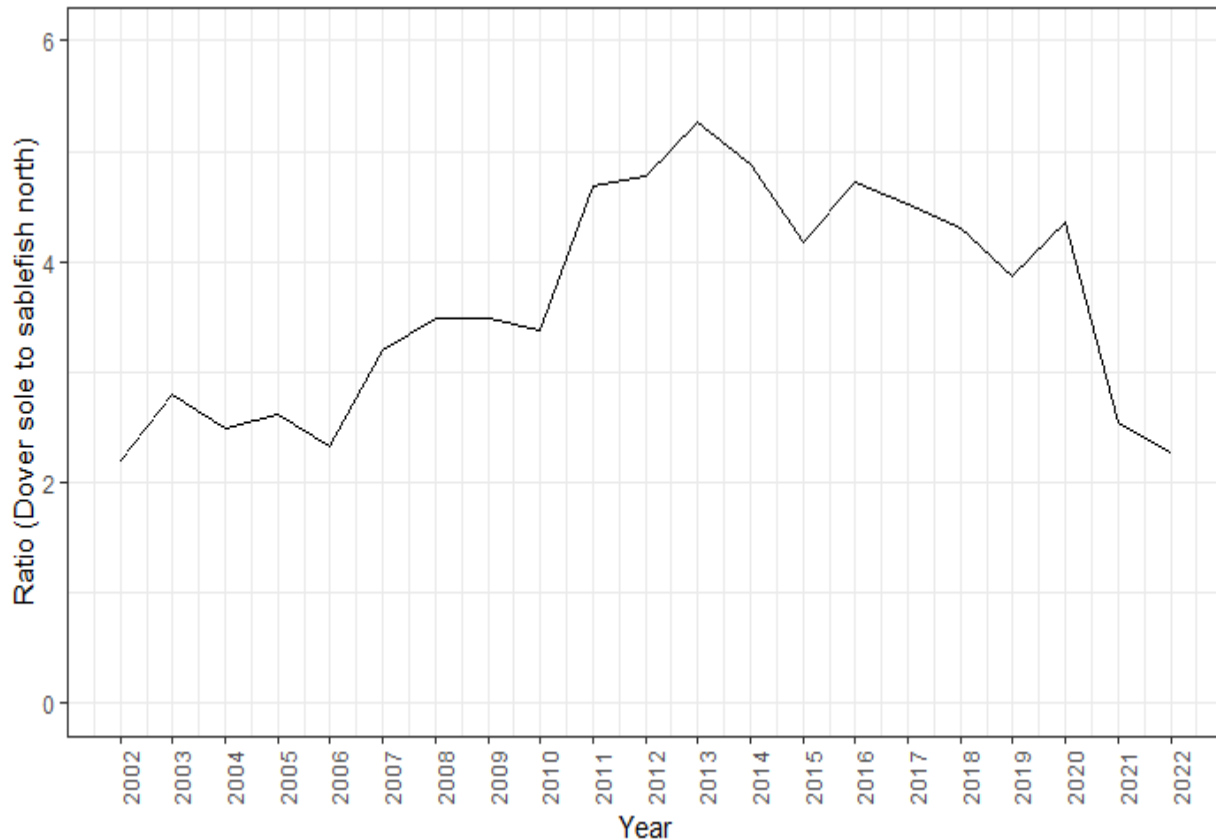


Figure 15. Catch ratio of Dover sole to sablefish on bottom trawl hauls with Dover and sablefish north present, 2002-2022. Sources: WCGOP.

2.5 Factors that Might Alter or Indicate Future Gear Switching Levels

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

2.5.1 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](#)). Additionally, 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.

2.5.2 Sablefish Biomass and Changing ACLs

Summary of main points:

- *Changes in sablefish biomass and ACLs will affect the level of gear switching and trawl need for sablefish QP.*
- *Changes in biomass will change encounter rates (including species mixes), fishing costs, and revenue.*
- *Increases in the ACLs would increase the total QP available, and gear switching as a percentage of the total trawl allocation could either increase or decrease depending on the level of gear switching.*
- *Decreases in ACLs might result in lower total amounts of QP used in gear switching while at the same time raising the percentage of the trawl allocation harvested by gear-switchers.*
- *Whether these changes in gear-switching levels are problematic from a policy perspective will depend on how trawler demand for QP is impacted by the biomass and ACL changes and whether gear-switching is displacing trawl activity.*

One of the questions on which the current policy deliberation turns is with respect to whether or not gear-switching is constraining trawl allocation attainment in the present or is reasonably likely to do so in the future. This section discusses the influences of changing biomass and

ACLs on gear-switching levels and likelihood that gear switching constrains attainment of trawl allocations of other species. Section 7.4 details what might happen under different scenarios and ACL levels given a reduction in gear switching under an action alternative. Here the focus is on No Action.

With respect to gear switchers, an increase in biomass alone (prior to an increase in ACLs) might decrease gear-switching costs per unit of catch, potentially increasing profitability. At the same time, if average fish size declines (as seen in 2023), this would exert a downward influence on revenue per unit of catch because lower prices are generally paid for smaller fish (Section 10.5.2). The net effect of these changes will depend on the particular combination of conditions that prevail—potentially causing either an increase or decrease in the amount of gear-switching.

As ACLs are increased, the amount of sablefish landed could increase, possibly providing another source of downward exvessel price pressure. This downward pressure on exvessel prices might be at least partially offset by decreasing QP prices, depending on the impact of the increased biomass and ACLs on trawl demand for sablefish QP. In general, it might be plausible that an increase in biomass and sablefish ACLs could result in an increase in the amount of QP used for gear switching and possibly an increase in the percentage of the trawl allocation taken by gear switching, depending on interaction with trawl demand for the increased QP. However, the opposite occurred in 2021 and 2022, where allocations increased but the amount and percentage of gear switching decreased relative to previous years. Whether increases in gear switching due to increases in biomass is problematic from a policy perspective will likely depend on how trawler demand for QP is impacted by the biomass and ACL changes.

For trawl vessels, an increase in biomass could have impacts similar to those on gear switchers with respect to changes in CPUE, costs, fish sizes, and prices. In the trawl fishery, a change in CPUE could show up as an increase in the proportion of sablefish in the trawl catch and total revenue per unit of a complex landed.²⁰ The increase in revenue from the greater portion of sablefish in the catch may be tempered though if the sablefish are smaller sized, which bring a lower price per pound than larger sized sablefish (Table 74; Section 10.5.2). At the same time, for a given unit of catch, if the sablefish ratio increases, the total amount of other species that trawlers would be able to land in a haul or trip would decline. Thus, in order to maintain previous landing levels of the co-occurring species, trawlers would need more sablefish QP, increasing the likelihood that fixed gear use of sablefish QP would compete with trawl needs. Further, if sablefish encounter rates increase for several trawl strategies at the same time, the competition for sablefish QP between trawlers and gear switchers may increase. For example, large year class recruitment events that lead to increased sablefish bycatch in the whiting fishery, like those seen in recent years, have increased the amount of sablefish QP needed for that fishery. Section 2.4.5 discusses how whiting and other strategies are likely able to economically outcompete strategies such as DTS for sablefish QPs.

As increases in biomass are reflected in increased trawl allocations, QP constraints may be partially alleviated. For complexes such as DTS, the increase in sablefish QP might allow vessels to land the same amount or increase landings of other species in the complex, or trawlers may choose to increase the sablefish QP in their catch, if markets allow. If encounter rates

²⁰ Unless the sablefish caught does not have a higher exvessel price than other species in the complex

increase proportionally more than the trawl allocation, to maintain landings levels trawlers might need not just an increase in the amount of QP but an increased proportion of the QP they use.

The influences of decreases in biomass and ACLs would generally be the inverse of those described above. Assuming gear-switching is creating a constraint on trawl activity, a decline in biomass prior to a decline in ACLs could reduce those constraints if the sablefish encounter rates decline with the declining biomass while the amount of QP issued remains unchanged. Decreasing ACLs as biomass declines 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, what is happening in sablefish markets (price and total volume demanded), and what happens to the rates at which sablefish is encountered in the trawl fishery.

Overall, biomass and ACL increases could, but do not necessarily, create more opportunity for gear switchers and trawlers. Similarly, biomass and ACL 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. Prevailing market prices will be important in determining the outcome; and for sablefish these market prices may be driven by market conditions that are not strongly influenced by West Coast production levels.

2.5.3 Sablefish Market Prices (Exvessel and QP)

Summary of main points:

- *Differences in exvessel prices and costs that vary between gear types and are outside the range observed in the past may result in future levels of gear switching that are outside the historical range.*
- *Multiple market factors likely influence gear switching including exvessel value by gear-type, differences between exvessel values of the gear types, and QP prices.*
 - *Examination of the data show that, when the gear-switched/trawl price differential was above a dollar, the total amount of gear switching was greater than 1.6 million pounds (particularly if the first two years of the program are discounted as adjustment years).*
 - *Because of the multiplicity of factors involved, simple correlations are not likely to be fully explanative of expected levels of gear switching.*

As sablefish exvessel and QP prices vary (as well as other factors like costs), the amount of gear-switching is likely to vary. This section looks at how those factors have ranged over the period of the program. Future values could be outside those ranges and so influence the move or gear-switching or trawling activities to levels not yet seen over the first years of the program. Because of the multiplicity of factors involved, simple correlations are not likely to be fully explanative of expected levels of gear switching.

Trawlers and gear switching 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 16), likely reflecting expected changes in profits.

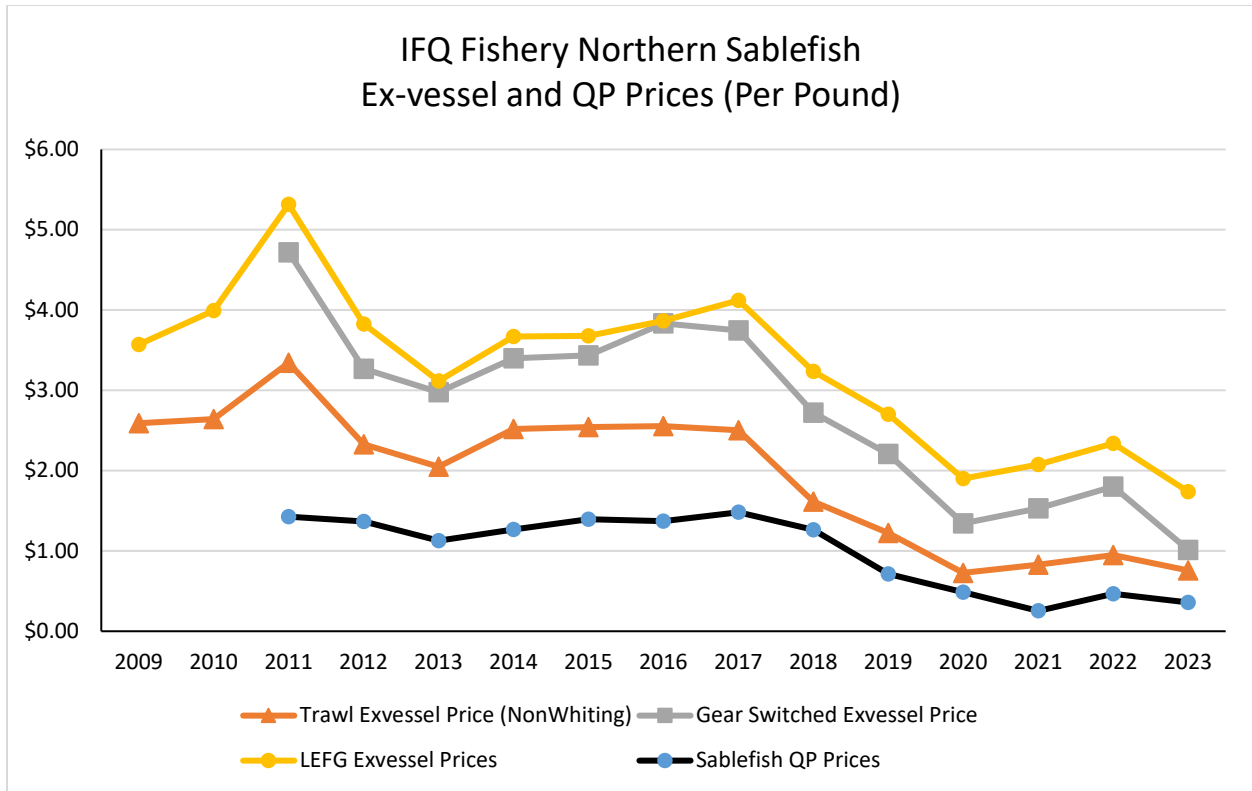


Figure 16. Average real price per round weight pound for trawl sector and LEFG sablefish north, by gear type (2009-2023) and QP prices per pound (2011- 2023). (Source: PacFIN and WCR Quota Pound Price Data). Internal reference: Sablefish and QP Prices_2024_02.xlsx.

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. When the gear-switched/trawl price differential was above a dollar, the total amount of gear switching tended to be greater than 1.6 million pounds, the IFQ average for gear switching (particularly if the first two years of the program are discounted as adjustment years, Figure 17). In inflation adjusted terms, differences in sablefish exvessel price have varied from \$0.59 per pound (2020) to \$1.34 per pound (2011, Figure 17). 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, which land substantial amounts of non-sablefish species along with their sablefish. Prices per pound for species in the DTS complex other than sablefish tend to be more stable than those for sablefish (see Section 10.5).

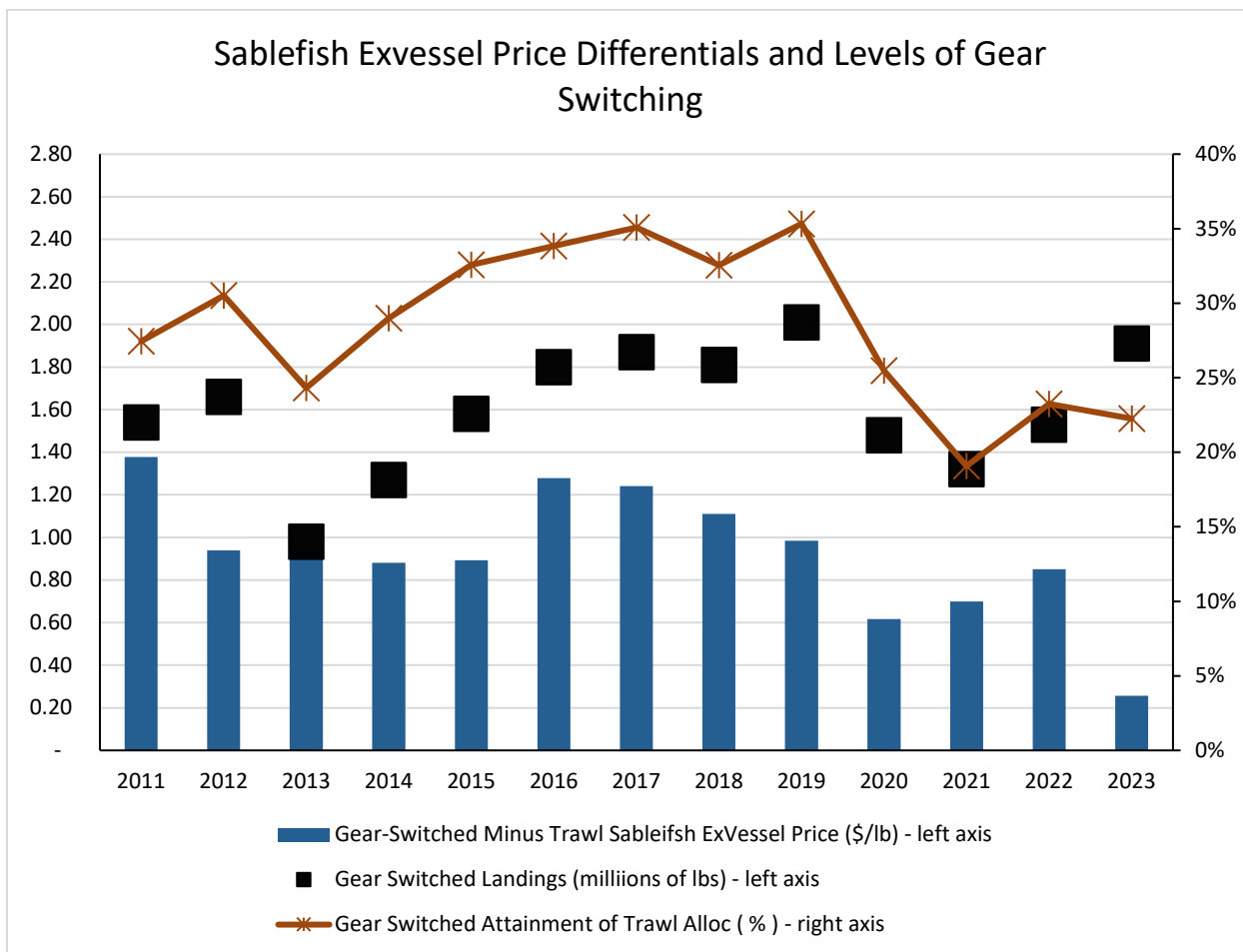


Figure 17. Levels of gear switching compared to difference between exvessel price per pound delivered and northern sablefish prices QP prices. Internal reference: Sablefish_TrawlAlloc_QP_Varability_StatAnalysis.xlsx.

2.5.4 Conditions in Cross-Over Fisheries

There are also examples of companies that were operating multiple vessels in the open access fishery and looked to consolidate their operations onto one vessel, fishing with trawl quota instead of exhausting multiple vessel limits. Though these individuals struggle to find buyers with first receiver licenses to purchase their catch.

Summary of main points:

- *Opportunities in other fisheries, in particular the Dungeness crab, Alaska IFQ sablefish, and 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 analyses ([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.

Starting with Alaska, gear-switching vessels that also participate in the Alaska IFQ sablefish fishery appeared to have been prioritizing Alaska sablefish over West Coast sablefish. Comparing 2015-2018 to 2019-2022, Alaska sablefish quotas increased by approximately 71 percent (from 23.1 million lbs to 39.4 million lbs, Figure 18) while average Alaska landings increased and West Coast landings decreased. Continuation of that recent trend or a reduction in opportunity in Alaskan fisheries could result in less or more gear switching on the West Coast, respectively.

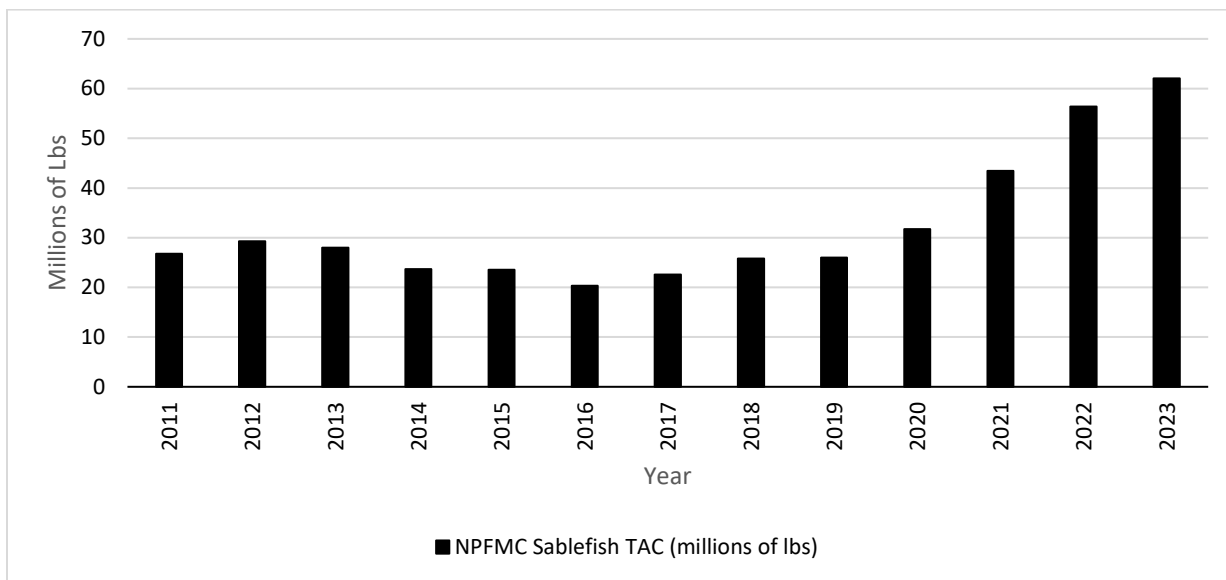


Figure 18. NPFMC Sablefish TACs (2011-2023).(Source: NMFS, [Fisheries Catch and Landings Reports in Alaska](#))

For Dungeness crab, there is a small proportion of crab vessels that also participate as gear-switching vessels (that is, two percent) compared to the large number of gear-switching vessels that also participate in the Dungeness crab fishery (that is, about 66 percent in recent years), which might indicate that a decline in opportunities in the crab fishery could lead to more gear switching if there were no restrictions on gear switching. Similarly, increasing opportunities or prices in the crab fishery might lead to less participation in gear-switching activities, though the prime fishing times in the crab fishery (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 (via gear switching) has been discussed extensively during consideration of gear switching limitations and the most recent LEFG primary tier program review. Up until 2018, less than half of the IFQ gear-switching vessels in a given year also participate in the LEFG fishery, however, since 2019 it has been more than one half the participants (Table 13). Likely motivations for crossing over to gear switching include the three-permit stacking limit, historical seasonal constraints (April 1-October 31) of the LEFG primary fishery, the highly limited number of pot permits available (most gear-

switchers use pot gear), and the owner-on-board requirement that applies for new entrants to the LEFG primary fishery. With respect to the accumulation limits, 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). Apart from 2011 and 2012, either all vessels or all but one vessel every year that crossed over had the maximum of three permits stacked.

Table 13. Number of IFQ gear switching (GS) vessels that also participated in the LEFG tier fishery by the number of tier permits registered in a given year, number of gear switching vessels that did not crossover to the LEFG tier fishery, and total IFQ gear switching vessels, 2011-2022.

Year	Number of GS Vessels by Number of Tier Permits			GS vessels that didn't crossover	Total GS Vessels
	1	2	3		
2011	1	2	2	12	17
2012	3	2	3	12	20
2013	1	0	4	6	11
2014	0	1	6	8	15
2015	0	0	6	8	14
2016	0	0	7	9	16
2017	0	0	5	11	16
2018	0	0	7	8	15
2019	0	1	9	5	15
2020	0	1	4	4	9
2021	0	1	4	2	7
2022	0	1	5	4	10

Of the 62 gear switching vessels that also participated in the tier fishery with 3 tier permits from 2011-2022, 15 caught more in the tier fishery than in the IFQ sector. For those 15 vessels to harvest the amount of sablefish they caught as IFQ gear switchers within the LEFG fishery, on average they would need 3.4 tier 1 permits, 7.4 tier 2 permits, or 13 tier 3 permits (based on tier limits in year in which crossed over). However, it's really vessel dependent, as shown in Figure 19 below. While the average number of tier 1 permits needed to cover the gear switched catch was over the current stacking limit of 3 permits, it ranged from nearly 0 (i.e., a vessel caught just about 1/3 of a tier limit) to over 5 permits (exact value not shown to protect confidentiality).

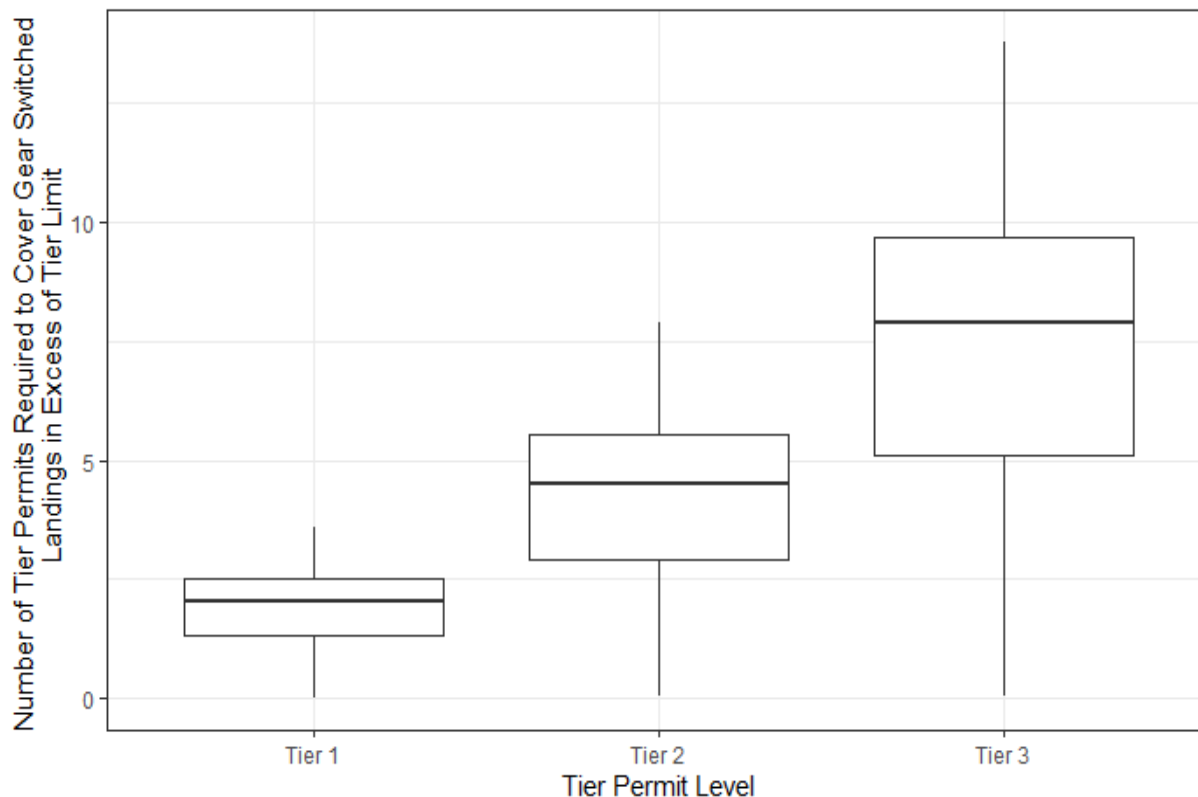


Figure 19. Number of tier permits that vessels which participate in gear switching and crossed over to the LEFG fishery would require to cover their gear switched landings, 2011-2022 (only includes vessels with 3 stacked permits).

Another reason vessels may choose to crossover to gear switching from the tier fishery is the gear flexibility. Vessels fishing in the tier fishery are limited to fishing with the gear endorsed on their sablefish-endorsed LEFG permit—either longline or pot,²¹ whereas the IFQ program allows the harvest with any legal non-trawl gear. In other words, any vessel with a trawl permit could utilize pot or longline gear to gear switch for sablefish whereas there are only 36 of 164 sablefish endorsed LEFG permits that permit pot gear harvest. For vessels that only gear switch (i.e., do not cross participate in the LEFG fishery), the majority of those vessels have historically fished with pot gear (Table 14). From 2019-2022, all of the gear switched landings by vessels that only gear switched were done using pot gear.

Table 14. Range of number of vessels that only gear switched and did not participate in the LEFG tier fishery by gear type and average of gear switched landings, 2011-2014, 2015-2018, and 2019-2022.

Years	Number of Vessels		Average of Landings (lbs)	
	HKL	Pot	HKL	Pot
2011-2014	0-5	6-11	77,081	529,226
2015-2018	1-2	7-10	18,783	794,269
2019-2022	0	2-5	0	482,145

²¹ Four LEFG sablefish endorsed permits are endorsed for both longline and pot gear.

To achieve the same amount of opportunity in the tier fishery, pot vessels that have previously not crossed over would need an average of 2.6 tier 1, 5.8 tier 2 or 10 tier 3 permits with a pot-endorsement to cover historic gear switched landings. However, the range is wide (see Figure 20 below). Moreover, the Council is considering removing the gear endorsements for tier permits as a part of the LEFG follow-on actions (scheduled for PPA in June 2024), which would increase the opportunity in the tier fishery for these pot vessels.

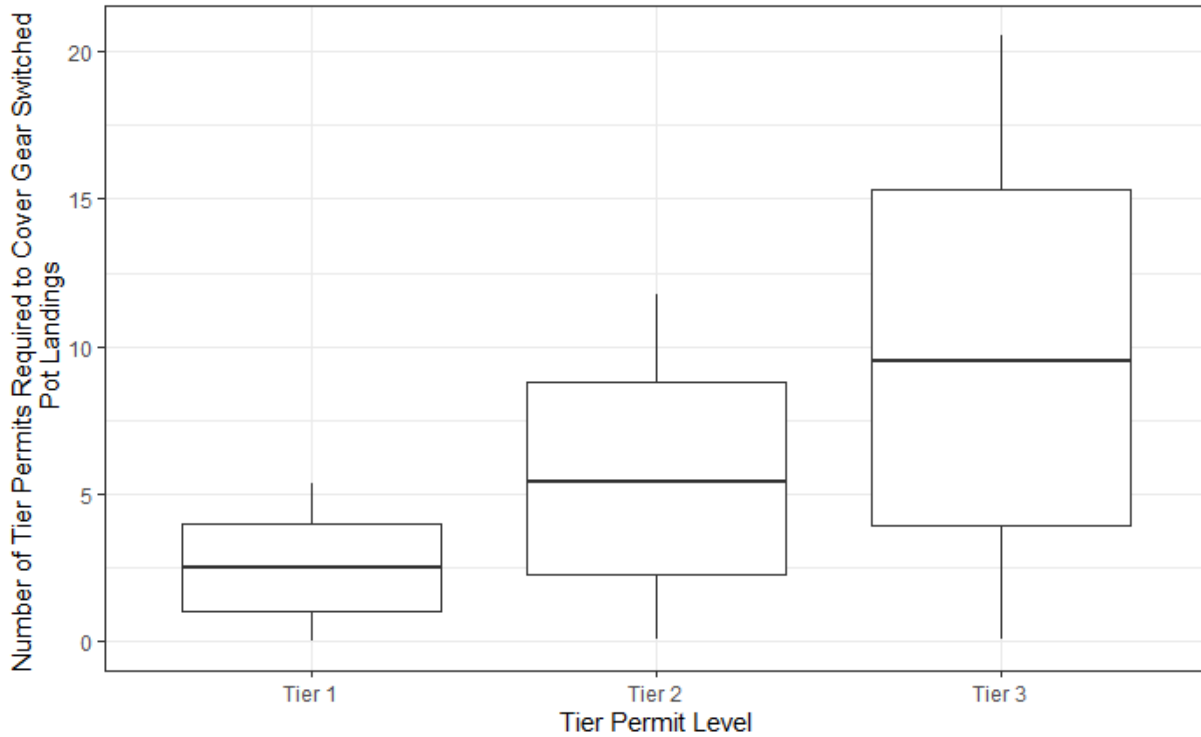


Figure 20. Number of tier permits required to cover gear-switched landings made with pot gear by gear switching vessels that did not fish in the LEFG Tier fishery in the same year.

The LEFG tier program also requires LEFG permit owners to be on board the vessel while harvesting the tier quota, unless that individual (or entity) has an owner-on-board exemption that was granted at the beginning of the program. In contrast, the IFQ program does not require trawl LE permit owners or QS or QP owners to be present while harvesting the catch. This absence of an owner-on-board requirement for gear-switching could encourage participation in gear-switching by those discouraged by the LEFG system requirement. However, the LEFG review noted that about half of the individual owner-on-board exemptions still exist after two decades and are associated with about 60 percent of the total tier share (as of 2020). This means that a majority of the tier quota could be fished by non-permit owners thereby mitigating some of the potential incentive for crossover to gear switching.

Finally, starting in 2023, the primary tier season is permanently extended to December 31st. This extension allows 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 industry paid monitoring required in the IFQ program). 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 the LEFG follow on actions package-scheduled for PPA in June 2024) could increase the relative attractiveness of gear switching.

2.5.5 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 conditions change such that more entities become interested in gear switching, the acquisition of a trawl permit might not be a substantial barrier to the expansion of gear switching, since they would not need to be acquired from an active IFQ participant.

2.5.6 New Entrants and Effects of Control Date

- *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 21) and levels of gear switching (between 32.5 and 35.3 percent of the trawl allocation, Table 3), indicating that an equilibrium might have been reached for the

conditions present at that time. Figure 21 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 others from newly entering 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.

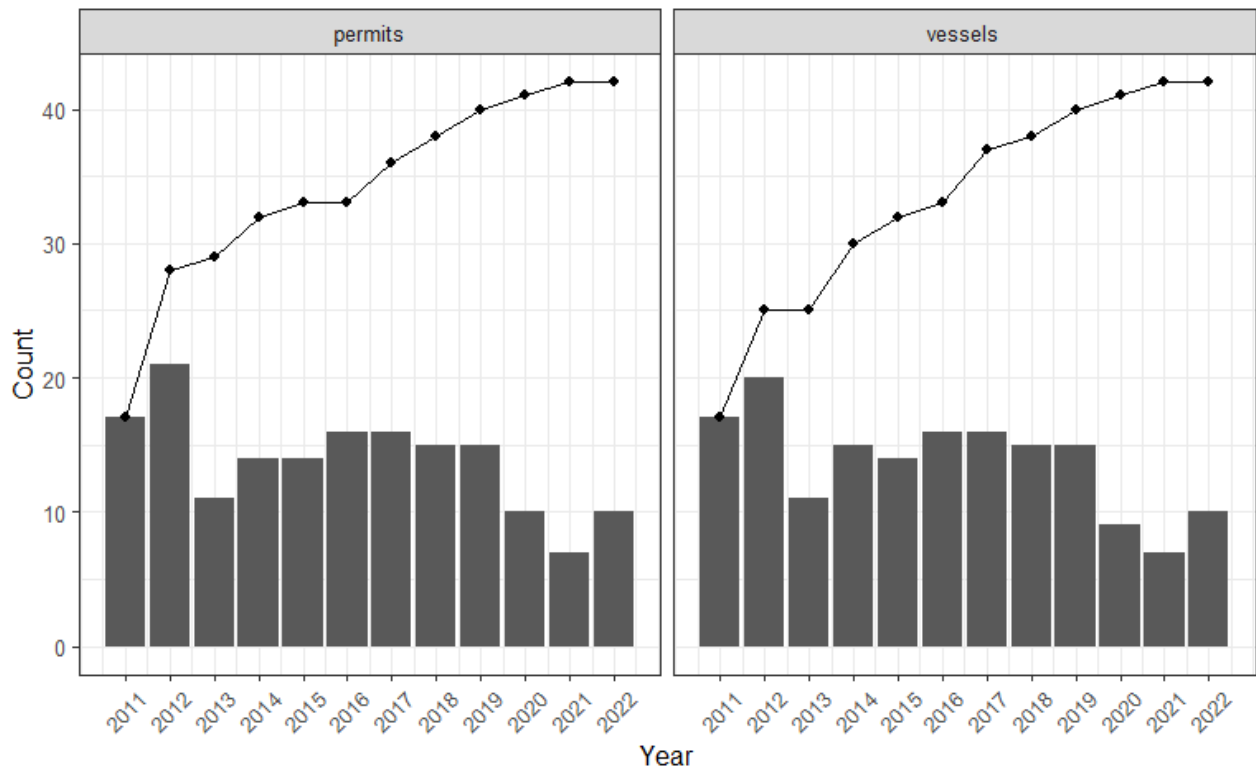


Figure 21. Cumulative number (lines) compared to yearly count (bars) of permits and vessels with participation in the gear switching fishery, 2011-2022.

2.5.7 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.*
- *Investments in QS by gear-switching entities may have been muted by the announcement of the 2017 control date*

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 acquisitions 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. For permits, ownership determinations for this analysis were based on an examination of names, addresses, and a review of publicly available business records to identify businesses with common ownership interest. 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 15 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 and, therefore, these trawl entities are classified as gear switchers in the following table. .

Table 15. 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 16.23 percent to 19.91 percent, an increase of 3.68 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 the announcement of the

2017 control date. Of the 42 vessels that had some gear switching history between 2011 and 2022, 23 vessels had owners that also owned QS over the time period.

Table 16. 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 (that is, around 2015) when gear switching participation started to level out. 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 17). Of the 26 vessels that had some gear switching history in this period, 17 vessels had owners that also owned QS.

Table 17. 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 ALTERNATIVES

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 the amount of QS they own as of the control date. Those QS owners with qualifying gear-switching history will have all of their QS converted to any-gear QS (except for amounts in excess of what they owned on the control date). All QS owners that have some QS on the control date and at the time of implementation will have at least some of their QS converted to any-gear QS. The total 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—after AMP QP are issued). 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 the same proportion for every account except those owned by legacy participants. A legacy participant is a person that, as of and since the control date, owned QS and a limited entry permit with enough gear switching history to qualify. Legacy participants will be issued only any-gear QP for amounts of QS up to what they owned as of the control date. Any additional QS owned by legacy participants will be issued trawl-only and any-gear QP in the same ratio as for non-legacy participant owned QS accounts. Initially the amount of annually issued any-gear QP issued will be 29 percent. Depending on options selected, this percentage may decline over time but would not go to zero.

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 is projected to be attained, at which point retention will no longer be allowed. There will be no change in the QS or QPs issued for sablefish north. The maximum amount of gear-switching allowed will not decline over time—except through separate regulatory actions that may be recommended at a later time.

PPA – Gear-Specific QP When Criteria Are Met: Gear-specific QP (as described for Alternative 2) would be issued for years that meet certain criteria. For all other years, standard QP would be issued (eligible for use with any-gear, as under No Action).

ACL Criteria: A northern sablefish ACL below between 5,000 to 10,000 mt (a single value to be determined by the Council when it selects an FPA).

GS Criteria Sub-Option (not part of PPA but available for consideration for the FPA): An average gear-switching level above 29 percent of the trawl allocation (for the previous three years).

Under the PPA, upon initial implementation of the action all qualification criteria for legacy participants would be applied and necessary modifications to the quota and catch tracking systems be made. Thus, when the criteria are met the switch to gear-specific QP for a particular year could be made quickly.

3.2 Alternatives and Options Considered but Rejected Early On

There were two major approaches considered by the Council and SaMTAAC that were set aside from further deliberation for reasons documented in the Council meeting record and SaMTAAC reports (see the Council’s [“Gear Switching and Trawl Allocation Attainment”](#) webpage for links to the SaMTAAC meeting summaries, materials, and reports).

Endorsement Approach (Set Aside by the Council): Limiting gear switching by requiring gear-switching endorsements that would have individualized gear switching limits (see Section 11.0). This would have created a limited set of special trawl-endorsed permits that would have had an ongoing ability to gear-switch and may have eliminated gear-switching opportunity for all other participants. It would not have directly affected the gear with which quota could be used (all QS and QP would have remained generic for use with any gear).

Geographic Shift of Harvest Opportunity (Reported to the Council but Not Recommended by Aside by SaMTAAC): Providing more sablefish to the trawl sector by shifting some of the south of 36° N. lat. allocation of sablefish into the north of 36° N. lat. area (either allowing southern sablefish QP to be used in the north of 36° N. lat. or shifting some of the southern trawl allocation of sablefish to the north).

In total, the SaMTAAC considered two dozen alternatives before narrowing them down to the three recommended for Council consideration in the [SaMTAAC final report to the Council](#).

4.0 SUMMARY OF ANALYTICAL RESULTS

This section summarizes the analytical results which are detailed in Appendix 7.0. The approach to the analysis, including scenarios used to address uncertainty, baseline years, and short- and long-term considerations are discussed in Section 7.1.

4.1 Comparison of Action Alternatives Design and Mechanism

This section focuses on two types of impacts:

- Impacts that are determined by particular design elements (Section 4.1.1).
- Impacts that are driven by the main gear-switching limitation mechanism around which the alternatives are designed (Section 4.1.2).

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.

4.1.1 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 among gear switching participants (Alternatives 1, 2, and the PPA only)

- The phase out/expiration of gear switching opportunity to qualified gear switching participants (Alternative 2 and the PPA only)

As discussed in the previous section, 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.

Discussions related to Alternative 2 (and QP Distribution Option 2 in particular) are reflective of the PPA in years in the which the trigger is not met, years when gear-specific QP is issued. There are no direct allocational impacts under years in which the trigger is met, as all QP would be issued as generic with no limitation on gear switching.

4.1.1(a) 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.*
- *Additionally*
 - *Alternative 1 has an option that would cap gear-switching at 1.8 million lbs, applicable upon implementation of the alternative.*
 - *Alternative 2, QP Distribution Option 2, and the PPA (in years when gear-specific QP is issued) lower the allowed level of gear switching over the long-term.*

While the alternatives generally have options 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 gear-switching maximum. Table 18 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, there is an option for a phase down of gear-switching opportunity (see Section 4.1.1(f) and 9.2.). The PPA includes the phase down of gear-switching in years when gear-specific QP are issued. Options could be added to any of the alternatives to allow lower or higher levels of gear switching.

Table 18. 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	PPA (gear-specific QP years)
Short Term (Initial)	QP Split Opt 1: 29% or QP Split Opt 2: 1.8 mil lbs ^{a/}	29%	29%	29%
Long Term	Same as short term	QP Dist Opt 1: 29% or QP Dist Opt 2: 19.4%	Same as short term	19.4%

a/ Projected to be as low as 7 percent in 2025.

4.1.1(b) 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 or the PPA*
- *Under Alternative 1, history of the individual is used to meet the qualification criteria whereas for Alternative 2/PPA it is the history of the asset (permit) that the person owns as of and since the control date.*
- *Individuals that leased 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/PPA 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 control mechanism related impacts described in Section 4.1.2. Table 19 provides a summary of the allocations of gear-switching opportunity to qualified gear switchers and others under Alternatives 1, 2, and the PPA (in years when gear-specific QP is issued). Note that all values are subject to change at the time of implementation, due to QS divestiture or ownership changes that occur prior to implementation or other factors such as data updates. 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 the PPA and therefore could initially allocate higher amounts of gear switching opportunities to those individuals overall (assuming they own more QS in total), leaving less for distribution to non-qualifiers. 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 19. 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 and the PPA
Number of Qualified Gear Switchers	15-37 Individual Entities Note: Co-op options not included.	18 Individual Entities
Number of QSAs associated with Qualified Gear Switchers in 2023	9-41	13
Total Amount of GS Opportunity (% of trawl allocation) Initially Distributed to Qualified Gear-Switchers and Subtotals for Each Qualification Avenue	8.3--22.8%	11.9%
<i>Vessel History</i>	8.3-17.3%	N/A
<i>Permit History</i>	N/A	11.9%
<i>QS Ownership Group Membership</i>	0-4.1%	N/A
<i>Co-op Membership</i>	Not available until implementation	N/A
<i>Additional Amount for First Receiver History Suboption</i>	1.4%	N/A
Total Amount of GS Opportunity Initially Allocated (% of trawl allocation) Received by Those Not Qualifying as Gear Switchers	0-22.7% (to be reduced by the amount owned by qualifying co-ops; dependent on QP Split Option) ^a	17.1%
Maximum Amount of Gear Switching Opportunity an Entity Can Acquire		
Via QS Control	11.5-17.6% 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).
Via QP Acquisition	15.5 percent for QP Split Option 1 and more for Split Option 2 (depending on the year) ^{b/}	15.5-23.2% (based on 4.5 percent vessel limit and dependent on QP Distribution Option)

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

b/ When the ACLs are as high as they are anticipated to be in the near future, the 1.8 million lbs would be such a low percentage that two vessels could land all the QP under a 4.5 percent limit.

4.1.1(c) Basis of Qualification

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 and the PPA are 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 vessel while it gear switched. 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 and the PPA only consider if a QS owner had ownership of the gear switching asset (permit with qualifying history) as of and since the control date. More discussion and analysis on how this affects qualifiers can be found in Section 8.2.

4.1.1(d) Breadth of Distribution of Gear Switching Opportunity

While Alternative 1 requires that individuals with a qualifying vessel ownership history must own QS on the control date to qualify, it also includes additional methods for qualifying as a gear switcher. These additional methods affect the overall distribution of gear switching opportunity. For Alternative 2 and the PPA there are no additional methods for qualifying (besides owning a qualifying permit and QS on the control date).

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 individuals would qualify based only on QS ownership group membership. None would qualify under Option 2. The number of qualifying individuals based on co-op membership is unknown and would not likely be known until the time of implementation.

A second avenue through which individuals could qualify under Alternative 1 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 only under this suboption. Some of these FRs would also qualify under Alternative 2 based on their ownership of a LEP with qualifying history (i.e., some of the five that are listed as only qualifying under Alternative 2; Table 54).

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 had qualifying levels of gear-switching prior to the control date and then after the control date received QS from another family member, that additional QS they received would then be eligible for conversion based on their status as a gear-switching participant. The same family transfers 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.

4.1.1(e) Fraction of Ownership Required

Under Alternatives 1 and 2/PPA, for qualification criteria that involve ownership of an asset, any degree of ownership of the asset is sufficient, assuming the gear-switching qualification levels are met (e.g., landings pre-control date). Where ownership of two assets is required to qualify (e.g., a qualifying permit and QS) previous iterations of gear switching alternatives have required at least a 50 percent common in ownership of assets.

4.1.1(f) Phase Down/Expiration

Summary of main points.

- *Currently a phase down is only provided for Alternative 2 and in the PPA but something could be developed for either of the other two action alternatives.*
- *A phase down for Alternative 3 could be more difficult because of the potential for substantially shortening the season.*
- *While a built in phase-down is only addressed in Alternative 2, Section 7.12.1(b) discusses the flexibility each alternative provides to reduce (or increase) levels of gear switching through future action.*

None of the alternatives include a complete phase out of gear switching opportunity, but a phase down is included as an option in Alternative 2 and is specified for the PPA. Under Alternative 2, legacy participant status is associated with the individual and not transferable. Therefore, if the legacy participant were to sell their QS, either the ratio of any-gear to trawl-only QP received by all other non-legacy QS owners would increase, in order to maintain issuance of 29 percent any-gear QP (QP Distribution Option 1); or the standard trawl-only to any-gear QP ratio would remain unchanged and the total amount of any-gear QP issued would decline (QP Distribution Option 2). QP Distribution Option 2 was incorporated into the PPA). Regardless of which QP distribution option is applied, the new owners of the QS sold by the legacy participant would receive the same ratio of any-gear and trawl-only QS as all other non-legacy QS owners (because legacy participant status is not transferable).

While Alternative 1 does not include a phase down, the absence of a phase down should not be used to discriminate between Alternatives 1 and 2, since a phase down 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. However, this could lead to a competition for fish if the gear switching limit were reduced to a level where participants were concerned that they would not be able to gear switch at their desired level before the cap was hit. For Alternative 3 in particular, a sunset date might be preferable to a phase out, if a reduction in gear-switching is desired after initial implementation.

4.1.2 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 without changing the fundamental nature of the alternative.

4.1.2(a) Likelihood of Attaining Gear Switching Allocation

- *In terms of likelihood of attaining the level of gear switching maximum allowed under the Action alternatives, Alternatives 1, 2, and the PPA (in years where gear-specific QP is issued) 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 to the degree that any-gear QS or QP is distributed across many QS accounts owned by non-gear switchers.*
 - *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 proportion of the any-gear QP would be utilized for gear switching.*
 - *Alternative 2 and the PPA 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 (in years where gear-specific QP is issued).*
- *Alternative 3's attainment of the 29 percent seasonal limit would be driven mainly by the factors affecting levels of gear switching under No Action.*

The likelihood of attaining the maximum amount of the gear switching allowed under each action alternative would also be influenced by the same set of factors that impact gear switching levels under No Action (described in Section 2.5). Details of how each alternative may influence attainment can be found in Section 7.4.3.

4.1.2(b) Nature of Changes to Access Privileges

Summary of main points:

- *Under No Action, a vessel with a trawl LEP can catch any amount of a species any time of year, as long as they are able to acquire the QP required to cover the landing. That QP is issued each year to QS owners and then transferred to vessels for use.*
- *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 and the PPA would associate a non-transferable gear-switching history-based opportunity with the individual (the legacy participant, for whose eligible QS all QP would be issued as any-gear in years where gear-specific QP are issued). Under the PPA, for years in which generic QP are issued, no new access privileges would be required relative to no action.*
- *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 the vessel. Thus quota (QS and QP) is generic with respect to gear (i.e. any legal groundfish gear can be used to harvest the

fishery.) QP owners have relatively unlimited flexibility with respect to their time and pace of fishing. Each of the action alternatives would modify or place a different type of constraint on some of these access privileges (Table 20).

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 and the PPA (in years the trigger is not met) would create gear-specific QP (QS would remain generic). Alternative 3 and the PPA (in years the trigger is met) QS and QP would be generic.

After the initial implementation step, Alternative 1 would make no other substantive changes to the system of access privileges. Alternative 2 and the PPA (in years where trigger was met) 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 0 on initial allocation criteria and Section 9.2 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 (“new entrants” being those who began to gear switch after the control date). Legacy participants would “exit” the fishery by divesting themselves of their QS,²² and, correspondingly, the amount of any-gear QP issued for legacy participants would decline. There would be no changes to access privileges under the PPA in years where generic QP are issued.

Alternative 3 would modify when the access privileges could be used by putting a new seasonal constraint on retaining northern sablefish while fishing with non-trawl gear.

²² Legacy participants might continue in the fishery in other roles (e.g., as a vessel or LEP owner).

Table 20. Changes to the nature of the trawl allocation access privileges for each of the action alternatives.

	Alternative 1	Alternative 2	Alternative 3	PPA
Long-term Access Privilege—Permit	Trawl LEP (no change)	Trawl LEP (no change)	Trawl LEP (no change)	Trawl LEP (no change)
Long-term Access Privilege—Quota	Gear Specific QS	Generic QS (no change)	Generic QS (no change)	Generic QS (no change)
Annual Access Privilege—Quota	Gear Specific QP	Gear Specific QP	Generic QP (no change)	Gear Specific QP except in years where trigger is met, in which case generic QP are issued.
Other Changes	None	Nontransferable allocation privileges tied to the individual legacy participants that own QS: greater proportions of the QP they receive will be any-gear QP. Option for attrition (reduction of total gear-switching opportunity as legacy participants divest of QS)	Closure on sablefish retention by gear-switchers when gear-switching maximum is reached.	Same as Alt 2 except the attrition provision has been included as a provision, rather than an option.

4.1.2(c) Opportunity For Recent or New Entrants

Summary of main points as detailed in Section 7.7:

- *Recent (post-control date) entrants would have the same opportunity as new entrants (post implementation) under each of the action alternatives, although recent entrants may be impacted to a greater extent depending on their post control date investments.*
- *Under Alternatives 1, 3, and the PPA in year where generic QP are issued, recent or 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).*
 - *For Alternative 1, recent entrants who purchased QS after the control date to gear switch would receive all of their QS as trawl only and therefore would need to acquire any-gear QS and/or QPs.*

- *Under Alternative 2 and the PPA in years where gear-specific QP are issued, recent and new gear switchers would have some substantial disadvantages relative to legacy participants.*
 - *Under QP Distribution Options 1 and 2 (the PPA option), to acquire the same level of gear-switching opportunity as those who qualify as legacy participants, recent or 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 recent and new entrant ability to secure access to any-gear QP through QS ownership.*

4.1.2(d) Harvester Flexibility

One of the objectives of the trawl catch share program was to increase operational flexibility in pursuit of the goal of increasing net benefits, economic stability, and more fully utilizing the trawl sector allocations. The following are the main points covered in Section 7.6.1 and discussed briefly with respect to NS-6 (Section 4.2.6).

- *Relative to No Action, the impacts of Alternatives 1, 2, and the PPA (in years where gear-specific QP are issued) 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. Because of the limited total amount of any-gear quota available, competition for the necessary quota will be greater than under No Action, likely increasing the cost.*
 - *Under Alternative 2 and the PPA (when gear-specific QP are issued):*
 - *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 for any QS acquired, only a portion of the QP issued would be any-gear.*
 - *Because only a portion of the QP issued for QS would only be any-gear, and the three percent QS control limit would continue to apply, someone who acquired 3 percent of the QS would secure long-term access to less gear-switching eligible QP 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, likely increasing the cost.*
- *For the PPA in years when generic QP are issued, the flexibility for harvesters would be the same as No Action.*

- *Under Alternative 3,*
 - *Flexibility for individual operations and competition for the necessary quota would be similar to No Action, as long as the season is not reduced.*
 - *Rather than competing for quota, gear-switchers would compete to fish first. This competition would only occur if the conditions were such that the fleet as a whole would gear switch more than 29 percent (for example, if ACLs were low but sablefish prices high).*

4.1.2(e) Manager Flexibility

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. Consideration of flexibility relates to the complexity of revising the policy under no action or any of the action alternatives and the degree to which those changes might 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. Depending on the alternative chosen, future policy revisions might be needed to either create, eliminate, increase, or decrease the gear-switching limitation. The following are the main points covered in Section 7.12.1(b) and discussed briefly with respect to NS-6 (Section 4.2.6).

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

- *Under No Action, to restrict gear switching levels in the future, the Council would be facing a similar set of procedure and analysis circumstances as it is today and would likely need to republish a control date at the start of such deliberations.*
- *For Alternatives 1, 2, and the PPA, the analytic, rule-making, and administrative burdens for changing gear-switching levels 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 without changing the QS holdings.*
 - *For Alternative 1, a modification would involve either giving QP of one gear-type to a QS owner of the other gear-type or changing the amount of QP allocated to each type of QS. The former might be more administratively complicated and the latter more reallocative in that the total QP a QS owner received would change.*
 - *For Alternative 2 and the PPA, the Council could choose to modify the types of QP provided to legacy participants (issuing some trawl-only QP to reduce gear switching), or adjust the standard ratio given to all non-legacy participants. The former might be more administratively complicated than the latter.*
- *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; and*
 - *if a substantial reduction in gear switching opportunity is desired, that could elevate the importance of other regulatory issues and potential impacts (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).

4.1.2(f) Impact on Quota Values and Revenue from Selling QP to Gear Switchers

Summary of main points from the discussion in this section and Section 7.8.2(a):

- *All of the action alternatives may have some impact on QS and QP prices relative to No Action.*
 - *Under Alternatives 1, 2, and the PPA (years where gear-specific QP are issued), relative to generic sablefish 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 through investments in processing capacity and market development (higher for both trawl-only and any-gear QP).*
 - *Under Alternative 3, the price for sablefish 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.*
 - *Sablefish QS prices will generally be higher/lower if QP prices are higher/lower, though the result is difficult to predict for Alternative 2 and the PPA, where any-gear and trawl-only QP prices might move in opposite directions but would be issued for the same generic northern sablefish QS.*
 - *Prices of non-sablefish QS/QP could increase if the policy is successful in increasing the harvest of trawl complexes.*
- *Those who rely on revenue from selling or trading sablefish QP to gear switchers may be adversely affected as follows.*
 - *Under Alternatives 1, 2 and the PPA, if 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.*
 - *Under Alternative 3, if the seasonal constraint substantially reduces demand by gear switchers to levels below what it would have been under No Action and to the degree that demand is not made up by demand from trawl vessels (reducing the price of QP).*

4.1.2(g) Costs (Implementation and Ongoing)

Summary of main points covered in Section 7.12.1(a).

- *NMFS will provide a report on implementation burden and costs, primarily related to the PPA (Agenda Item F.4.a, NMFS Report 1).*
- *With respect to implementation costs,*
 - *Alternative 1 costs would be relatively low ([Agenda Item G.5, NMFS Report 1, April 2023](#)).*
 - *Alternative 2 and the PPA would likely have somewhat lower initial qualification determination costs than Alternative 1 because it includes more different types of qualifying criteria, but it would have 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, April 2023](#)).*
 - *Alternative 2 would have some ongoing new tasks, but for the most part those tasks might be automated during the implementation phase.*
 - *The PPA would be slightly higher than Alternative 2 due to oscillation between gear-specific and generic QP years.*
 - *Alternative 3 would require some ongoing monitoring and the issuance of a notice when closure is required.*

4.1.2(h) Impacts to First Receivers (Including Processors)

Summary of impacts that are further discussed in Section 7.10:

- *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 and the PPA (in years gear-specific QP is issued) provides FRs and others a very limited ability to secure long-term access to any-gear QP and there are no special avenues for first receivers to qualify.*
- *No Action, Alternative 3, and the PPA (in years where generic QP are issued) do not provide an opportunity to secure gear-switching deliveries through the acquisition of any-gear quota.*
- *Alternative 3 could disrupt gear-switching and thus adversely impact some first receivers if 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, on average²³ Alternative 2 QP Distribution Option 2 and the PPA would likely place the greatest limitations on gear switching over the long term.*

²³ Alternative 1, QP split Option 2 could result in very low levels of gear switching as a percentage of the trawl allocation when ACLs are high, but the percentages would climb again as ACLs declined.

4.1.2(i) Impact to Communities

In terms of impacts of communities, this analysis which is detailed further in Section 7.11 finds that:

- *Communities would also be impacted through changes in fish deliveries and vessel activities, as well as the income of those working for vessels, processors and supporting sectors.*
- *Under Alternatives 1, 2 and the PPA, the impacts to communities will be driven by the distribution of gear switching opportunity to qualified gear switchers and how that distribution changes 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 a shortening of seasons with a consequent change in the location of gear switching.*
- *Background data on community involvement in gear-switching and trawl fisheries is provided in Section 10.3*

4.1.2(j) Biological Impacts

In terms of biological impacts, this analysis which is detailed further in Section 7.3 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, , 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 the trawl industry responds to a limitation of gear switching. Overall, impacts will remain within those authorized through the biennial specifications process.*
- *While the alternatives may result in minor changes to protected and prohibited species encounters depending on the degree to which effort changes from status quo in terms of trawl and gear switching, they are expected to remain within those analyzed in the biennial specifications process.*

4.1.3 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 4.1.1 and 4.1.2.

Table 21. Summary of Impacts from Action Alternatives

	Alt 1	Alt 2	Alt 3	PPA
Gear Switching Control Mechanism	Gear-Specific QS	Gear-Specific QP	Seasonal Management	Gear-Specific QP Unless Trigger is Met
Specific Design Elements				

	Alt 1	Alt 2	Alt 3	PPA
Amount of GS Allowed	Up to 29% in short and long term	29% in short term, 19.4-29% in long term	29% in short and long term	29% in short term; 19.4% in long term (no restrictions in years trigger is met)
Qualification				
Gear-Switching History Evaluated	Personal history as a vessel owner.	History of the permit a person owns on the control date.	N/A	Same as Alt 2
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	Same as Alt 2
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	Same as Alt 2
Other bases for qualification as gear-switcher	Membership in a QS owner group ^a Membership in a registered Co-op ^b Suboption for First Receivers	None	N/A	Same as Alt 2
Expiration of gear switching opportunity	No	Yes, for legacy participants.	N/A	Same as Alt 2
Breadth of Distribution of Gear Switching Opportunity				
Gear-switching opportunity initially provided for:	Gear-switching and non-gear-switching participants (not for "Other Participants") ^c	Legacy and non-legacy participants	Same as No Action	Same as Alt 2
Gear Switching Limitation Mechanism Driven Differences				
Likelihood of Attaining Gear Switching Maximums	Initially high for any-gear QS 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	Moderate (Under No Action, 29 percent was exceeded in 6 of 12 years—6 of 10 if COVID years are excluded)	Same as Alt 2 for gear-specific QP years, otherwise, no maximum.

	Alt 1	Alt 2	Alt 3	PPA
Changes to Access Privileges	<p>GS requires any-gear QP</p> <p>Long-term access to any-gear QP available through any-gear QS acquisition.</p>	<p>GS requires any-gear QP</p> <p>Only a portion of any-gear QP will be issued for QS owned by non-legacy participants.</p> <p>Legacy participant status is not transferable.</p>	No new access privilege required to gear switch.	Same as Alt 2 for gear-specific QP years, otherwise, no new access privilege required to gear switch.
Fisherman Flexibility	<p>Gear-specific QS and QP divisible/ separately transferable.</p> <p>Easy to scale level of harvesting.</p>	<p>Generic QS (not gear-specific) and gear-specific QP.</p> <p>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 and distribution of a proportion of any-gear QP every non-legacy owned account.</p>	Could become more constrained if seasonal measure becomes necessary.	Same as Alt 2 for gear-specific QP years, otherwise, no change.
Manager Flexibility— Responding to Changing Conditions by Changing Gear Switching Levels	Adjust by: allocating a greater portion of the total QP to QS of one gear-type (and less to the other) 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.)	Potentially comparable to Alt 1 but could be simpler, if adjustments are implemented by changing the ratio of QP gear-types going to non-legacy participant QS.	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).	Same as Alt 2, for gear-switching levels. Triggers for issuing generic QP may be changed by future Council action.

	Alt 1	Alt 2	Alt 3	PPA
Impact on QS/QP Value	Split QS and 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	Similar to Alt 2. QS values may be somewhat higher because generic QP will be issued in some years.
Costs ^d —Implementation	Relatively low.	Initial allocation costs likely somewhat lower than Alt 1, but programming costs likely somewhat higher.	Lowest.	Somewhat higher than Alt 2—related regulations and programming for triggers and switching between gear-specific and generic QP.
Costs ^d —Ongoing	Little new work required.	Some ongoing new tasks (many likely automated)	Some ongoing season modelling and closure notices.	Somewhat higher than Alt 2—related ongoing activities related to triggers and switching between gear-specific and generic QP.
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 opportunity to secure long-term access by QS acquisition.	Same as No Action unless gear switching season is substantially shortened	Similar to Alt 2, plus for generic QP years: more opportunity for FRs receiving gear switched landings but less opportunity for FRs of trawl gear landings if QP are constraining.
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.	Similar to Alt 2, plus for generic QP years: more benefits for gear-switching dependent communities but less opportunity for trawl dependent communities (net effect depends on balance between the two).

	Alt 1	Alt 2	Alt 3	PPA
Biological Impacts	For sablefish, similar to No Action. For non-sablefish groundfish, dependent on trawl response. May result in minor changes to protected species encounters, but likely within levels in the harvest specifications analysis.	Similar to Alt 1.	Similar to Alt 1, unless season shifts significantly.	Similar to Alt 1, but closer to no action (due to generic QP years)

^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.

^c For one set of qualifying options, there would be a class of participants (“Other Participants”) that would receive no any-gear QS.

^d Council staff assessment drawing on listing of tasks in Section 7.12.1 of Agenda Item F.4, Attachment 3, April 2024 and general statements from Agenda Item G.5.a, NMFS Report April 2023.

4.2 MSA National Standard Analysis

4.2.1 NS1 – OY

National Standard 1: Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

Summary: The action alternatives are intended to move the fishery toward attaining optimum yield (OY) levels of harvest by restricting gear switching in order to make more certain the availability of sablefish QP. A restriction on gear switching could result in 1) increased attainment of OY levels for non-sablefish species 2) the OY same attainment levels with trawlers taking the sablefish that gear-switching vessels are restricted from, 3) sablefish QP going unused, or 4) a mix of these outcomes. Evaluation of the potential impact on attainment of OYs includes consideration of:

- *The relative importance of different factors that may be contributing to under attainment of the trawl allocation, including the degree to which gear switching may be a contributing factor (Section 2.4)*
- *The likelihood that gear-switching levels might decrease or increase in the future under no action (potentially changing any impact on trawl allocation attainment (Section 2.5).*
- *The level of restriction imposed by each of the action alternatives (Table 30).*

The MSA definition of “optimum,” with respect to optimum yield, is “the amount of fish which...will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities....” Sec. 3, (33). OY is maximum sustainable yield (MSY) as reduced by economic, social, or ecological factors, in order to achieve that national

benefit. None of the action alternatives will likely change the Council’s ability to prevent overfishing, but they will potentially alter national benefits by changing the fishery’s ability to reach the identified OY level.

The action alternatives may also impact overall benefit to the nation by altering the manner in which the fishery approaches OY. In other words, similar harvest levels (OYs) may be reached but benefits could vary widely depending on the regulations and allocations that govern how the levels are reached. NS 1 guidelines identify the factors to be considered in determining overall benefits to the nations. These include economic, social, or ecological factors such as: fish resource utilization for food production and nutrition; recreational opportunities and non-consumptive fishery uses; and commercial and recreational fishery contributions to national, regional and local economies. These benefits flow from protection of the marine ecosystem (including both the fishery and unexploited species) while accommodating human use. The NS 1 guidelines also indicate that Council FMPs should be consulted in determining the relevant social, economic, ecological factors that should be used in determining OY (§600.310 I(3)(iii)(A)&(B)) (see Section 4.4). These factors are taken into account in Section 4.5.2 which provides a cost-benefit summary. The costs and benefits in that summary are broadly defined to include the relevant factors associated with overall benefits to the nation as specified in the NS 1 guidelines.

In reaching a decision on whether to pursue one of the action alternatives, the Council will need to review the related information and make its best judgement of the probability that gear switching is a constraint on attainment of the trawl allocation—and hence achievement of OYs. Section 2.4 reviews evidence on whether or not gear switching might be preventing trawl vessels from more fully attaining their allocation, i.e., are trawlers leaving/selling sablefish QP they do not need to gear-switching vessels or are gear-switching vessels out bidding them for it? Even if gear switching has not been a constraint to date, expansion of gear switching could potentially reduce attainment of the trawl allocations in the future. Section 2.5 evaluates factors that might influence or indicate future expansions or contractions of gear switching.

With respect to a gear-switching limitation and its potential impacts on attainment of OY, there are three outcome scenarios to consider. The first would apply to the degree gear switching is constraining attainment of the trawl allocation and the latter would apply if gear switching is not constraining trawl allocation attainment. The outcome scenarios are:

1. trawlers increase their harvest of trawl target species complexes;
2. trawlers do not increase their harvest of trawl target species complexes but increase the ratio of sablefish in their catch; and
3. trawlers neither increase their harvest of trawl target species complexes nor the ratio of sablefish in their catch, leaving sablefish QP unharvested.

With respect to the action alternatives, the question is not whether the scenario would apply to the full amount of quota taken by gear switchers but only with respect to the difference between what the gear switchers would otherwise take and what they would be allowed to take under the action alternative. Thus, if the comparison points are the maximum historic percentage of gear-switching (35 percent) and a 29 percent cap, the question could be would trawlers be able to use

six percent of the QP to increase their harvest of target species, would they harvest it without increasing their harvest of target species, or would it go unused- or some combination of the three? If the comparison point is some future level of gear switching that would be much higher than what has been experienced thus far, then the outcome would depend on that potential level. If the QP available to trawlers due to a gear-switching restriction is used to increase trawl harvest of other species, achievement of OY would increase. If used by trawlers to increase the ratio of sablefish in their catch, there would be no change in achievement of OY (though the total benefits to the nation might decline if the net value of trawl harvested sablefish is lower than fixed gear harvested sablefish, see Sections 2.4.5(b) and 2.5.3). If the restriction results in sablefish QP going unused, then achievement of OY would decline.

For any restriction, it is possible that a mix of all three scenarios could apply, with trawl vessels increasing their harvest of complexes until market constraints are reached, then increasing their catch of sablefish to the degree it is technically and economically feasible—with any leftover sablefish QP remaining going unharvested. These outcomes may apply at the fleet level or for individual vessels.

A number of factors will influence the degree to which the different scenarios apply. Processing and market capacity for non-sablefish species will impact the degree to which the first scenario might apply. The action alternatives could encourage investments that would expand processing and marketing capacity over time, increasing the likelihood that the first scenario applies and that the action alternative increases attainment of OY. With respect to the other two scenarios, as sablefish biomasses change, the degree to which each is likely to apply will change depending on the degree to which sablefish encounter rates change, the degree to which trawlers are able to control the ratio of sablefish in their catch, and prevailing market prices for sablefish. There is indication that trawlers have some ability to control the sablefish ratio in their catch—for example, the sudden reduction of the ratio of sablefish in the trawl DTS catch that occurred and endured after the start of the trawl IFQ program (Figure 15) and other data showing that catch composition ratios depend on geographic location and time of year of catch (see Section 10.2). For a given rate of sablefish encounters, when sablefish trawl allocations are low, it may be more likely that the first one or two scenarios will prevail; and when sablefish trawl allocations are very high the latter scenario may be more likely.

4.2.2 NS 2 – Best Scientific Information

National Standard 2: Conservation and management measures shall be based upon the best scientific information available.

The analysis of these alternatives relies primarily on EDC Program data collected at the NWFSC, fish ticket data from PacFIN, WCGOP data, IOPAC estimates of income impacts source in the NWFSC, Department of Commerce data, Bureau of Labor Statistics data, Council approved stock assessments and related research, and literature reviewed research. None of the action alternatives are expected to have an impact on the future quality of fishery data.

4.2.3 NS 3 – Management Units

National Standard 3: To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

Sablefish is assessed coastwide and managed with area-specific ACLs north and south of 36° N. lat. None of the alternatives proposed under this action, including no action, will change the management unit of sablefish or any other co-occurring species.

4.2.4 NS 4 – Allocation

National Standard 4: Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be

- (A) fair and equitable to all such fishermen;
- (B) reasonably calculated to promote conservation; and
- (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

Summary:

- *Discrimination: None of the alternatives differentiate or discriminate between residents of different states.*
- *Necessity: Allocations are a necessary part of catch share programs. The history of the trawl/non-trawl allocation is provided in Section 2.2. The action alternatives would reallocate opportunity to gear switch—directly restricting (allocating) the opportunity to use non-trawl gear to catch the trawl allocation (Action Alternatives 1, 2, and the PPA in trigger years) or indirectly restricting through a season closure (Action Alternative 3).*
- *Fairness and Equity: There are not specific quantitative measures of fairness and equity, however, in relation to fairness and equity:*
 - *The NS 4 guidelines specify that an allocation of fishing privileges “should be rationally connected to the achievement of OY or with the furtherance of a legitimate FMP objective” 600.325(c)(3)(i)(A), and “may impose a hardship on one group if it is outweighed by the total benefits received by another group or groups.” 600.325(c)(3)(i)(B);*
 - *Adoption of an action alternative would be intended to improve overall benefits to the nation (see Section 4.2.4(a)).*
 - *Other fairness and equity considerations covered here relate to*
 - *the basis for initial re-allocation of gear-switching opportunities (see Section 4.2.4(b)), and*
 - *the longer-term distribution of sablefish gear-switching opportunity among participants (see Section 4.2.4(c)).*
- *Promotion of Conservation: The overall management system for the shoreside trawl fishery is reasonably calculated to promote conservation. The action alternatives would not alter the achievement of conservation objectives (see Section 7.2 and 7.3) but rather*

seek to increase benefits to the nation by modification of certain provisions within the program (see Section 4.2.4(d)).

- *Excessive Shares: The shoreside IFQ program includes QS control and QP use limits (accumulation limits) to ensure that no particular entity acquires an excessive share of the trawl allocation.*
 - *Under no action, limits for northern sablefish are 3 percent for QS control and 4.5 percent for QP use.*
 - *Alternatives 1, 2, and the PPA in non-trigger years would reduce the total amount of the trawl quota eligible for gear switching but none of the alternatives (including Alternative 3) would create new control or use limits for the gear switching allocations. Individual entities or vessels that accumulate up to the 3 percent and 4.5 percent northern sablefish limits would have accumulated much larger portions of the allocations eligible for gear switching (See Section 4.2.4(e)).*

Because there are varying views on what constitutes fairness and equity, there are not widely accepted quantitative standards against which an objective analysis can conclude that one allocation decision is fairer and more equitable than another. At the same time, the NS guidelines state that in order to be equitable an allocation should result in a net increase in total benefits (Section 600.325(c)(3)(i)(B)); and the MSA provides guidance and requires that Councils consider certain specific factors that relate to fairness and equity—for example, the consideration of investments and recent and historical participation as well as opportunities for new entrants. Part of determining fairness and equity includes providing a well-articulated rationale for any action (such that it is not considered arbitrary and capricious). The following sections discuss these different fairness and equity considerations.

4.2.4(a) Fairness and Equity – Benefits Related to Allocation Decisions

The guidelines for NS 4 note that “[t]he motive for making a particular allocation should be justified in terms of the objectives of the FMP; otherwise, the disadvantaged user groups or individuals would suffer without cause...” (§ 600.325 I(3)(i)(A)); and an allocation of fishing privileges may impose a hardship on one group if it is outweighed by the total benefits received by another group or groups” (§600.325 (c)(3)(i)(B)). Groups might be looked at individually (the trawl gear group and gear-switching group) or more collectively (communities or the nation as a whole).

Three of the action alternatives would directly change each year’s initial allocation of sablefish gear-switching opportunity among QS owners by restricting the gear types used with the QP they receive (Alternatives 1, 2, and the PPA in non-trigger years). Gear-switching restrictions on the QP issued to QS owners would in turn alter vessel’s gear-switching opportunity. There would be no restrictions under the PPA if the trigger were met. Alternative 3 would allocate indirectly between individuals via a season closures (i.e., first come, first serve).

Within Amendment 20, the Council made a trawl/nontrawl allocation decision when it decided to allow gear switching in the trawl fishery (Section 2.2). The Amendment 20 allocation decision was made in the context of balancing a number of different management objectives to achieve improvement to the overall benefits to the nation, including, in particular, the impact of trawl

gear on habitat (as discussed at the end of Section 2.2). Since that time, there has been substantial mitigation of trawl gear habitat impacts (Section 7.2) potentially reducing the net gains expected to result from the allocation decision to allow gear switching. Additionally, for some people, the amount of gear switching and who is doing the gear switching (fixed gear vessels rather than trawl vessels) was unexpected. Thus, the mix of benefits expected to result from the Amendment 20 allocation decision is likely different than what is currently accruing. The question here is whether a change in allocation is likely to increase overall benefits to the nation.

Appendix 7.0 provides a broadly defined assessment of overall benefits to the nation, including distributional effects of each alternative. These include the following:

- Potential increases in revenue and profit for segments of the trawl fleet that are most likely to benefit from a reduction in gear switching.
- The decreases in revenue and profit incurred by gear-switching entities.
- Changes in sablefish QS value, particularly for QS owners that sell or barter their sablefish QP to gear switchers and for gear switchers who acquired QS that might no longer be usable for gear switching (including consideration of opportunity to offset losses by selling QS or selling QP to vessels using other strategies).
- Other investments by gear switchers, such as investments in gear.
- Impacts to those reliant on the activities of each group (including crew, processors, and communities).

A summary of expected costs and benefits is provided in Section 4.5.2. If it is reasonably determined that gear switching is likely constraining harvest of the trawl allocation, then a reduction in gear switching could increase OY attainment and further groundfish FMP Goals 2 and 3, which emphasize maximizing the value and biological yield of the overall groundfish fishery (see discussion in Section 4.2.1). The effects of the action on other FMP objectives are covered in Section 4.4. Effects on efficiency and how that relates to total benefits to the nation are covered in NS 5 discussion (Section 4.2.5).

4.2.4(b) Fairness and Equity -- Re-Allocation of Gear-Switching

Because only Alternatives 1, 2 and the PPA are directly reallocative, they will be the primary focus of this section on initial allocation. The following aspects of the initial allocation formula have a particularly substantial impact on the allocation result, including consideration of investments, historic and recent participation and dependence:

- the time frame used for qualification
- who or what is evaluated to determine gear-switching history qualification for an allocation (for these alternatives, the person or the permit history), and
- the activity(ies) and level(s) of activity required to qualify.

Considerations related to new entry are covered in the following section.

The time frame to qualify for initial allocations is covered in 8.1 and 8.2. Section 8.1 explains why only pre-control date (September 15, 2017) fishing activity is evaluated for the purpose of determining gear-switching history-based allocations. Section 8.2 covers who/what is evaluated when determining qualification; and it describes how those decisions interact with the time frame

used to evaluate history, including the consideration of historical and recent participation as well as investment. Under Alternatives 1, 2 and the PPA, in order to qualify for a history based allocation, individuals must own QS as of the control date and maintain QS ownership at the time of implementation (there are allowances for some QS divestments and reacquisition between those two points in time).

Under Alternative 1, pre-control date gear-switching history of individuals as vessel owners (personal history) is evaluated to determine whether a QS owner qualifies for a history-based allocation. Under Alternative 2 and the PPA, pre-control date gear-switching history of the trawl LE permit owned by a QS owner is evaluated to determine whether a QS owner qualifies for a history-based allocation. The QS owner must own the permit as of and since the control date. Some of the important allocational contrasts between the alternatives that are further explained in Section 8.2 are listed in Table 22.

Table 22. Allocational contrasts between the alternatives.

Alternative 1	Alternative 2 and the PPA
Qualifying history (personal history as a vessel owner) cannot be transferred to others prior to or after the control date. If three years of gear-switched landings are required, a QS owner must have begun gear-switching at least by 2015 in order to qualify for a history based allocation.	Qualifying history (permit history) can be transferred to others prior to the control date. As long as a QS owner has acquire a qualifying permit by the Sept 15, 2017 control date, they can qualify for a history based initial allocation.
Those who qualify would have all or most of their eligible QS converted to any-gear QS (depending on the conversion option and their qualification level).	Those who qualify would receive all any-gear QP for their eligible QS. ^{b/}
Vessel owners that gear switched using leased trawl LE permits could receive the history-based allocations.	Vessel owners that gear switched using leased trawl LE permits would <i>not</i> receive the history-based allocations (history accrues to the permit).
Those QS owners who do not qualify for a history-based allocation might have a portion of the QS they owned on the control date converted to any-gear QS but additional QS acquired after the control date ^{a/} would be converted to trawl-only QS.	Those QS owners who do not qualify for a history-based allocation would receive a standardized portion of their QP as any-gear for all of their QS (only in non-trigger years for the PPA), regardless of when they acquired that QS. In trigger years for the PPA, all QS owners would receive 100 percent general (i.e. any-gear) QP.
After the control date and up until implementation, anyone that acquires QS in excess of what they owned on the control date will have all of that QS converted to trawl-only QS.	After the control date and up until implementation, anyone that acquires QS in excess of what they owned on the control date would receive a standardized portion of their QP as any-gear for that QS.
After initial implementation, new entrants or those acquiring additional would be able to purchase any-gear QS.	After initial implementation, new entrants or those acquiring additional QS would receive a standardized portion of their QP as any-gear for that newly acquired QS.

a/ Any QS that is acquired in excess of the amount that was owned on the control date.

b/ Any QS that is in excess of the amount owned on the control date is not eligible.

For Alternative 1 Gear Switching Participation Option 2, the requirement for three-years of landings interacts with the control date, such that QS owners would not have an opportunity to qualify if they enter after 2015 (i.e., will not receive credit for participation and dependence that

occurred in 2016 and 2017). In contrast, for Alternative 1 Gear Switching Participation Option 1, only one landing is required across the entire qualification period (2011-control date), allowing there to be recognition for historic and investment activity occurring in any year up to the control date. As described above, for Alternative 2 and the PPA, gear-switching history is associated with the permit a person owns on the control date. Thus, someone who, prior to the control date, invested in buying a permit with history would potentially be eligible for a history-based allocation.

One factor that influences the impact of an allocation on investment and dependence is the degree to which an investment may be recovered by putting it to other uses or selling it. For example, for those vessels that cross between the LEFG and gear-switching fishery (see Section 2.5.4), investments in gear might be recovered through use of that gear in the LEFG fishery. For vessels that are not crossing over from another fixed gear fishery, there may be less such opportunity to recover their investment in gear by continuing to use it in the other fishery. For those that acquired QS to gear switch but either are more limited or can't use their QS for that purpose because they did not qualify as an historic gear switcher, under Alternative 1 there is an opportunity to sell their trawl-only QS and acquiring more any-gear QS (albeit at a price differential), or under Alternative 2 and the PPA in non-trigger years, there is an opportunity to annually acquire any-gear QP. In years where the trigger is met, participants would be able to gear switch as under No Action. Based on the projected sablefish ACLs, it is likely that these conditions are to continue for some time suggesting that previous investments in gear-switching could continue to be recouped in the trawl fishery. Under Alternative 3, if the seasons began to shorten vessels wanting to recoup their investment could do so either by deciding to fish less and selling their QS or fishing earlier in the year. The impact of selling the QS will depend in part on the price they can sell at compared to what they paid for it originally and their ability to transition to other sources of income (see Section 2.5.4).

Section 8.3 provides background on the information used in selecting the qualifying level of activities, and Sections 9.1 and 9.2 provide information on the number of qualifiers and non-qualifiers under the Alternatives 1, 2, and the PPA. Further information on the distribution of allocations among groups are included in the detailed analysis of the impacts (Section 7.0).

4.2.4(c) Fairness and Equity -- Quota Transferability and Sector Divisions

This section considers post implementation allocation of gear-switching opportunity, as affected by quota transferability. After implementation, under Alternative 1, the history-based allocations of gear-switching opportunities reside with the QS designated as any-gear QS and are transferable to anyone else, including new entrants. Under Alternative 2 and the PPA, the history-based allocations of gear-switching opportunity reside with the legacy QS owners (is personal to them) and expire as those individuals divest themselves of their QS (legacy QS owners receive 100 percent any-gear QP for their eligible QS). Alternative 2 and the PPA do not provide opportunities to transfer history-based allocations.

Under Alternatives 1, 2, and the PPA, there is also a non-history-based allocation of gear-switching opportunities. For Alternative 1, like the history-based opportunity, it is issued in the form of transferable any-gear QS and may be accumulated by existing gear switchers or new entrants, as well as trawl gear users. For Alternative 2 and the PPA (in non-trigger years), the

non-history-based gear-switching opportunity is allocated annually among all non-legacy QS owners as a constant proportion of any-gear QP (the same proportion applies to all such QS owners). There is no way for QS owners to increase the proportion of any-gear QP they receive annually for their QS. However, as the legacy participants divest themselves of their QS, the proportion of any-gear QP received by the remaining non-legacy QS owners would increase under Alternative 2 QP Distribution Option 1. Under Alternative 2 QP Distribution Option 2 and the PPA, the ratios would not change as legacy participants divest. Under the PPA when the trigger is met, all QPs would be issued as generic QPs so that legacy and non-legacy individuals could gear switch all of their QPs, as under No Action.

By creating only gear-specific QP and not gear-specific QS, Alternative 2 and the PPA allow a phase-out of the history-based gear-switching opportunity, transitioning to a system in which every QS owner receives common degree of gear switching opportunity (i.e., any-gear and trawl-only QP are issued annually in the same proportion to all QSAs). Providing the history-based opportunity before phasing it out would represent an acknowledgement of the investment by gear switchers and provide an adjustment period to reduce the disruptive effects of making changes to the program. Over the long-term, those interested in gear switching at levels requiring more any-gear QP than would be issued for someone holding 3 percent of the QS in non-trigger years would have to supplement the any-gear QP issued to them with any-gear QP they acquire on the annual QP market. In years where the trigger is met, every QS owner would have the same opportunity to gear switch.

The differences in post implementation transferability of the history-based portion of the initial allocations reflect important differences in the Alternative 1 and 2 and PPA policies—particularly with respect to the allocation of sablefish between the two gear groups that traditionally define the trawl and non-trawl/fixed gear sectors (see Sections 2.1 and 2.2). Alternative 1 allows those desiring to gear switch the means by which to secure that opportunity over the long-term by acquiring more any-gear QS. Such transfers create a somewhat stable reallocation between the two gear groups (Section 2.2)—though it is not regulatorily fixed in that any-gear QS acquired by gear-switchers can still be purchased and used by trawlers such that the distribution between the groups is subject to market forces. Under Alternative 2 and the PPA, gear-switching opportunity will be increasingly dispersed among all QS owners, much of it requiring annual transfer of any-gear QP to gear-switchers. For the PPA this just applies to years in which the trigger is not hit and gear-specific QP are issued. The use of a trigger under the PPA will result in the distribution between the groups oscillating between gear-specific allocations within the trawl sector and the more blurred lines of No Action, in which there are no limitations on the allowed amount of gear-switching.

4.2.4(d) Promotion of Conservation

With respect to the NS 4 allocation criteria, while the action alternatives considered here would be reallocative in nature, they are part of an overall system calculated to promote conservation and also address other management objectives.

4.2.4(e) Excessive Shares

Both NS 4 and MSA Section 303A on LAPP programs require the consideration of the accumulation of excessive shares. Among the action alternatives, there is substantial variation in the proportion of the gear switching opportunity that any single entity would be able to control. Under the trawl IFQ program, there is a 3.0 percent limit on the amount of sablefish north QS an entity can own or control, a 4.5 percent limit on the amount of sablefish QP that any vessel can use, and no limits on the number of trawl LEPs an entity can own. No additional limits have been proposed under the action alternatives. Under Alternative 1 (QP Split Option 1), an entity that acquires 3 percent of their QS as any-gear would control 11.5 percent of all of the any-gear QS (their holdings would be potentially a greater percent of the any-gear QS under QP split Option 2).²⁴ Under Alternative 2 and the PPA in years when gear-specific QP is issued, after legacy participants divest of their QS, all remaining QSAs would receive the same standard split. For an entity that controls 3 percent of the QS, that standard split would give them an amount of any-gear QP equivalent to between 0.6 percent and 1.0 percent of all QP issued each year. Under Alternatives 3 and the PPA in years where the trigger is met, no gear designations are added to the QS or QP (all sablefish north quota remains usable with any gear), similar to No Action. While the accumulation limits would remain as under status quo, a vessel could be limited in its ability to use its quota for gear switching because of the first-come/first-served nature of the seasonal approach in Alternative 3.

Table 23. Maximum share of gear switching opportunity achievable.

Maximum Portion of the Gear-Switching Opportunity	Alt 1 – Gear Specific QS ^a	Alt 2 – Gear Specific QP	Alt 3 – Seasonal Approach
Accumulated by QS Owners			
Historic participant that qualifies and owns 3% of the QS	11.5%-17.6%	11.5%	11.5% ^b
New entrant	11.5%-17.6%	3.0% ^c	
Accumulated by Vessels (Limited by 4.5% Vessel QP Limit)	15.5%-21.4%	15.5%-23.2% ^d	15.5% ^e

^a Lower end of the range is QP Split Option 1 and higher end is QP Split Option 2 (assuming 2023 level ACL).

^b Assumes a QS owner that owns 3 percent of the QS is able to use all its quota for gear-switching before the season closes (the 3 percent control limit for northern sablefish)

^c Includes amounts distributed as AMP.

^d Lower end of the range is QP Distribution Option 1 (29 percent any-gear QP available) and higher end for QP Distribution Option 2 (19.4 percent any-gear QP available after legacy participants leave).

^e Assumes the gear-switching vessel takes the maximum number of QP allowed before the season closes (the 4.5 percent vessel QP limit for northern sablefish).

²⁴ The amount of QS held in QSAs and converted to any-gear would be 26.1 percent under QP Split Option 1 and 18.9 percent under QP Split Option 2 (using 2023 allocations; actual amount would be determined at time of implementation if selected). Additional percentages of any-gear QS would be held as AMP QS.

4.2.5 NS-5—Efficiency

National Standard 5: Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

Economic allocation is not the sole purpose of this action, as described in the discussion of NS-1. The NS-5 guidelines provide the following guidance on “efficiency in the utilization of resources.”

The term “utilization” encompasses harvesting, processing, marketing, and non-consumptive uses of the resource, since management decisions affect all sectors of the industry. In considering efficient utilization of fishery resources, this standard highlights one way that a fishery can contribute to the Nation’s benefit with the least cost to society: Given a set of objectives for the fishery, an FMP should contain management measures that result in as efficient a fishery as is practicable or desirable.

(2) **Efficiency.** In theory, an efficient fishery would harvest the OY with the minimum use of economic inputs such as labor, capital, interest, and fuel. Efficiency in terms of aggregate costs then becomes a conservation objective, where “conservation” constitutes wise use of all resources involved in the fishery, not just fish stocks.

The question of efficiency in relation to this action can be broken down into effects of the action on the efficiency of industry sectors and effects on government efficiency in pursuit of multiple fishery management objectives, including the generation of the greatest overall benefit for the nation. Government efficiency is indicated by minimization of administrative costs. Cost minimization is covered under the NS 7 discussion in Section 4.2.7.

If not otherwise interfered with, market mechanisms are expected to lead to the most efficient outcome for industry. Section 2.4.5(b) demonstrates that some gear-switching vessels may be more profitable than some trawl vessels and may displace some trawl catch by outcompeting those trawlers for sablefish QP. At the same time, there are some trawl vessels that are nearly as or more efficient than some gear-switching vessels. Overall, if gear switching is constraining, a reduction in gear switching would likely displace the least efficient of the current gear-switching trips and replace them with trawl-gear trips somewhat less efficient than those gear-switching trips. For example, examining Table 9, it would be expected that gear switching trips at the lower percentile of VCNR per pound of sablefish would be squeezed out. On that basis, the degree of reduction in efficiency resulting from a restriction on gear switching will depend on the relative efficiency of the marginal vessels participating in each strategy. The action alternatives being considered here would restrict the market’s influence in moving quota to the vessels that are most efficient.

The overall efficiency effect of this restriction depends on whether the existing market is freely functioning (free of distortions) and, if it is not, whether the gear-switching restriction might compensate for or exacerbate any market interference. As mandated by the MSA, a number of

objectives related to issues other than efficiency have been incorporated into the trawl catch share program. Management measures associated with these policies may interfere with efficient market outcomes. The following considers some of these market distorting measures in the context of actions to limit gear switching.

Trawl accumulation limits: QS control limits may be inhibiting an efficient market-based response to uncertainty created by the presence of gear switching, as discussed in Sections 2.4.4(a) and 7.5. A limit on gear switching could counter part of the market interference by reducing uncertainty about reliability of the supply of trawl caught fish.

LEFG tier program: The LEFG tier program includes limits on accumulation (stacking limits), separate longline and fishpot endorsements, and requires LEFG permit owners to be on board the vessel during tier fishery. These measures appear to be contributing to the engagement in gear switching by fixed gear vessels seeking more fishing opportunity or flexibility in exercising that opportunity (see Sections 2.4.4(b), 2.5.4, and 7.5). Reduction of gear switching may limit adverse impacts, if any, related to the participation of fixed gear vessels in the trawl sector but would not resolve the issues that motivate their entry into the trawl fishery and could reduce efficiency benefits derived from gear switcher participation in the trawl sector.

Unidirectional cross-over between the LEFG and trawl IFQ fishery: While the trawl fishery allows participation using non-trawl gear, the LEFG tier program does not allow vessels to take sablefish tiers with trawl gear. This interferes with market-influence on the balance in the northern sablefish allocation between the sectors (see Section 7.5). However, reducing gear switching would not address the inefficiencies that might be created with unidirectional cross-over.

Trawl/Nontrawl Allocation: Finally, the division of the groundfish fishery into trawl and LEFG sectors was intended to achieve certain broader management objectives (discussed in Section 2.2). Allowing gear switching in the trawl sector might improve trawl sector fleet efficiency (see discussion of VCNRs in 2.4.5(b)) but could have potential adverse impacts on achievement of broader management objectives supported by trawl activity.

If the decision is made to restrict gear switching, Alternative 1 is most likely to achieve this aim with the greatest efficiency due to its full reliance on the features of existing QS program and the market-based flexibility and related efficiency gains that QS based system provides to participants. Alternative 2 and the PPA (in years that gear-specific QP are issued) are likely to be less efficient than Alternative 1, mainly because they limit market function by not allowing for consolidation of long-term access to any-gear QP (i.e. these alternatives do not include gear-specific QS). For years in which the PPA triggers are hit and generic QP are issued, the PPA is likely to result in a more efficient distribution of quota among gear-switching and non-gear switching participants than for other alternatives and for the PPA in years constrained by the issuance of gear-specific QP.

Alternative 3 may have a fishery efficiency outcome similar to Alternative 1, as long as the gear-switching opportunity runs close to a full year. If the season is shortened due to reaching the 29 percent limit, vessel flexibility and efficiency would be reduced and other management issues

may arise requiring Council attention. The shortening of the season may become more likely as ACLs decline.

4.2.6 NS-6—Contingencies

National Standard 6: Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

The NS-6 guidelines note that:

Each fishery exhibits unique uncertainties. The phrase “conservation and management” implies the wise use of fishery resources through a management regime that includes some protection against these uncertainties. The particular regime chosen must be flexible enough to allow timely response to resource, industry, and other national and regional needs. §600.335(b)

Further, the NS-6 guidelines state that “variations arise from biological, social, and economic occurrences, as well as from fishing practices” §600.335I(1) and that “Unpredictable events...are best handled by establishing a flexible management regime that contains a range of management options through which it is possible to act quickly without amending the FMP or even its regulations.” §600.335(d). This guidance has a bearing on what aspects of the gear-switching policy should be memorialized in an FMP amendment and what aspects might be implemented only in regulation.

The MSA implicitly anticipates that catch share programs may have unanticipated impacts and includes requirements for periodic program reviews. Amendment 20 tried to provide some opportunity for responding to unexpected outcomes by setting aside 10 percent of the quota for adaptive management. Additionally, the trawl catch share program itself provided participants with considerable flexibility for organizing their fishing activities.

As with many of its management decisions, in its deliberations on gear switching the Council will need to make a judgement under conditions of some degree of uncertainty. Here the Council will be evaluating whether or not it is likely that gear-switching activity is constraining trawl allocation attainment and the potential consequences of both a correct and an incorrect judgement in that regard. Therefore, the decision on whether or not to limit gear switching warrants consideration of the Council’s ability to respond if outcomes vary from what it anticipates in making its final decision.

4.2.6(a) Variations and Contingencies for Managers

As summarized in Section 4.1.2(e) and discussed in more detail in Section 7.12.1(b), if the Council selects no action, it will continue to be in a situation like it is in the present. If at some time in the future it is determined that gear switching is substantially limiting trawl attainment and the Council wants to resolve that issue, it might need to republish a control date. Each action alternative is different with respect to the flexibility it provides for modification of gear switching levels in the future.

With respect to future modification of the level of the gear-switching limitation, there are two approaches identified for Alternative 1 (see Section 7.12.1(b)). The first changes the amounts of each type of gear-specific QP that a QS owner receives but would not change the total amount of sablefish QP received they received for a given unit of QS. It would achieve this by issuing QP of one gear-type for QS of another gear type. This would add regulatory complexity and put a burden on the management and data system. NMFS would need to further review the approach to determine its feasibility. The second Alternative 1 approach (changing the total QP a person receives for a given amount of QS) would be less administratively burdensome and less regulatorily complex but substantially more reallocative by changing the amount of QP an individual received for a given amount of QS.

For Alternative 2, there are also two approaches for modifying gear-switching amounts. Similar to Alternative 1, one approach would have some reallocative effects (issuing some trawl-only QP instead of any-gear QP to legacy participants). The other approach would modify the ratio of any-gear to trawl-only QP issued to all other QS owners, thus being relatively simple from a regulatory perspective but also having some reallocative effect. Neither approach would change the total sablefish QP a QS owner received.

Under the PPA, for years in which gear-specific QP are issued, the amounts of trawl-only and any-gear QP could be adjusted in the fashion described for Alternative 2. An additional consideration for the PPA is the parameters used for the trigger criteria and levels at which the triggers are set. When the triggers are hit, generic QP are issued rather than gear-specific QP. When the Council discussed triggers at its November 2023 meeting, there were a number of comments on the potential need to modify them as experience is gained or conditions in the fishery change. The process for modifying the triggers will vary somewhat depending on whether they are specified in the FMP or only in regulation. The intent of using a trigger to suspend the issuance of gear-specific QP (i.e., trigger issuance of generic QP) is to limit the imposition of restrictions on gear switching to situations in which there is most likely to be competition between trawl gear and gear-switching vessels.

Making changes to the level of gear switching allowed under Alternative 3 would involve the least regulatory burden and complexity, so long as the season length does not shorten substantially due to increased interest in gear switching or a substantial decline in ACLs. If in the future the Council determines that there is a need to reduce gear switching to levels below 29 percent, that might contribute to shortening seasons. If highly shortened seasons developed, the Council might then reconsider other means of limiting gear switching—assuming it determined that a continuation of a limit on gear-switching were desirable.

4.2.6(b) Variations and Contingencies for Harvesters

The current IFQ program (No Action) provides a flexible regulatory system that gives harvesters an opportunity to optimize their operations and respond to changing fishery and market conditions. Alternative 1, 3, and the PPA (for years in which generic QP are issued) continue the same general operational and planning flexibility for gear-switchers that the IFQ program provides. For Alternative 1, there would be a more limited amount of quota that could be used for gear switching. For Alternative 3, the amount of quota available for gear switching would be

the same but flexibility may be reduced if vessels increase their pace of fishing to ensure they are able to gear switch as much as they want and as a result seasons are shortened to keep the fishery within the gear-switching cap. For the PPA in years for which generic QP are issued, there would be little change in the flexibility to gear switch, as compared to No Action. Alternative 2 and the PPA (in years that gear-specific QP are issued) would create obstacles that impede gear switchers’ flexibility to secure long-term access to quota usable for gear switching and scale their operations—increasing the costs and effort required to do so. Harvesters desiring to secure gear-switching opportunity through the acquisition of QS would be limited by the 3 percent QS control limit. For any additional QS they acquire, 29 percent or less of the QP they receive would be any-gear QP. Thus, acquiring more QS secures long-term access to more trawl-only QP than any-gear QP. On an annual basis, gear switching vessels have the opportunity to accumulate any-gear QP by acquiring it from other QS holders, however, since only a portion of the QP in non-legacy owned accounts would be valid for any-gear, they would likely need to acquire QP from more QSAs than under no action, Alternative, 1, Alternative 3 or the PPA in years generic QP are issued, increasing effort and costs related to QP transactions.

4.2.7 NS-7—Cost Minimization

National Standard 7: Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

Costs of the alternatives are summarized in 4.1.2(g) and detailed in 7.12.1(a). Table 24 provides a general overview of the costs relative to a no action scenario in which there is no need to impose a constraint on gear switching in the future. If instead, the Council returns to deliberate on gear switching at some time in the future, then there would be costs related to No Action that are not taken into account in this table. NMFS will provide more on cost estimates in its April 2024 report to the Council.

Table 24. Qualitative comparison of costs relative to no action.

	Implementation Costs	Ongoing Costs
Alternative 1 – Gear-Specific QS	Relatively Low	Very little new work.
Alternative 2 – Gear-Specific QP	Lower than Alt 1	Some new ongoing tasks
PPA – Gear-Specific QP and Triggers for Generic QP	Slightly higher than Alternative 2.	Slightly higher than Alternative 2.
Alternative 3 – Seasonal Approach	Lowest	Inseason projections & closure actions.

The costs of the PPA are likely slightly higher than Alternative 2 because they would entail all of the initial implementation and most of the ongoing actions required by Alternative 2 plus the need to monitor triggers and maintain the capacity to move between the annual issuance of generic and gear-specific QP.

Enforcement costs should also be considered. There is likely minimal to no additional enforcement costs for any of the action alternatives compared to No Action. With 100 percent monitoring, even if there is a shortening of the gear switching “season” under Alternative 3 (i.e., less than a full year of opportunity to retain sablefish while gear-switching), the season closure would not be expected to substantially increase enforcement costs.

The alternatives also vary with respect to the costs of dealing with unexpected outcomes, as discussed in Section 4.2.6(a).

NS 7 also states that analyses of cost minimization should consider the costs not only to the agency and Council, but to the industry. Particularly, it discusses the need to identify the burdens and gains from the proposed alternative. “Management measures should be designed to give fishermen the greatest possible freedom of action in conducting business and pursuing recreational opportunities that are consistent with ensuring wise use of the resources and reducing conflict in the fishery.” Under No Action, there is the greatest flexibility to participants and distribution of quota would be based on the market outcomes (though the effective function of those markets would be diminished relative to markets in a less regulated sectors—see discussion in Section 2.4.4 and 4.2.5). Each of the action alternatives would add constraints to gear switching opportunities. Alternative 1 would constrain gear switching while preserving a degree of flexibility similar to no action in that the any-gear QS would be fully transferable. Under Alternative 1 the flexibility and certainty of access would be greater than for Alternative 2 and the PPA (in years that gear-specific QP are issued), which would disperse any-gear QP across all QS accounts. Vessels would still have the same flexibility to gear switch at different levels as they would for Alternative 1, but the cost of sweeping up the necessary QP each year would be greater and there would be less certainty about their ability to do so. This reduced certainty about access to the needed QP would reduce investments in gear switching and may impact a vessels ability to get financing. The PPA (in years that triggers are hit and generic QP are issued) and Alternative 3 would preserve current flexibility. For Alternative 3, this would only be true so long as seasons do not shorten, as would occur if interest in gear switching exceeds 29 percent of the trawl allocation. Shortened seasons would diminish harvest flexibility, with the degree of diminishment depending on how far the seasons are shortened.

Under Alternative 1, the cost of any-gear QS/QP would likely increase and the costs of trawl-only QS/QP would go down relative to northern sablefish QS/QP under no action. Compared to No Action, under Alternative 2 and the PPA, there could be some reduction in QS costs due to reduced demand from gear switchers while the price of any-gear QP might increase due to the more limited supply of QP usable for gear-switching. Under Alternative 3, there could be some reduced demand and prices for sablefish QS/QP relative to no action, if there would have been substantial increases in gear switching in the absence of the 29 percent limit.

Since costs of this program are recoverable through fees on industry, the management costs may also impact future industry costs.

4.2.8 NS-8—Communities

National Standard 8: Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meet the requirements of paragraph (2), in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

Communities are impacted differently by the alternatives depending on their vulnerability and reliance on fishing (see Section 10.3) and on how the sectors, deliveries, and quota ownership are distributed among them. Numbers of vessels and dealers as well as average revenue, income, and jobs by major port group is provided in Section 7.11. Confidentiality restrictions prevent the display of this information at more refined geographic levels, however the presence and absence of the activity for six different commercial groundfish sectors (including gear switching and DTS trawl) is provided in Table 71 of Section 10.3. Additionally, Table 71 provides total exvessel revenue of groundfish deliveries in contrast to all deliveries made to each port. In the period assessed (2018-2022), all communities that receive gear-switched landings also receive at least some trawl landings—north of San Francisco those landings also included at least some DTS deliveries. Vessels that gear switch may deliver to trawl ports, in part, because trawl IFQ deliveries must be made to licensed FR sites. Since communities to which gear-switched deliveries are made also receive bottom trawl landings, those adversely impacted by a restriction on gear switching might recoup some losses with increases in trawl landings (whether the total trawl landings increase or just the amount of sablefish landed by trawl vessels, Table 71). While many smaller coastal ports receive only LEFG and OA fishery deliveries, some of the vessels making those small port deliveries make their gear-switched deliveries into other trawl ports, particularly with respect to some of the smaller California ports. Thus, even if a port receives no gear-switched deliveries, a restriction on gear switching may have some impact on the port via its vessels that make gear-switched deliveries elsewhere. In addition to the impacts on trawl-sector participants (including gear-switchers), non-sablefish/non-groundfish sectors that operate in trawl sector ports could be impacted by the changes in gear switching and trawl activity—to the degree that sectors are co-reliant on one another to provide sufficient demand to maintain services in a community.

Under no action, fishing activity and ownership, and the related income and profits, would continue to redistribute among communities in response to changing economic and market conditions and differences in the economic health of the different sablefish dependent sectors. The magnitude and distribution of the effect of the action alternatives would depend on the mix of possible outcomes that result. That is, increased trawl catch of non-sablefish species, increased trawl catch of sablefish, or sablefish QP going unused. If gear switching is constraining trawl attainment, reducing it will result in more total fish product and economic activity, including the possibility of increased investment in infrastructure for those ports that receive trawl deliveries, particularly for DTS (see Section 7.10 for more discussion). If gear switching is not constraining, the limitation could reduce the community benefits, either as fixed gear caught sablefish is replaced by trawl caught sablefish (which might have lower net values than fixed gear caught sablefish) or possibly as sablefish goes uncaught. It's not possible to provide quantitative predictions of redistributions and therefore the degree to which each community would be impacted by the action alternatives.

Beyond the redistribution of fishing activity resulting from differences in the distribution of trawl and gear-switched deliveries, the distribution of gear-specific quota under Alternatives 1, 2, and the PPA may cause a redistribution of gear switching and the geographic distribution of the benefits that derive from QS ownership. If gear switchers delivering to a particular port do not receive an initial allocation of any-gear quota that covers their previous level of activity, they will need to compete on the market for any-gear quota. This then opens the possibility that they

will be outbid and consequently the related gear switching activity moved to another port. The most movement of QS ownership might be expected under Alternative 1 in that those interested in gear switching may increase their efforts to acquire and consolidate the limited amount of any-gear northern sablefish QS. Under Alternative 2 and the PPA (in years with gear-specific QP), consolidating QS for the purpose of securing long-term access to any-gear QP will be of limited value since, at most, 29 percent of the QP issued for the acquired QS would be any-gear QP. Post implementation geographic redistribution of any-gear QP is more likely to be determined by the QP trading patterns that develop over time. The distribution of QS ownership impacts communities because it influences where profits from QS ownership is spent. We can identify where individuals that might be impacted reside, but over the long-term it is more difficult to predict how QS might be redistributed. As of 2023, 23 percent of the any-gear QPs owned by legacy participants are estimated to be owned by California residents, 22 percent to Oregon residents, and the 55 percent remainder to Washington residents. Further, with the inclusion of the trigger in the PPA, the impacts to communities may change over time with generic QPs allowing for conditions similar to No Action. With ACLs expected to be in amounts in excess of the proposed range of trigger amounts, those with interests in gear switching could purchase QS for the purpose of gear switching and utilize that quota for several years before gear-specific QP are issued (assuming market conditions were favorable).

Alternative 3 would cause some degree of redistribution of gear switching activity when it results in season closures. The pattern of that redistribution would depend on the ports in which late season activity is most likely to be cut short by the closure. Alternative 3 is not expected to result in a noticeable redistribution of QS as compared to No Action.

4.2.9 NS-9—Bycatch

National Standard 9: Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

With respect to groundfish the, shorebased IFQ program requires 100 percent catch accountability for all IFQ species, with other non-IFQ species managed via cumulative landing limits. None of the action alternatives change the bycatch minimization measures in place for the IFQ fishery. Additionally, the Council and NMFS have mitigation measures available (e.g., block area closures). Limited bycatch of non-groundfish species, including prohibited species (Dungeness crab), ecosystem component species, and other non-groundfish occurs in the IFQ program and the overall rate does not vary substantially between trawl and gear switchers (see [Agenda Item G.1.b, NWFSC Report 2, September 2023](#)). Thus, a limitation on gear switching is not expected to substantially change bycatch or bycatch mortality for non-groundfish species. There are also would not be any concerns about protected species, as indicated by the discussion in Section 7.3.

4.2.10 NS-10—Safety

National Standard 10: Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

Under No Action and Alternatives 1, 2, and the PPA participants with the necessary QPs could gear switch or trawl any time during the year when weather and sea conditions are safe. Under Alternative 3, while there may be no change to the ability to gear switch under the seasonal approach, depending on interest, allocations, and other factors, there could safety concerns in the future if the 29 percent limit becomes constraining to interested gear switchers. While unlikely at current trawl allocation levels, in years when the ACL is lower, there may be greater likelihood of a shortened season if market prices and other conditions encourage sufficient effort. For further discussion on the potential for the shift in fishing under Alternative 3, please see Section 9.3.

4.3 Other MSA Required Considerations

4.3.1 303(b) (Discretionary Provisions) & MSA 303A (Limited Access Privilege Programs)

Of the numerous required considerations of MSA 303(b) and 303A the following, in particular, are applicable and should be taken into account in the current action:

- present participation in the fishery, as well as historical fishing practices in, and dependence on, the fishery;

In developing the first suite of alternatives considered by the Council, the SaMTAAC developed a set of principles (Section 1.2) that included consideration of impacts to current operations and investments and long-term stability. In allocating ongoing gear-switching opportunities, the PPA recognizes present participation by allocating to current QS owners that have also owned permits with qualifying gear-switching history as of and since the control date. Consideration of present participation, historic practices, and dependence is also discussed in Sections 4.2.4 on NS 4, allocation and in Section 8.0 (which addresses the control date and who gear-switching opportunities are allocated to). Since DTS is the complex most likely to benefit from a restriction on gear switching, DTS as a portion of overall revenue for individual vessels is summarized in Section 10.1. Section 10.1 also shows for gear switchers the portion of their west coast revenue derived from gear switching. The information provided in this section does not include income generated from participation in Alaskan fisheries.

- harvester and processor employment and communities

Harvester employment is considered in Section 7.9(crew), and impacts to processors is considered in the Section 7.10 (first receivers and processors). Additionally, Section 7.11 on communities, provides information on the numbers of gear-switching and trawl-DTS vessels, buyers, related income impacts and jobs. In general, an increase in trawl attainment of allocations would be expected to improve community income and employment in those ports with bottom trawl operations.

- the economics of the fishery;

The principles adopted by the SaMTAAC included increasing the net economic value of the fishery. The economics of the fishery are considered extensively in this document, including in Sections 2.0 and 7.4 through 7.13 and Appendices 8.0, 9.0, and 10.0.

- the capability of fishing vessels used in the fishery to engage in other fisheries;

Section 2.5.4 addresses the crossover fisheries in which gear-switching vessels often participate. These are the fisheries gear-switching vessels are most likely to turn to in order to make up for reductions in income through a reduction in gear-switching opportunity. Proportion of revenue from the trawl sector is an indicator of the amount of revenue that those who are unable to maintain their previous gear-switching levels will have to make up in other fisheries (see Section 10.1).

- the fair and equitable distribution of access privileges in the fishery and the accumulation of excessive shares.

Fairness and equity are discussed in Section 4.2.4 on allocations and accumulation of excessive shares is discussed in Section 4.2.4(e).

4.3.2 303(a)(9) Fishery Impact Statement

Section 303(a)(9) of the Magnuson-Stevens Act requires that a fishery impact statement be prepared for each FMP or FMP amendment. A fishery impact statement is required to assess, specify, and analyze the likely effects, if any, including the cumulative conservation, economic, and social impacts, of the conservation and management measures on, and possible mitigation measures for (a) participants in the fisheries and fishing communities affected by the plan amendment; (b) participants in the fisheries conducted in adjacent areas under the authority of another Council; and (c) the safety of human life at sea, including whether and to what extent such measures may affect the safety of participants in the fishery.

The analysis prepared for this action constitutes the fishery impact statement. The likely effects of the proposed action are analyzed and described throughout the document. The effects on participants in the fisheries and fishing communities are analyzed in Sections 7.0, 8.0, and 9.0 and summarized in 4.5.2. The effects of the proposed action on safety of human life at sea are evaluated in Section 4.2.10 on National Standard 10.

The proposed action affects the groundfish fisheries in the EEZ off the West Coast, which are under the jurisdiction of the Pacific Fishery Management Council. Impacts on participants in fisheries conducted in adjacent areas under the jurisdiction of other Councils are not anticipated as a result of this action.

4.4 Groundfish FMP Goals and Objectives

The following are the goals and objectives of the FMP that the Council will consider in its deliberations.

4.4.1 Goal 1 – Conservation (Objectives 1-5).

Prevent overfishing and rebuild overfished stocks by managing for appropriate harvest levels and prevent, to the extent practicable, any net loss of the habitat of living marine resources.

The action alternatives are not expected to have an adverse impact on achievement of conservation goals (see Section 7.2 and 7.3)

4.4.1(a) Objective 1 – Maintain an information flow

Maintain an information flow on the status of the fishery and the fishery resource which allows for informed management decisions as the fishery occurs.

Under all the action alternatives, maintaining the needed information flow will require the transmission of a new data element from the fish ticket to the quota tracking system (gear used). Under Alternative 3, existing data flows would need to be monitored to determine whether the 29 percent limit on gear-switching is going to be exceeded and a closure required. Other modifications to the system related to each alternative are discussed in Section 7.12.

4.4.1(b) Objective 2 – Harvest Specifications, Management Measures, and Capacity.

Adopt harvest specifications and management measures consistent with resource stewardship responsibilities for each groundfish species or species group. Achieve a level of harvest capacity in the fishery that is appropriate for a sustainable harvest and low discard rates, and which results in a fishery that is diverse, stable, and profitable. This reduced capacity should lead to more effective management for many other fishery problems.

None of the alternatives will adversely impact the Council’s ability to set harvest specifications and management measures that meet resource stewardship responsibilities. The catch share program is designed to help match capacity to the available fishing opportunity. Actions to limit gear switching would be intended to encourage more stable and profitable opportunities for groundfish trawl vessels. At the same time, limiting gear switching will likely reduce the diversity of harvest operations within the trawl sector. However, with respect to the PPA, in years trigger criteria are met there would be no limitation on gear switching—though there may be less gear switching than under No Action because the years of restriction in between may discourage investment in gear-switching operations.

4.4.1(c) Objective 3 – Rebuilding

For species or species groups that are overfished, develop a plan to rebuild the stock as soon as possible, taking into account the status and biology of the stock, the needs of

fishing communities, recommendations by international organizations in which the United States participates, and the interaction of the overfished stock within the marine ecosystem.

None of the alternatives will impact rebuilding related objectives.

4.4.1(d) Objective 4 – Impacts to Non-Groundfish Species

Where conservation problems have been identified for non-groundfish species and the best scientific information shows that the groundfish fishery has a direct impact on the ability of that species to maintain its long-term reproductive health, the Council may consider establishing management measures to control the impacts of groundfish fishing on those species. Management measures may be imposed on the groundfish fishery to reduce fishing mortality of a non-groundfish species for documented conservation reasons. The action will be designed to minimize disruption of the groundfish fishery, in so far as consistent with the goal to minimize the bycatch of non-groundfish species, and will not preclude achievement of a quota, harvest guideline, or allocation of groundfish, if any, unless such action is required by other applicable law.

None of the alternatives will impact objectives related to non-groundfish species.

4.4.1(e) Objective 5 – EFH

Describe and identify EFH, adverse impacts on EFH, and other actions to conserve and enhance EFH, and adopt management measures that minimize, to the extent practicable, adverse impacts from fishing on EFH.

Even if the action alternatives increase trawling, there is likely to be minimal change to habitat and physical impacts (see Section 7.2).

4.4.2 Goal 2 – Economics (Objectives 6-8).

Maximize the value of the groundfish resource as a whole.

The No Action alternative relies on a variety of management measures to maximize the value of the resource to the nation as a whole, including (see discussion of what is included in benefits to the nation as a whole in Sections 4.2.1 and 4.2.4 on the OY and allocation national standards, respectively). These measures include the shoreside trawl IFQ program, which emphasizes efficiency of production. The between sector allocations of northern sablefish emphasize other aspects of national benefits including impacts to fishing communities and other fisheries in the region (see Sections 2.1 and 2.2). The action alternatives are being proposed to increase the value of the resource to the nation as a whole (see summary in Section 4.5.2). The action alternative impacts will largely depend on the degree to which trawlers use the northern sablefish QP made available by a gear-switching restriction to catch more of a trawl complex, to increase the ratio of sablefish in their catch, or the sablefish QP goes unused (see Section 7.4).

4.4.2(a) Objective 6 – Net Economic Benefits

Within the constraints of the conservation goals and objectives of the FMP, attempt to achieve the greatest possible net economic benefit to the nation from the managed fisheries.

From an efficiency perspective alone, by imposing a constraint on the IFQ program, the action alternatives could reduce efficiency. This result depends in part on whether the action alternatives correct for other ways that the program might be distorting markets (see discussions in Section 2.4.4 on program design and 4.2.5 on efficiency). Even though the action alternatives could reduce technical efficiency at the same time they might generate more benefits to the nation as a whole (Section 4.5.2)—as those benefits are defined with respect to optimum yield determinations (Section 4.2.1).

4.4.2(b) Objective 7 – Year-Round Marketing

Identify those sectors of the groundfish fishery for which it is beneficial to promote year-round marketing opportunities and establish management policies that extend those sectors fishing and marketing opportunities as long as practicable during the fishing year.

Year-round fishing has been identified as beneficial for the trawl gear fishery and related communities. The trawl IFQ program largely turns over to the market place the determination of the best distribution of harvest activity through the year. The action alternatives could encourage more days of landings if they result in an increase in total landings. Alternative 3 could shorten the season for gear-switching vessels but maintaining year-round fishing opportunities has not been a management objective for fixed gear vessels participating in limited entry fisheries.

4.4.2(c) Objective 8 – Use of Gear Restrictions

Gear restrictions to minimize the necessity for other management measures will be used whenever practicable. Encourage development of practicable gear restrictions intended to reduce regulatory and/or economic discards through gear research regulated by EFP.

While the action alternatives would impose a gear restriction (limit gear switching in the trawl sector) that could affect the achievement of economic goals and objectives, that restriction is not expected to alter the necessity of other management measures. The restriction is not expected to have an adverse conservation impact on regulatory or economic discards of groundfish because quota is generally required to cover that catch. See Section 7.3 for additional discussion of impacts to other species.

4.4.3 Goal 3 – Utilization (Objectives 9-11).

Within the constraints of overfished species rebuilding requirements, achieve the maximum biological yield of the overall groundfish fishery, promote year-round availability of quality seafood to the consumer, and promote recreational fishing opportunities.

The action alternatives are intended to move the fishery toward maximum biological yield by increasing trawl sector attainment of its allocations, which contribute to OY. Increasing trawl

sector catch of its allocations would also promote availability of quality seafood to consumers, though whether that availability moves towards being year-round would depend on markets. There is some possibility that a gear-switching restriction could reduce utilization, if as a result, some northern sablefish QP previously used by gear switchers instead goes unused. The PPA provision that would not impose a gear-switching restriction when ACLs are very high is intended to reduce the probability or degree to which sablefish QP might go unused.

4.4.3(a) Objective 9 – Full Utilization

Develop management measures and policies that foster and encourage full utilization (harvesting and processing), in accordance with conservation goals, of the Pacific Coast groundfish resources by domestic fisheries.

There is concern that either currently, or if left unconstrained, the use of sablefish northern QP by gear switchers could reduce the utilization of the available trawl allocations. The action alternatives are intended to reduce the under attainment of the trawl allocation—though it is possible as a result of the action, some northern sablefish QP could go unused (see Section 7.4.1). As just described, the PPA would reduce the probability or degree to which this occurs.

4.4.3(b) Objective 10 – Management by Species/Species Groups and Gear

Recognize the multispecies nature of the fishery and establish a concept of managing by species and gear or by groups of interrelated species.

The action alternatives recognize the multispecies nature of the trawl fishery and the potential constraint gear switching might impose on harvest of trawl complexes through a reduction in the amount of sablefish QP trawlers acquire.

4.4.3(c) Objective 11 – Bycatch and Discard Mortality Minimization and Monitoring

Develop management programs that reduce regulations-induced discard and/or which reduce economic incentives to discard fish. Develop management measures that minimize bycatch to the extent practicable and, to the extent that bycatch cannot be avoided, minimize the mortality of such bycatch. Promote and support monitoring programs to improve estimates of total fishing-related mortality and bycatch, as well as those to improve other information necessary to determine the extent to which it is practicable to reduce bycatch and bycatch mortality.

Bycatch and discard concerns with the action alternatives are minimal and addressed with respect to NS 9 (see Section 4.2.9).

4.4.4 Other Social Factors (Objectives 12-17)

4.4.4(a) Objective 12 – Equity

When conservation actions are necessary to protect a stock or stock assemblage, attempt to develop management measures that will affect users equitably.

Equity issues are discussed with respect to NS 4 (Section 4.2.4). The PPA would impose a gear restriction only when northern sablefish ACLs are at lower levels, thereby limiting the allocation

among groups to situations in which there are more likely to be a conservation burden to be shared. The distribution of ongoing gear-switching opportunity to historic gear-switching participants would be part of distributing the conservation burden fairly among participants (see Section 8.3). The gear-switching limitation itself also results in a redistribution of the conservation burden from trawlers to gear-switching vessels. The equity of that shift should be considered within the context of the reason for the allocation between trawl and fixed gear vessels (see Sections 2.1 and 2.2).

4.4.4(b) Objective 13 – Gear Conflicts

Minimize gear conflicts among resource users.

The action alternatives are not expected to affect gear conflicts on the fishing grounds.

4.4.4(c) Objective 14 – Least Disruption of Fishing, Marketing and Environment

When considering alternative management measures to resolve an issue, choose the measure that best accomplishes the change with the least disruption of current domestic fishing practices, marketing procedures, and the environment.

The action alternatives are all intended to initially allow a continuation of gear switching at close to recent levels, thereby taking into account the investments made by gear-switching participants. Alternative 2 QP Distribution Option 2 and the PPA would both phase the levels of gear switching down over time, as legacy participants divested themselves of their northern sablefish QS, reducing disruption. The PPA, by limiting the gear-switching restriction to years when there is more likely to be a shortage of northern sablefish QP (i.e., years with low ACLs), is expected to result in less disruption than an alternative that would restrict gear switching in every year, regardless of the amount of sablefish QP available. From the perspective of trawl vessels and processors, switching between years of gear-specific QP issuance and years of generic QP issuance could result in more disruption than Alternative 2 QP Distribution Option 2 alone. Whether the PPA is more disruptive than Alternative 2 QP Distribution Option 2 would depend on 1) whether when generic QP are issued there is adequate QP for everyone, and 2) whether under the PPA gear-switchers are more likely to acquire and hold QS that would generate any-gear QP for them in gear-specific years and generic QP in other years.

4.4.4(d) Objective 15 – Small Entities

Avoid unnecessary adverse impacts on small entities.

The action alternatives will impose impacts on small gear-switching entities for the purpose of increasing attainment in the overall trawl sector. Impacts to these small entities would be mitigated through allocation of ongoing gear-switching opportunities based on historic participation and investments by those entities (legacy participants). Further, Alternative 2 QP Distribution Option 2 and the PPA (in years where gear-specific QP are issued) would also phase the level of gear switching down over time, as described in the previous section, thereby reducing the disruption of small entities.

4.4.4(e) Objective 16 – Communities

Consider the importance of groundfish resources to fishing communities, provide for the sustained participation of fishing communities, and minimize adverse economic impacts on fishing communities to the extent practicable.

The action alternatives are intended to benefit communities by increasing the total amount of landings delivered by the trawl fishery. See Sections 2.1 and 2.2 for a discussion of the importance of the trawl fishery to west coast fishing communities and Section 4.2.8 on NS 8 for a discussion of impacts of the action alternatives on communities. A limitation on gear switching may help provide incentives for additional investment in automated processing and the development of new markets. The PPA’s trigger criteria to eliminate restrictions to gear switching when northern sablefish ACLs are high, discussed in previous sections, would also likely benefit communities.

4.4.4(f) Objective 17 – Safety

Promote the safety of human life at sea.

Safety concerns with the action alternatives are minimal and addressed with respect to NS 10 (see Section 4.2.10).

4.5 RIR Summary and Cost Benefit Analysis

4.5.1 Elements of the RIR and Their Location in this Document

The RIR is intended to assist the Councils and NMFS in selecting the regulatory approach that maximizes net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

The required elements of the RIR and the location in this document

- Statement of the Problem.....See Section 1.1
- Description of the fishery and other affected entitiesSee Section 2.0
- Description of the management goals and objectivesSee Section 4.4
- Description of the AlternativesSee Section 3.0
- Cost-Benefit Analysis of the Action AlternativesSee Section 4.5.2

4.5.2 Cost Benefit Analysis

This cost-benefit analysis was developed through four stages of consideration:

1. What are the categories of costs and benefits that need to be considered?
2. What can be said qualitatively about the direction of change for those categories?
3. What dimensions of the categories can be quantified?
4. For which quantifications can dollar values be assigned?

Taking this approach and displaying results accordingly allows the reader to consider all the relevant costs and benefits, including those that it may not be possible to monetize. Monetization reflects a standard and easy to assess way of measuring one dimension of human values. However, inability to monetize an effect does not mean that a particular effect is unrelated to an important human value and an aspect of determining overall benefits to the nation. An impact for which the information needed for monetization has not been collected or which is inherently difficult to monetize could still outweigh in importance the monetizable impacts. Identifying all impacts and including the quantifications where possible is intended to assist policy makers in weighing and articulating a rationale for a particular action or not taking action.

Table 25 provides a summary of the potential constraints to trawl attainment, including gear switching as a competing strategy. Table 26 describes factors that indicate that future gear switching levels may be higher or lower than those seen thus far during the IFQ program and would likely influence gear switching levels under No Action and potentially the action alternatives.

Table 27 summarizes costs and benefits assuming that gear switching is constraining attainment of the trawl allocation. Table 28 identifies the differences assuming gear switching is not a constraint on attainment of the trawl allocation and that if action is taken to restrict gear, sablefish QP would go unutilized. Impacts to gear-switching vessels, together with those dependent on them (e.g., quota share owners, communities) and administrative costs, would be the same as Table 27, and the trawl fishery related impacts would be same as No Action (as there would not be any additional harvest of the complexes or harvest of sablefish by trawl vessels).

If, rather than sablefish QP going unused, trawlers would increase the ratio of sablefish in their catch without increasing their catch of other species, the results would be somewhere in the middle of those displayed in Table 27 and Table 28—with respect to those impacts that are dependent on catch.

For the PPA, it is expected that the impacts would be the same as those described for Alternative 2 in the tables below in years in which gear-specific QP are issued. For years where the trigger is met and generic QP are issued, impacts would be similar to No Action. The main areas where there may be differences relate to investments:

- Gear-switching interests would have more incentive to acquire and maintain northern sablefish QS during gear-specific QP years than they would if there were never going to be years in which generic QP are issued (i.e. than under Alternative 2).
- Acquisition and maintenance of QS by gear-switching interests in the context of the PPA could have some negative influence on long term investments in the trawl sector (as compared to Alternative 2). However, in gear-specific QP years, gear-switching interests would benefit by making their trawl-only QP available to trawl interests. And, for other years, the PPA policy is intended to issue generic QP only in years when there is plenty of northern sablefish QP available to meet both trawl needs and interest by gear-switchers.

Table 25. Summary of indicators of potential constraints on attainment of the trawl allocations. (see Section 2.4).

Factor	Indications Factor May be a Constraint	Indication a Factor May Not Be a Constraint
Vessel Participation (Capacity) Section 2.4.1		
	Drop in number of vessels in 2011	Vessels that did not leave (59 have participated consistently) have expanded their harvest to very near pre-IFQ levels (Figure 5). There are an additional 25 vessels of similar or greater sizes that could potentially expand their harvest.
Market Limits		
Historic evaluation: 2007-2010 Dover Expansion (Figure 7)	The peak of the Dover sole expansion (2009-2010) indicates there may have been a market constraint in those two years.	Pre-peak expansion levels (2007-2008) do not show similar indication of market stress and those pre-peak levels have not been achieved under the IFQ program.
Prices	2009-2010 saw a substantial portion of the catch coming in at frozen prices (Figure 9). 2010 saw a drop in fresh prices (Figure 8).	Price drops in 2009/2010 may have been influenced by economic downturn (consumer fresh fish price index dropped, though Dover priced dropped much more substantially).
Volume	2010 saw a drop in volume of Dover landed (Figure 7)	Volume drop may have been caused by: a jump in pink shrimp CPUEs (Figures 44 and 45); and/or Petrale becoming overfished—constraints to Petrale sole may have reduced Dover trips (Figure 43). (Petrale is frequently caught on DTS trips and contributes substantially to trip revenues).
Imports	Imports might be contributing to a market constraint on Dover sole. The potential for this competition is indicated by the large increase in fresh and frozen catfish and tilapia imports that occurred in the 2000s and extended into the period of the trawl catch share program (top of Figure 10).	Historically, Dover has been delivered to fresh markets. Frozen imports may have had less of an impact on Dover markets. Fresh imports of tilapia and catfish peaked in 2007 and 2008, exvessel prices appeared to have not been affected in those years, and Dover sole landings continued to increase thereafter, albeit an increasing portion of those landings were delivered at frozen prices (bottom of Figure 10).
	A complex array of factors effect markets and production. Conditions have changed in the 12+ years since the Dover expansion. Dover and fresh and frozen imports have also been declining in recent years. As compared to 2009-2010, the portion of Dover landed at frozen prices has remained low (Figure 9).	
Infrastructure Limitations		Non-processor infrastructure has been relatively stable.
This evaluation does not take into account the efficiency and competitiveness of the infrastructure.	Number of first receivers has declined somewhat, primarily in ports to the south (also see following row regarding impact of management system design on investment).	The existence of latent physical capacity is evidenced by the ability of landings to expand over a short period: for example the expansion of Dover in the 2007-2010 period and the expansion of landings starting in 2017, driven by midwater rockfish.
Management System Design	Trawl catch share QS control limits reduce the viability of using market mechanisms to limit uncertainty about access to long-term supply that may be hampering investment in more efficient processing equipment and market development.	

Factor	Indications Factor May be a Constraint	Indication a Factor May Not Be a Constraint
Competition Between Strategies (relative profitability)	<p>Many gear-switching trips have variable costs net revenue (VCNR) per unit of sablefish that are greater than the less efficient DTS trips (i.e. gear switchers make trips for which they would have been willing to pay more per pound of sablefish QP than some DTS vessels).</p> <p>There is some indication that the number of gear-switching trips with greater efficiency may be higher when the trawl/gear-switched exvessel sablefish price differential is higher.^{a/}</p>	<p>Just because many gear-switched trips have higher VCNR per pound of sablefish than trawl DTS trips, does not mean that some other factor is not constraining harvest of the trawl allocation.</p>

^{a/} Gear switching vessels generally receive higher prices for their sablefish than trawl vessels.

Table 26. Factors that indicate that future gear switching levels may be higher or lower than those seen thus far during the IFQ program.

Factor	Increases	Decreases
Normal variation and extraordinary events.	The full range of gear-switching levels that might be expected under the typical range of conditions that occur in the fishery may not yet have been observed. Further, extraordinary events can have a significant influence (e.g. COVID).	
Sablefish Biomass and Changing ACLs	Forces that might increase future proportions of gear switching: Low sablefish ACL levels Trawl sablefish encounter rates that don't decline as much as the sablefish ACLs High sablefish prices (influenced by international and local markets—but see following topic)	Forces that might decrease future proportions of gear switching: High sablefish ACL levels Trawl sablefish encounter rates that don't increase as much as the sablefish ACLs Low sablefish prices (influenced by international and local markets—but see following topic)
	Impacts of biomass on fixed gear CPUE could have a contrary effect (e.g. low ACL levels associated with substantial reduction in fixed gear CPUE and trawl encounter rates could reduce rather than increase likelihood of a gear-switching constraint).	
Sablefish Exvessel and QP Prices	Lower exvessel prices do not necessarily indicate a lesser likelihood of gear switching. Exvessel price reductions are offset by reductions in QP values (Figure 15). The differential in exvessel prices between fixed gear caught and trawl caught sablefish may be more influential to the level of gear switching than the absolute price levels (Figure 16).	
Conditions in Cross Over Fisheries	Changing conditions in cross-over fisheries could either increase or decrease the amount of gear switching. Dungeness crab, Alaska IFQ sablefish and the LEFG primary fishery are the main fisheries from which vessels cross-over into the trawl IFQ fishery and gear switch. With respect to the LEFG primary fishery, permit stacking limits and the relatively few pot permits available may be encouraging vessels to gear switch. Changes to the LEFG program, for example, conversion to a single fixed gear endorsement, might alter the level of gear switching.	
Latent and Underutilized Permits	There is a sufficient supply of latent and underutilized trawl permits such that if economic conditions were to incentivize gear switching, trawl permit availability would be unlikely to constrain an expansion.	
New Entrants and Effects of the Control Date	Since 2017 new vessels have started gear switching but the rate of entry has tailed off somewhat as compared to prior to 2017 (Figure 19). This could be an effect of the control date.	While there has been new entry, due to exits the total number of gear-switching vessels was steady from 2016-2019, declined during COVID, and in 2022 recovered to levels that were still below pre-COVID levels (Table 3).
Trends in QS Acquisition by Gear Switchers	While amounts of QS owned by gear-switching vessels has been relatively stable, there have been recent purchases by recently active gear-switching interests (Table 16)	If there were steady purchases of QS by gear switchers that might indicate an expansion trend. The amount of QS owned by gear switching vessels has been relatively stable since 2015. While there have been recent purchases by recently active gear-switching interests, the level of QS ownership is still within the previously observed range (Table 16).

Table 27. Summary of costs and benefits of action alternatives in comparison to no action (including non-monetized impacts), **assuming that gear-switching is constraining trawl allocations.**

Impact Category (Change from No Action)	Impacts Assuming Gear-Switching is Constraining Trawl Attainment and Alternatives Allow 29% Gear Switching			See Section(s)
	Alt 1 Gear Specific QS	Alt 2 Gear Specific QP	Alt 3 Seasonal Management	
Physical Impacts	Minimal	Minimal	Minimal	7.2
Biological Impacts	Minimal	Minimal	Minimal	7.3
Socio-economic Impacts				
Total Harvest & ExVessel Rev <i>(Dependent on conditions. All action alternatives are expected to result in gains in harvest and revenue compared to no action)</i> <i>Estimates for each alternative are based on comparisons to 2013, 2019, and 2021.</i> <i>Higher levels of gear switching under No Action would result in greater benefits under the Action Alternatives. Lower levels of gear switching under No Action would reduce (and potentially eliminate) the benefits of the Action Alternative.</i>	Dependent on GS Participation Option/Conversion Option Selected Per year impacts (assuming only any-gear QS received by GS Participants is used for gear switching) +1.3-14.1 mil. lbs +\$0.8-\$7.7 mil	Dependent on ability for GS to sweep up any-gear QPs from across QS accounts. Per year impacts (assuming only legacy QPs used for gear switching) +3.7-12.1 mil lbs +\$1.9-\$6.6 mil	Similar to No Action unless conditions lead to GS levels above 29%, then potential loss in gear-switching opportunity and gains for the trawl sector. Note: gear switching levels have been above 29 percent in approximately half of the historical years. Per year impacts: +3.2 lbs +1.8 mil	7.4.1 & 7.4.3
Efficiency <i>(All action alternatives would potentially result in a loss of efficiency relative to No Action, except to the extent that they compensate for the effect QS control limits on reducing the opportunity to cope with uncertainty.)</i>	Most efficient across action alternatives; relies on features of current program.	Least efficient across alternatives; relies on gear-specific QP but not gear-specific QS.	Similar to Alternative 1, but negative impacts on efficiency compared to historic conditions under No Action (years greater than 29%).	2.4.5(b), 4.2.5, and 7.5
Distributional Impacts				
Vessels				7.4.1, 7.6 and 10.1
Trawl	Vessels fishing in competitive bottom trawl strategies, particularly DTS, likely to benefit.			

Impact Category (Change from No Action)	Impacts Assuming Gear-Switching is Constraining Trawl Attainment and Alternatives Allow 29% Gear Switching			See Section(s)
Trawl component of estimates provided in the "Total Harvest & ExVessel Rev" row.	+1.4-15.6 mil lbs +\$1.1-11.0 mil ⁱ	+ 4.2-13.4 mil lbs + \$2.6-9.4 mil	+3.7 mil lbs + \$2.6 mil	
Gear-Switching	Individual qualified GS Participants affected to the degree that their QS holding don't cover their typical GS landings. Opportunity for most to recover by acquiring any-gear QS/QP (at a cost). Non-qualifying GS participants likely negatively impacted unless they acquire any-gear QS/QP (at a cost).	Legacy participants that own/operate vessels affected to the degree that QS holdings don't cover typical GS landings. Some recovery by acquiring any-gear QP annually (at a cost). Non-legacy participants (including GS vessels that lease LEPs) negatively impacted and need to acquire any-gear QPs (at a cost).	Negative impacts compared to historic conditions under No Action (years greater than 29%).	
GS component of estimates provided in the "Total Harvest & ExVessel Rev" row	-0.1- -1.5 mil lbs -\$0.3- -\$3.3 mil	- 0.5- -1.3 mil lbs - \$0.7 - -2.8 mil	-0.4 mil lbs -\$0.8 mil	
LEP Owners	LEP ownership not considered in qualification	Qualified LEP owners would receive legacy status with respect to their QS.	Negligible impact	7.8
	Among LEP owners, a few of those that lease to GS vessels would likely be most impacted through loss of that entire stream of lease revenue. In general, trawl LEP lease and sale prices might decline somewhat.			
QS Owners	Any-gear QS/QP value might increase; trawl-only QS/QP value might decrease. QS/QP values for other species could increase if attainment increases enough.	Sablefish QS value may increase or decrease depending on relative changes in the gear-specific QP values and ratio of each. QS/QP values for other species could increase if attainment increases enough.	QS/QP value might be lower than under No Action for years in which the 29 percent limitation would be constraining. QS/QP values for other species could increase if attainment increases enough.	7.8
Crew				
Trawl	Potential increases in income opportunity and possibly jobs.			
GS	Loss of income and possibly jobs compared to historic conditions under No Action, but losses minimized to the degree that 29% is attained (likely). Level of impacts to each of the above gear-switching dependent groups depends on the gear-switching levels that would have occurred under No Action. Higher gear switching levels under No Action mean greater negative impacts from action, lower levels reduce impacts, potentially to close to zero.	Loss greater than Alts 1 and 3 because of dispersion of any-gear QP across accounts (low likelihood of reaching GS max).	Loss of income and job compared to historic conditions under No Action (years greater than 29%), but no losses to the degree that gear-switching would have been less than 29% gear-switching under No Action.	7.9

Impact Category (Change from No Action)	Impacts Assuming Gear-Switching is Constraining Trawl Attainment and Alternatives Allow 29% Gear Switching			See Section(s)
First Receivers & Processors				
Trawl	Positive benefits to trawl FRs for all alternatives, most under Alt 2, QP Distribution Option 2			
Gear Switching	Negative impacts but provides opportunity for long term access to any-gear QS for GS; includes suboption for qualification for FRs.	Negative impacts and limited ability to secure long term access to any-gear QP.	Negative impacts compared to historic conditions under No Action (years greater than 29%).	4.1.2(h) and 7.10
Communities	Depends on balance of trawling and gear-switching for each port/community. Those more dependent on the trawl fishery and the income and infrastructure it supports will be more benefited by an Action Alternative. Ports more dependent on gear-switching and the income and infrastructure it supports will be more benefited by No Action. Beyond displaying levels of activity in port areas (Table 39), and the identification of specific ports in which each group participates (Table 55), it is not possible to determine how benefits will be distributed.			7.11
Governance (Fish Mgmt) NMFS to provide cost estimates for PPA, when selected.	Higher implementation costs, but lower ongoing costs compared to Alt 2. Possibly some complexity to changing GS levels in future, degree and nature depends on approach	Likely lower implementation costs, but higher ongoing costs compared to Alt 1. Potentially simple to change GS level in the future.	Lowest costs across alternatives to implement. Simplest and least costly to change GS level in future, unless GS levels are diminished to the point that season shorten dramatically.	7.12
General Public	Domestic consumers would likely benefit through increases in supply and/or displacement of imports.			7.13
Long-Term				
Total Harvest & Rev, Trawl Vessels, Efficiency, First Receivers, and Communities.	If a limitation on gear-switching encourages investment in more efficient processing (competitive) and marketing, total exvessel revenues and related impacts may increase more over the long term.	Same as Alt 1 plus under QP Distribution Option 2, the amount of gear-switching will diminish to a lower level (19.4%) as legacy participants divest themselves of their QS.	Same as Alternative 1.	
GS Vessels, First Receivers and Communities	Those that are more dependent on gear-switched deliveries than trawl may see some diminishment in investment over time with the reduced opportunity for gear-switching.			
QS Owners	Same as short term.	Effects of higher transaction costs (compared to Alt 1) might be more pronounced b/c less any-gear QPs in each QSA.	Same as short term.	

^j As additional any-gear QS is acquired by gear-switchers, the benefits displayed here for Alternative 1 would decline.

Table 28. Differences from Table 27 if gear-switching is **not** constraining trawl allocations (assuming that the sablefish QP go unused).

Impact Category (Change from No Action)	Impacts Assuming Gear-Switching is NOT Constraining Trawl Attainment		
	Most of the Trawl Benefits Listed in Table 27 Would Not Accrue ^{a/} Costs to Gear Switchers Would Still Accrue Implementation and Ongoing Costs Would Still Accrue		
	Alt 1 Gear Specific QS	Alt 2 Gear Specific QP	Alt 3 Seasonal Management
Socio-economic Impacts			
Total Harvest & Rev <i>Dependent on Conditions Estimates for each alternative are based on comparisons to 2013, 2019, and 2021.</i> <i>Higher levels of gear switching under No Action would result in greater losses under the Action Alternatives. Lower levels of gear switching under No Action would reduce (and potentially eliminate) any losses of the action alternative.</i>	Per year impacts (assuming only any-gear QS received by GS Participants is used for gear switching) Per Year Impacts -0.1- -1.5 mil. lbs -\$0.3- -\$3.3 mil	Per year impacts (assuming only legacy QPs used for gear switching) Per Year Impacts -0.5- -1.3 mil lbs -\$0.7- -\$2.8 mil	Per Year Impacts -0.4 mil lbs -\$0.8 mil
Across categories benefiting from the trawl fishery	Some of the long-term impacts on trawl related investments might still occur if belief about the potential for gear-switching to become a constraint is inhibiting the investment, even though gear-switching is not currently constraining.		
General Public	Net loss in supply of sablefish to consumers		

a/ If trawlers use the sablefish QP to increase the proportion of sablefish in their catch without increasing the amounts of the complex landed, they may still have some financial gain, as discussed in the text of this document for Analytical Scenario 2 (scenarios described in Section 7.1.2).

4.6 Initial Regulatory Flexibility Analysis Summary

For any rule subject to notice and comment rulemaking, the Regulatory Flexibility Act (RFA) requires Federal agencies to prepare, and make available for public comment, both an initial and final regulatory flexibility analysis, unless the agency can certify that the proposed and/or final rule would not have a “significant economic impact on a substantial number of small entities”. These analyses describe the **impact on small businesses, non-profit enterprises, local governments, and other small entities** as defined by the RFA (5 U.S.C. § 603). This analysis is to inform the agency and the public of the expected economic effects of the alternatives, and aid the agency in considering any significant regulatory alternatives that would accomplish the applicable objectives and minimize the economic impact on affected small entities. The RFA does not require the alternative with the least cost or with the least adverse effect on small entities be chosen as the preferred alternative.

The IRFA must only address the effects of a proposed rule on entities subject to the regulation (i.e., entities to which the rule will directly apply) rather than all entities affected by the regulation, which would include entities to which the rule will indirectly apply.

Part 121 of Title 13, Code of Federal Regulations (CFR), sets forth, by North American Industry Classification System (NAICS) categories, the maximum number of employees or average annual gross receipts a business may have to be considered a small entity for RFAA purposes.

Under 13 C.F.R. § 121.201, the U.S. Small Business Administration established criteria for businesses in the fishery sector to qualify as small entities. Standards are expressed either in number of employees, or annual receipts in millions of dollars. The number of employees or annual receipts indicates the maximum allowed for a concern and its affiliates to be considered small (13 C.F.R. § 121.201).

- A fish and seafood merchant wholesaler (NAICS 424460) primarily engaged in servicing the fishing industry is a small business if it employs 100 or fewer persons on a full time, part time, temporary, or other basis, at all its affiliated operations worldwide.
- A business primarily engaged in Seafood Product Preparation and Packaging (NAICS 311710) is a small business if it employs 750 or fewer persons on a full time, part time, temporary, or other basis (13 CFR § 121.106), at all its affiliated operations.
- The SBA size standard for Subsector 487, “Scenic and Sightseeing Transportation, Water”, which includes charter fishing, is \$14 million in gross receipts (13 CFR § 121.201).

In addition to small businesses, the RFA recognizes and defines two other kinds of small entities: small governmental jurisdictions and small organizations. A small governmental jurisdiction is any government or district with a population of less than 50,000 persons. A small organization is any not-for-profit enterprise that is independently owned and operated and not dominant in its field, while. (5 U.S.C. § 601). There is no available guidance beyond this statutory language regarding how to determine if non-profit organizations are "small" for RFA purposes. The Small Business Administration (SBA) does have provisions for determining whether a business is "small" for RFA purposes and whether it is "dominant in its field," and those provisions can inform how NMFS classifies non-profit organizations for the purposes of RFA analyses in rulemaking. After consultation with the SBA, NOAA Fisheries has decided to use SBA's size standards for non-profit organizations to determine whether a non-profit organization is "small" and, in turn, whether it is "dominant in its field," to apply the statutory definition of a "small organization" in practice:

A nonprofit organization is determined to be “not dominant in its field” if it is considered “small” under SBA size standards:

- Environmental, conservation, or professional organizations (NAICS 813312, 813920): Combined annual receipts of \$19.5 million or less.
- Other organizations (NAICS 813319, 813410, 813910, 813930, 813940, 813990): Combined annual receipts of \$13.5 million or less.

Provision is made under SBA’s regulations for an agency to develop its own industry-specific size standards after consultation with Advocacy and an opportunity for public comment (see 13 CFR 121.903(c)). NMFS has established a small business size standard for businesses, including their affiliates, whose primary industry is commercial fishing (80 FR 81194, December 29, 2015). This standard is only for use by NMFS and only for the purpose of conducting an analysis of economic effects in fulfillment of the agency’s obligations under the RFA.

NMFS' small business size standard for businesses, including their affiliates, whose primary industry is commercial fishing is \$11 million in annual gross receipts. This standard applies to

all businesses classified under North American Industry Classification System (NAICS) code 11411 for commercial fishing, including all businesses classified as commercial finfish fishing (NAICS 114111), commercial shellfish fishing (NAICS 114112), and other commercial marine fishing (NAICS 114119) businesses. (50 C.F.R. § 200.2; 13 C.F.R. § 121.201).

4.6.1 Description of why action by the agency is being considered

The reasons why agency action is being considered are explained in Section 1.1 (“Purpose and Need”) above.

4.6.2 Statement of the objectives of, and legal basis for, the proposed rule

The statement of the objectives of the proposed rule are explained in the Section 1.1 (“Purpose and Need”) above.

Under the MSA (16 U.S.C. 1801, et seq.), the United States has exclusive fishery management authority over all marine fishery resources found within the EEZ. The management of these marine resources is vested in the Secretary of Commerce (Secretary) and in the regional fishery management councils. In the West Coast Region, the Council has the responsibility for preparing FMPs and FMP amendments for the marine fisheries that require conservation and management, and for submitting its recommendations to the Secretary. Upon approval by the Secretary, NMFS is charged with carrying out the Federal mandates of the Department of Commerce with regard to marine and anadromous fish.

In the EEZ off the West Coast, the commercial groundfish sectors, and the trawl sector in particular, are managed under the Pacific Coast Groundfish Fishery Management Plan. The proposed action under consideration would amend this FMP and Federal regulations at § 60 C.F.R. 660 Subpart C. Actions taken to amend FMPs or implement regulations governing these fisheries must meet the requirements of applicable Federal laws, regulations, and Executive Orders.

4.6.3 A description and, where feasible, estimate of the number of small entities to which the proposed rule will apply; and a description and estimate of economic effects on entities, by entity size and industry.

The entities to whom this rule would directly apply are harvest operations in the West Coast IFQ fishery. Of those vessels, the PPA would affect trawl and gear switching vessels differently. Table 29 shows the range and average number of vessels participating in the IFQ sector and those that caught sablefish north by gear type from 2019-2023 that would potentially be affected by one or more of the action alternatives. Trawl vessels would benefit to the degree that a restriction in gear switching increased their overall attainment of other non-whiting species. Gear switching vessels would be impacted with the degree of impact depending on if the owner qualified as a legacy participant or if the QS they owned or typically leased were now subject to the ratio in years in which gear-specific QP were issued. All gear switching vessels affected by the proposed action are classified as small entities based on the criteria provided in

Section 4.3 and a majority of the trawl vessels that caught sablefish north also identify as small entity.

Table 29. Number of IFQ vessels (all landings) and number of trawl and gear switching vessels that caught sablefish north, 2019-2023

	Range	Average	Identify as Small Entities in 2023
All IFQ vessels	78-93	82	59
Trawl Gear	66-75	70	49
Gear Switchers ^{a/}	7-15	10	10

a/ Included vessels that used both trawl and fixed gear in the same year.

With respect to QS owners, of the 169 QSAs in 2023, 126 QSAs had sablefish north holdings. Of the 126 QSAs with sablefish most likely to be affected by the action, 110 are owned by entities that identify as small businesses. The PPA is expected to grant legacy status to individuals associated with 13 QSAs leaving 113 QSAs with sablefish north associated with only non-legacy participants. Of the legacy participants, all identify as small entities. Ninety-seven of the QSAs owned by only non-legacy participants are owned by entities that identify as small entities.

Note that there is not a strict one-to-one correlation between vessels or QS accounts and entities, therefore some persons or firms likely have ownership interests in more than one vessel or QS account. Given these factors, the actual number of entities regulated by this action could be lower than the preceding estimates.

4.6.4 An explanation of the criteria used to evaluate whether the rule would impose “significant” economic effects.

The impact of the proposed action would be negative for small entities that engage in gear switching or own northern sablefish QS that they trade to gear switchers but positive for trawlers and potentially for the owners of QS for non-sablefish groundfish species (which might increase in value if the policy leads to an expansion of the catch of trawl complexes.

4.6.5 An explanation of the criteria used to evaluate whether the rule would impose effects on “a substantial number” of small entities.

Given that this action would apply to the entirety of all of the entities fishing in the IFQ sector, this rule would have an impact on a substantial number of small entities.

4.6.6 A description of, and an explanation of the basis for, assumptions used.

PacFIN and the IFQ vessel account system were used in determining the number of vessels that participated in the trawl sector as trawlers or gear switchers and NMFS LE Permit Office data was used for information on QS owners. Vessel were identified based on unique vessel identifiers (vessel number or vessel account number) and the universe of those potentially

impacted was based on the presence of at least one fish ticket in the trawl IFQ fishery. Vessels were divided into gear switchers and trawl-only groups based on the gears reported on the fish tickets. Very few gear switchers also made trawl landings.

4.6.7 Reporting and recordkeeping requirements

The PPA would require that gear-used for IFQ deliveries be transmitted from the fish-ticket and WCGOP data systems to the quota tracking system. This would not be an additional reporting requirement for participants. However, participants would need to ensure that they had northern sablefish QP with the correct gear designation to cover the gear used for their IFQ landings. The initial allocation process will also require the one-time submission of applications, which will impose some paperwork burdens. Only QS owners would be subject to this application requirement. The proportion of QS owners that are considered small entities is described above.

4.6.8 Relevant Federal rules that may duplicate, overlap or conflict with the proposed rule:

There are no relevant federal rules that duplicate, overlap, or conflict with the proposed rule.

4.6.9 Certification

This analysis suggests that per 5 U.S.C. Â§ 605 (the RFA) that “the proposed rule, if promulgated, will not have a significant economic impact on a substantial number of small entities.” NMFS will need to determine its concurrence with the findings of the analysis and, if it concurs, request comments on the decision to certify this rule based on the conclusions laid out in the analysis.

4.7 Other Applicable Law

4.7.1 Executive Order 13175 Consultation and Coordination with Indian Tribal Governments

Executive Order 13175 is intended to ensure regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes. The Secretary of Commerce recognizes the sovereign status and co-manager role of Indian tribes over shared Federal and tribal fishery resources. At Section 302(b)(5), the MSA reserves a seat on the Council for a representative of an Indian tribe with Federally-recognized fishing rights from California, Oregon, Washington, or Idaho. The proposed actions and other alternatives were developed through the Council process and, based on the enclosed analysis are not likely to affect the tribal fishery operations. Through the tribal representative on the Council, the Tribes have a role in developing the proposed action and analyzing the effects of the alternatives; therefore, at this time the proposed action is consistent with EO 13175.

4.7.2 Paperwork Reduction Act (PRA)

The PRA requires that agency information collections minimize duplication and burden on the public, have practical utility, and support the proper performance of the agency's mission. The qualification process entailed in the PPA may require that QS owners submit an application. As part of its rulemaking process, NMFS will submit the required information and findings to OMB for clearance (see Section 7.12).

5.0 CONTRIBUTORS

5.1 Primary Authors

Jessi Doerpinghaus

Jim Seger

5.2 Other Contributors

Maggie Sommer

Jeff Cowen

Jahnava Duryea

Monica Falcon

Melissa Hooper

Colin Sayre

Erin Steiner

Corey Niles

Dan Waldeck

Ed Waters

6.0 REFERENCES

Anderson, J.L., Asche, F. and Garlock, T., 2018. Globalization and commoditization: The transformation of the seafood market. *Journal of Commodity Markets*, 12, pp.2-8.

Anderson, L.G., and M.C. Holliday. 2007. *The Design and Use of Limited Access Privilege Programs*. National Marine Fisheries Service.

Asche, F., Roll, K.H. and Trollvik, T., 2009. New aquaculture species—the whitefish market. *Aquaculture Economics & Management*, 13(2), pp.76-93.

Asche, F. and Zhang, D., 2013. Testing structural changes in the US whitefish import market: an inverse demand system approach. *Agricultural and Resource Economics Review*, 42(3), pp.453-470.

Bjørndal, T. and Guillen, J., 2016. Market competition between farmed and wild fish: a literature survey. *FAO Fisheries and Aquaculture Circular*, (C1114), p.I.

- Connelly, K., E. Steiner, and A. Vizek. 2022. Quota Share Owner Survey: Initial Results and Analysis. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-172.
<https://doi.org/10.25923/xqt7-2d91>
- Hatcher, A. 2022. A Model of Quota Prices in a Multispecies Fishery with “Choke” Species and Discarding. *Environmental and Resource Economics* (2022) 82:825–846.
<https://doi.org/10.1007/s10640-022-00689-8>
- Holland, D. S. 2020. An Analysis of the Pacific Groundfish Trawl Individual Fishing Quota (IFQ) Quota Pound (QP) Market Through 2019. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-157.
- Huppert, D. D., & Best, B. (2004). Study of supply effects on sablefish market price. *School of Marine Affairs, University of Washington*, 43.
<http://www.fvoa.org/reports/SablefishMarket-FinalReport.pdf>
- Jannot, J. E., A. Wuest, T. P. Good, K. A. Somers, V. J. Tuttle, K. E. Richerson, R. S. Shama, and J. T. McVeigh. 2021. Seabird Bycatch in U.S. West Coast Fisheries, 2002–18. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-165.
<https://doi.org/10.25923/78vk-v149>
- Kvaløy, O. and Tveterås, R., 2008. Cost structure and vertical integration between farming and processing. *Journal of Agricultural Economics*, 59(2), pp.296-311.
- Krigbaum, M. J., & Anderson, C. M. (2021). Increasing value through gear flexibility: A case study of US west coast sablefish. *Canadian Journal of Fisheries and Aquatic Sciences*, 78(8), 1130–1145. <https://doi.org/10.1139/cjfas-2020-0399>
- 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](#)
- Norman-Lopez, A., 2009. Competition between different farmed and wild species: The US tilapia market. *Marine Resource Economics*, 24(3), pp.237-251.
- Norman, K., J. Sepez, H. Lazrus, N. Milne, C. Package, S. Russell, K. Grant, R.P. Lewis, J. Primo, E. Springer, M. Styles, B. Tilt, and I. Vaccaro. 2007. Community Profiles for West Coast and North Pacific Fisheries: Washington, Oregon, California, and other US States. US Dept. of Commerce, NOAA Technical Memorandum NMFS-NWFSC-85. 602 p.
- NPFMC. 2016. “Twenty-Year Review of the Pacific Halibut and Sablefish Individual Fishing Quota Management Program.”
- Oremus, K. L., Frank, E. G., Adelman, J. J., Cruz, S., Herndon, J., Sewell, B., & Suatoni, L. (2023). Underfished or unwanted? *Science*, 380(6645), 585–588.
<https://doi.org/10.1126/science.adf5595>
- Pearse, P. (2010). Allocation of catches among fishing sectors: Opportunities for policy development. *FAO Fisheries and Aquaculture Proceedings*, 15, 123–135.
- NFMC & NMFS (2016). *Twenty-Year Review of the Pacific Halibut and Sablefish Individual Fishing Quota Management Program*. North Pacific Fishery Management Council
https://www.npfmc.org/wp-content/PDFdocuments/halibut/IFQProgramReview_417.pdf

- PFMC (1998). Status of the Pacific Coast Groundfish Fishery through 1997 and Recommended Acceptable Biological Catches for 1998: Stock assessment and Fishery Evaluation, Updated. Pacific Fishery Management Council, March 1998).
- PFMC. (2021). Analysis of Gear Switching Levels. [Agenda Item F.4, Attachment 1, April 2021](#).
- PFMC. (2022). *Pacific Coast Groundfish Fishery Management Plan, for the California, Oregon, and Washington Groundfish Fishery*. Pacific Fishery Management Council.
- PFMC & NMFS. (2010). Rationalization of the Pacific Coast Groundfish Limited Entry Trawl Fishery; Final Environmental Impact Statement Including Regulatory Impact Review and Initial Regulatory Flexibility Analysis. PFMC & NMFS. (2017). West Coast Groundfish Trawl Catch Share Program Five-year Review. Approved by the Pacific Fishery Management Council November 16th 2017, Costa Mesa, CA.
[https://www.pcouncil.org/actions/groundfish-fmp-amendment-20-trawl-rationalization-ifqs-and-co-ops/#:~:text=five-year%20review%20of%20the%20trawl%20catch%20share%20program%20\(2017\)](https://www.pcouncil.org/actions/groundfish-fmp-amendment-20-trawl-rationalization-ifqs-and-co-ops/#:~:text=five-year%20review%20of%20the%20trawl%20catch%20share%20program%20(2017))
- Tveteraas, S.L. 2015. Price analysis of export behavior of aquaculture producers in Honduras and Peru. *Aquaculture Economics & Management*, 19(1): 125–147.
- Warpinski, S. (2015). *Sablefish after the individual fishing quota program: An international economic market model*. University of Alaska Fairbanks.
<https://search.proquest.com/openview/763e223276385d22ec164b4d463f2908/1?pq-origsite=gscholar&cbl=18750>

7.0 APPENDIX: DETAILED ANALYSIS OF IMPACTS

7.1 Approach to Analysis of Impacts

7.1.1 Challenges

While a considerable amount of analysis can be done to inform this action, there are areas in which the analysis will be limited. The following is a brief overview of some of the challenges in relation to important questions that must be considered in the analysis.

How much gear switching would occur under no action and the action alternatives?

Due to changing conditions in fisheries and markets and limited projection models, making reasonable forecasts of the expected levels of gear switching under the alternatives will be difficult. For the no action alternative, the analysis will discuss reasons that gear switching levels might increase or decrease in the future, relative to baseline conditions. Depending on what would have happened under No Action, the impacts of the action alternatives will vary. For the action alternatives, the analysis will identify the maximum levels of gear switching possible and reasons that the actual levels of gear switching might fall below those maximums. Scenarios for different future conditions will be used to assess the impact differences between the alternatives.

Projecting redistribution of gear switching and trawl activities along the coast.

As was the case for the original Amendment 20 analysis, it is difficult to predict how geographic distributions would change under no action and the impacts of the action alternatives on those distributions. In this regard, the analysis is limited to a qualitative discussion supported by quantitative information identifying the areas in which trawl and gear switched landings have occurred and the relative importance of those landings in those areas.

The degree of specific port²⁵ activity and dependence on gear switching and trawl landings.

Information on the geographic distribution of the fishery is limited due to the relatively small number of first receivers and the requirement to maintain confidentiality (i.e. the “rule of three”). In order to provide finer levels of geographic disaggregation, multi-year time periods that include more first receivers are sometimes used, however, this limits our ability to provide information on trends in a port. Therefore, trends and other information must often be presented at higher levels of aggregation (such as a port group or region) from which it is difficult to infer what is happening in the ports with fewer first receivers.

The degree of change to QP prices (sablefish and other species) as a result of the action alternatives.

During the SaMTAAC discussions, there were requests for information on the likely effect of proposed actions on prices of sablefish QP, as well as the QP for other species. Models for making such predictions are limited and because of the uncertainties described above, predictions are difficult. Analysis of effects on prices will likely be qualitative and provided in the context of scenarios.

The impact of near future historic high ACLs and allocations.

Recent forecasts of sablefish models are projecting historic high ACLs and allocations in the near term, potentially more than triple what has been seen in the recent biennia. As described above for the amount of gear switching under no action or action alternatives, the level of gear switching and whether gear switching is a potential constraint to trawl activities is uncertain in these future climates. When ACLs are high encounter rates in all trawl complexes will also impact the degree to which sablefish is a constraint on the harvest of particular complexes and whether the amounts use by gear-switchers add to the constraint.

²⁵ Specific port level means, for example, Crescent City, rather than the Eureka port area or northern California, of which Crescent City is a part.

7.1.2 Analytical Scenarios and Short- and Long-Term Impacts

The analysis of No Action and the three action alternatives will consider scenarios in which gear switching is and is not displacing trawl gear catch and how trawl vessels may or may not respond to increased sablefish availability. The scenarios are:

- **Scenario 1:** Gear switching is constraining harvest of trawl complexes.
- **Scenario 2:** Gear switching is not constraining harvest of trawl complexes but is constraining trawler use of sablefish QP (i.e., trawlers are avoiding sablefish).
- **Scenario 3:** Gear switching is not constraining harvest of trawl complexes and sablefish QP would go unused if gear switchers were not present.

The scenario approach will be applied primarily with the short-term analysis, but the issue of whether or not gear switching is constraining the trawl fishery will also be addressed in the analysis of the long-term impacts.

Additionally, as the overall amount of sablefish also affects fishing activity and interacts with the scenarios described above on gear switching constraining or not constraining trawl activity, this analysis looks at three baseline years- 2013, 2019, 2021- in the short term analysis. These years represent the lowest allocation since the start of the IFQ program (2013), the highest level of gear switching under a higher allocation (2019), and the maximum allocation in the time series (2021; as of the time this analysis was developed in April 2021).

Overall, the level of gear switching that would be permitted versus what may actually occur under each of the alternatives will be dependent on the design of the gear switching mechanism (i.e. QPs, permit endorsements), whether gear switching is a limiting factor to trawl attainment, as well as the other factors described in Section 2.5 above. The relative gear-switching constraints imposed by the action alternatives are summarized in Table 30. The PPA is designed based on the idea that when the northern sablefish ACL is high, and consequently the amount of sablefish QP available, there is likely to be a surplus of available QP. Thus, it would further the achievement of OY by not imposing gear-switching restrictions in years when ACLs are high. This contrasts with the other alternatives which all impose gear-switching caps that would not change due to changing circumstances, other than changes that result from legacy participants divestment of their QS under the Alternative 2 QP Distribution Option 2 and the PPA in non-trigger years. The difference between the PPA and action alternatives is most dramatic with respect to Alternative 1, QP Split Option 2. Under this option, the total poundage of sablefish that could be gear switched would not be allowed to exceed its pre-control date maximum (1.8 million pounds). When the ACL is high, gear-switching would be constrained to relatively low portions of the overall trawl allocation (expected to be as low as 7 percent for 2025 to 2027, Table 37). If the expectation on which the PPA design is based is correct (that at high levels of ACL there will be a surplus of northern sablefish QP), then Alternative 1, QP Split Option 2 may be more likely to reduce achievement of OY than the other alternatives (by leaving greater amounts of sablefish QP unused in high ACL years).

Table 30. Alternatives ordered by relative degree of restriction on gear switching.

Alternative	Degree of Restriction on Gear Switching	Notes
No Action	No limitation	
PPA in generic QP years	No Limitation	Slightly lower levels of gear switching would be expected than under no action because the years in which gear-specific QP are issued will likely have some longer term impact on total levels of participation by gear switchers.
Alternative 3	29 percent	Likelihood of achieving 29 percent gear switching more likely than other action alternatives (excluding PPA row above) because there would be no gear-specific QP that would have to be acquired.
Alternative 1 QP Split Option 1	29 percent	
Alternative 2 QP Distribution Option 1	29 percent	Likelihood of achieving 29 percent gear switching lower than for Alternative 1, QP Split Option 1 because QP will be dispersed across many accounts and become increasingly dispersed over time.
Alternative 2 QP Distribution Option 2	29 percent declining to about 20 percent	
PPA In gear-specific QP years	29 percent declining to about 20 percent	
Alternative 1 QP Split Option 2	The maximum 29 percent or 1.8 million pounds	While the maximum is 29 percent gear switching, the 1.8 million pound maximum combined with high trawl allocations is expected to result in gear-switching caps as low as 7 percent over the near term. When the cap is at 29 percent, the restrictiveness of this alternative would be the same as Alternative 1, QP Split Option 1.

7.2 Physical Environment Impacts

Effects of groundfish fishing gears, both trawl and non-trawl, are described in [Appendix C](#) to the Groundfish FMP. For most habitat types, historical studies used in the groundfish EFH review show that bottom trawl impacts are greater than fixed gear impacts and have a more extensive recovery time (see [Table 3 Part A and Table 3 Part B in Appendix C](#)). These impacts were of concern during the development of the catch share program from 2004-2009 and the decision to allow gear-switching. More recent studies (described on page 11 of Appendix C) have shown significant reduction in the bottom trawl gear impacts, primarily due to gear modifications put into place by trawl vessels. Thus, there is now a lesser difference between the impacts of trawl and fixed gear.

Under the action alternatives, there is likely minimal overall change to physical impacts relative to recent levels. All impacts are expected to be within those taken into account in the biennial harvest specifications and management measures EAs. Furthermore, the Council has identified several EFH conservation areas (EFHCAs) that prohibit the use of bottom trawl or bottom contact (i.e., trawl or fixed gear) from being fished in order to protect sensitive habitats. In 2019, the Council expanded the scope of several bottom trawl EFHCAs through Amendment 28, including areas that were to be opened with the removal of the trawl rockfish conservation area

off Oregon and California. Impacts relative to no action might be somewhat more noticeable than described here if absent this action gear-switching would have increased substantially or the action encourages investments that allow trawlers to displace gear-switchers.

7.3 Biological Impacts

7.3.1 Fishery Resources

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 (2011 and 2019) showed similar depletion results whether 100 percent of the trawl allocation was taken by trawl or fixed gear. In 2011, under the base case, the preliminary conclusion was that there was little difference in the depletions of the two catch scenarios. Working with the 2019 sablefish stock assessment team, this analysis was redone using the 2019 base case and produced similar results. (*SaMTAAC Agenda Item E.2, Analysis, [Table 22, October 2019](#)*) While there was an update assessment in 2021 and an expedited limited update in 2023, the analysis was not reproduced as of the drafting of this document.

As gear switching participants primarily target sablefish (see [Table 2 of Agenda Item F.4, Attachment 1, April 2021](#)), any impacts to groundfish species other than non-sablefish would be a factor if gear switching is limiting trawl activity. If gear switching is limiting and trawl activity increases due to increased access to sablefish, it is likely that these other groundfish species would see an increase in mortality. If gear switching is not limiting trawl attainment and there is not a corresponding increase in trawl activity through a reduction in gear switching, there would likely be negligible impacts to these other groundfish species. Regardless, because 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 environmental assessment for the harvest specifications of the year of implementation.

7.3.2 Other Biological Resources

Trawl and non-trawl gears typically interact with different protected and prohibited species. Trawl gears tend to interact with salmon and eulachon while non-trawl gears have the potential to interact with whales, turtles, and seabirds. 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 that differ from status quo. The evaluation provided here indicates that there is not substantial reason for concern about the impacts to prohibited and protected species from the effects of the action alternatives on the relative amounts of trawl and non-trawl effort.

If gear switching is a limiting factor to trawl attainment and gear switching is reduced, leading to an increase in trawl activity, there could be increases in interactions with salmon and eulachon. The groundfish fisheries currently operate under the 2017 BiOp for salmon, which includes thresholds for both the non-whiting and whiting sectors for coho and Chinook salmon. Since 2017, the non-whiting sector has been well within its thresholds (average of 13.9 percent for

Chinook and 25.4 percent from 2017-2021²⁶). Even if bottom trawl activity were to increase, it is likely that the bycatch would stay within the thresholds given recent bycatch totals and the Council’s ability to institute inseason mitigation measures such as block area closures and gear restrictions (e.g., requirement to use selective flatfish trawl gear). Gear switching vessels in the IFQ sector had no recorded salmon bycatch from 2017-2022 ([IFQ021 Report](#)). Of all the groundfish fisheries, bottom trawl fisheries have historically, in most years, had the highest observed amount of bycatch of eulachon across the groundfish sectors, but the fisheries have been within the ITS limit ([Agenda Item H.6.a, GESW Report 1, June 2023](#)). It is important to note that “Based on the overall magnitude of bycatch in U.S. West Coast groundfish fisheries, either there is limited interaction with eulachon in these fisheries or most eulachon encounters result in fish escaping or avoiding trawl gear”. There is also limited interactions for green sturgeon with the trawl fishery, but again, the fishery has been within the take limits.

For those species typically encountered by non-trawl gear types, if gear switching is reduced through an action alternative, there could be potential benefits to select protected and prohibited species that would at least partially offset any minor impacts from increased trawling. IFQ gear switchers typically target sablefish with the use of pot or longline gears, which are likely to have increased interactions with whales and some seabirds compared to trawl gears. Relative to this analysis and up to the time it was produced, vessels participating in the IFQ gear switching fishery have had no recorded whale encounters. While less than one percent of all recorded whale entanglements are attributed to the sablefish fishery from 2012-2022 (NOAA Fisheries, West Coast Entanglement Program), there are efforts to further reduce entanglements with whales and identify gear and sectors associated with those entanglements (see [Agenda Item F.6, Attachment 2, March 2024](#) for more details). In terms of seabird bycatch, hook-and-line vessels overall see higher rates of mortalities than trawl fisheries; and mortality impacts by the shoreside trawl catch share fishery are only slightly above those for the pot gear fisheries, the latter of which show the lowest percentage of mortality (Jannot, et. al 2021). Given that gear switching vessels primarily use pot gear, there is likely little change in mortality impacts from a shift of catch to trawl vessels.

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 4.1.2(d), Alternatives 1, 2 and the PPA 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 9.3 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 FPA, a more in-depth evaluation will be conducted.

While the alternatives may result in minor changes to protected species encounters depending on the degree to which effort changes from status quo in terms of trawl and gear switching, fishing

²⁶ Includes 500 Chinook salmon and 138 coho salmon assumed mortality for non-trawl fisheries.

activities would still be monitored by NMFS and the PFMC, and vessels would still be subject to mitigation measures. In addition, the Endangered Species Workgroup would continue to report biennially on the status of the fisheries compared to current BiOps.

7.4 Overall Trawl Fishery Harvest, Exvessel Revenue and Attainment

Trawl fishery harvest, ex-vessel revenue, and attainment will be directly affected by the selection of an action alternative and strongly depend on whether or not gear switching is limiting trawl attainment. Reductions in gear switching could impact trawl attainment in the short term over a range of allocation levels and under different scenarios. The following analysis is an update of the analysis presented in [Agenda Item F.4, Attachment 1, April 2021](#). Specifically, this analysis examines scenarios that consider:

- ACL range (2013, 2019, 2021)
- Levels of gear switching (0, 12, 20, 29 percent)
- Is gear switching limiting vs. not limiting trawl attainment?
- If gear is limiting and trawlers were able to utilize the sablefish, what would the result be if all competing strategies (DTS, flatfish, mixed slope, mixed shelf) absorbed the sablefish?

The first part of this section will provide an analysis of the short- and long-term impacts of a reduction in gear switching (independent of the specific action alternative selected); and the second part will discuss the impacts of the alternatives.

7.4.1 Short Term Impacts: Gear Switching Scenarios

7.4.1(a) Scenario 1—Assumption: Gear switching is constraining trawlers and trawlers do not change their species mix.

If gear switching is limited by an action alternative and trawlers are able to increase their harvest of trawl complexes but do not change the mix of species in their catch (i.e., do not substantially increase the ratio of sablefish in their catch), the change in total ex-vessel revenue for the trawl sector (including changes for both gear switchers and trawl vessels) would be positive and vary depending on the level to which gear switching is constrained (Table 31).

For this analysis, it is assumed that the newly available sablefish QP are spread across those trawl strategies that are likely to be most in competition with gear switching for sablefish QP. While DTS is the strategy most likely to be competing, changing conditions could also bring mixed shelf, mixed slope, and flatfish into that competition (see 2.4.5). For a complete description of methods, see [Agenda Item F.4, Attachment 1, April 2021 \(page 53\)](#). As an example, if all 2 million pounds of gear switched sablefish taken in 2019 were instead redistributed across the identified trawl strategies, and markets are able to absorb the additional trawl landings, it could have resulted in an increase of approximately 20.4 million pounds of non-whiting trawl landings. Assuming that market prices remained stable and applying the average revenue per metric ton for each strategy, this hypothetical would have resulted in an additional \$14.4 million (\$2022) in 2019 exvessel revenue for trawlers. The gain to trawlers would be about 3.3 times greater than the \$4.3 million loss in ex-vessel revenue for gear

switchers (Table 31). Taking the impacts to both gear-switchers and trawl gear vessels into account (net changes), this would represent an increase of approximately \$10.1 million in exvessel revenue and 7.3 percentage points in overall non-whiting attainment (increasing attainment to 32.4 percent).

Table 31. Summary of changes under the indicated gear switching levels applied retroactively to 2013, 2019, and 2021, *assuming gear switching is constraining trawl harvest and trawlers do not change their species mixes in response to changing sablefish availability*. Changes in landings (millions of lbs) and revenue (millions of \$2022 dollars) for gear switching, non-whiting trawl competitive strategies, and overall net change. Change in non-whiting trawl attainment. Grey rows indicate where actual gear switching levels were already below the proposed gear switching level.

Baseline Year	GS Level	Gear Switching a/		Non-Whiting Trawl b/		Net Change		Change in Non-Whiting Trawl Attain.
		Lbs (millions)	Rev (millions)	Lbs (millions)	Rev (millions)	Lbs (millions)	Rev (millions)	
2013	29							
	20	-0.2	-\$0.4	2.0	\$1.5	1.8	+\$1.1	+1.5%
	12	-0.5	-\$1.4	6.2	\$4.8	5.7	+\$3.4	+4.5%
	0	-1.0	-\$2.8	12.4	\$9.6	11.5	+\$6.8	+9.1%
2019	29	-0.3	-\$0.7	3.5	\$2.5	3.2	+\$1.8	+1.3%
	20	-0.9	-\$1.8	8.8	\$6.2	7.9	+\$4.4	+3.2%
	12	-1.3	-\$2.8	13.4	\$9.5	12.1	+\$6.7	+4.7%
	0	-2.0	-\$4.3	20.4	\$14.4	18.4	+\$10.1	+7.3%
2021	29							
	20							
	12	-0.5	-\$0.7	4.2	\$2.6	3.8	\$1.9	+1.5%
	0	-1.3	-\$1.9	11.7	\$7.3	10.4	\$5.4	+4.3%

Internal Reference:Hypothetical Revenue Exercise September 2023rmd

In general, for 2013, 2019, and 2021, under the assumptions described in this section, for each six percent reduction in gear-switching there would be an increase in net revenue of approximately \$1.7 million (\$2022) for the trawl sector as a whole (Table 32).

Table 32. For a 6 percent reduction in gear switching in the specified year, changes to landings, exvessel revenue, and trawl attainment, based on the information provided in Table 31 (\$2022).

Baseline Year	Gear Switching a/		Non-Whiting Trawl b/		Net Change		Change in Non-Whiting Trawl Attain.
	Lbs (millions)	Rev (millions)	Lbs (millions)	Rev (millions)	Lbs (millions)	Rev (millions)	
2013	-0.24	-0.70	3.13	2.42	2.88	1.72	2.3%
2019	-0.34	-0.73	3.49	2.46	3.15	1.73	1.3%
2021	-0.42	-0.61	3.73	2.32	3.31	1.71	1.4%

7.4.1(b) Scenario 2—Assumption: Gear switching is *not* constraining trawlers and trawlers do change their species mix (Scenario 2).

As discussed in 2.4.5, if gear switching is not displacing trawl but is reduced under an action alternative, trawlers could increase the proportion of sablefish in their catch. The expectation of an increase assumes they are making a profit on their sablefish catch (independent of revenue from co-occurring species) and there is not a technical or market limit. Increasing the proportion of sablefish in the catch would increase the revenue per mt for the complex. Table 33 shows the range of gear switching levels and the range of revenue per mt that would hypothetically have occurred from this kind of change in the species mix. For this table the additional sablefish was distributed across competitive non-whiting strategies (DTS, mixed shelf, mixed slope, and flatfish, as described in previous section), according to each strategies proportion of the sablefish catch in 2019. It was assumed that the non-sablefish catch composition and exvessel prices remained unchanged.

Table 33. Range of actual revenue per metric ton of trawl landings in strategies competitive to gear switching in 2019 and the hypothetical revenue per metric ton if gear switching were reduced to 0, 12, 20, or 29 percent retroactively and trawlers took the additional sablefish by increasing the proportion of sablefish in their catch, while average price per pound was maintained.

Gear Switching Level	Actual Revenue per MT of Trawl Landings	Hypothetical Revenue per MT With Increased Proportion of Sablefish
29%	\$1279-\$1536	\$1292-\$1541
20%		\$1312-\$1548
12%		\$1329-\$1554
0%		\$1353-\$1564

Using this approach, Table 34 provides a retrospective analysis comparable to that provided in Table 31. Note that the only harvest change is that sablefish previously caught by gear switching vessels would instead be caught by trawlers, so there is no change in trawl attainment but because trawlers tend to receive lower prices for sablefish than gear-switchers, the net change in exvessel revenue is negative.

Table 34. Summary of changes under gear switching levels applied retroactively to 2013, 2019, and 2021, *assuming gear switching is not constraining trawl harvest and trawlers change their species mixes in response to changing sablefish availability*. Changes in landings (millions of lbs) and revenue (millions of \$2022 dollars) for gear switching, non-whiting trawl competitive strategies, and overall net change. Change in non-whiting trawl attainment. Grey rows indicate where actual gear switching levels were already below the proposed gear switching level.

Baseline Year	GS Level	Gear Switching a/		Non-Whiting Trawl b/		Net Change		Change in Non-Whiting Trawl Attain.
		Lbs (millions)	Rev (millions)	Lbs (millions)	Rev (millions)	Lbs (millions)	Rev (millions)	
2013	29							
	20	-0.2	-\$0.4	2.0	0.3	0	-\$0.1	0
	12	-0.5	-\$1.4	6.2	1.0	0	-\$0.4	0
	0	-1.0	-\$2.8	12.4	1.9	0	-\$0.9	0
2019	29	-0.3	-\$0.7	3.5	0.4	0	-\$0.3	0
	20	-0.9	-\$1.8	8.8	1.0	0	-\$0.8	0
	12	-1.3	-\$2.8	13.4	1.6	0	-\$1.3	0
	0	-2.0	-\$4.3	20.4	2.4	0	-\$1.9	0
2021	29							
	20							
	12	-0.5	-\$0.7	4.2	0.4	0	-\$0.3	0
	0	-1.3	-\$1.9	11.7	1.0	0	-\$0.9	0

Internal Reference:Hypothetical Revenue Exercise September 2023rmd

In general, for 2013, 2019, and 2021, under the assumptions described in this section, for each six percent reduction in gear-switching while there would be an increase for the non-whiting trawl vessels, overall there would be a loss in net revenue of between \$280,000 and \$370,000 (\$2022) for the trawl sector as a whole (Table 36).

Table 35. For a 6 percent reduction in gear switching in the specified year, changes to landings, exvessel revenue, and trawl attainment, based on the information provided in Table 34 (\$2022).

Baseline Year	Gear Switching a/		Non-Whiting Trawl b/		Net Change		Change in Non-Whiting Trawl Attain.
	Lbs (millions)	Rev (millions)	Lbs (millions)	Rev (millions)	Lbs (millions)	Rev (millions)	
2013	-0.24	-0.70	0.24	0.39	0	-0.32	0
2019	-0.34	-0.73	0.34	0.36	0	-0.37	0
2021	-0.42	-0.61	0.42	0.33	0	-0.28	0

7.4.1(c) Scenario 3—Assumption: Gear switching is *not* constraining trawlers and trawlers do *not* change their species mix (Scenario 3).

If gear switching is not constraining and for some reason trawlers do not change their species mix to utilize the additional QP, then the reduced revenue from the gear switching limitation would be a net loss to the fishery (see the gear switching columns of Table 34 and Table 35). If

this were to occur and were caused by an inability of trawlers to make a profit from their sablefish catch (not including revenue from co-occurring species), it would likely be a short-term phenomenon because sablefish QP prices would be expected to drop to levels at which trawlers were able to make a profit and so would buy and use the surplus sablefish QP. On the other hand, if not all sablefish QP were used because of a technical constraint in trawlers ability to land a higher proportion of sablefish or because the market could not take more trawl caught sablefish, then sablefish QP might go unused over a longer period.

7.4.2 Long Term Impacts

Long-term impacts associated with a change in gear switching levels are most likely to be associated with changes in investment. The types of investments potentially impacted included trawl gear harvest related investments in the production and marketing chains, investments by businesses that rely on revenue from leasing QP to gear switchers or using QP to gear-switch. These impacts on investment have secondary effects on jobs and on the infrastructure available to other fisheries. Some impacts may be delayed (long-term) because some provisions phase-in over time. Most significantly, over time Alternative 2 QP Distribution Option 2 and the PPA phase down the maximum potential gear switching.

If gear switching is displacing trawl harvest, or there is a concern that it might become a more substantial constraint in the future, then it might be creating uncertainty that could inhibit some trawl industry related investments—such as investments in more efficient processing equipment and marketing. Those potential investments might increase the competitiveness of the trawl harvest of species like Dover sole by reducing production costs or increasing demand and hence price. Such investments, if successful would facilitate the expansion of trawl production, i.e. increase trawl allocation attainment (see discussion in Sections 2.4.2 and 2.4.4(a)). An example of this might be the potential investment by processors in fillet machines that can expedite the processing of trawl caught groundfish. In November 2020, public comment by Pacific Seafoods noted that they have acquired both rockfish and flatfish filleting machines. These machines “can filet fish at the same quality and recovery rate as compared to a hand cut filet. Both machines are a first of their kind ever on the West Coast.” However, each machine is a \$5 million investment. Some new Dover sole processing equipment has now been installed in Westport. Processors have stated that without certainty of sablefish availability to the trawl gear users, it is difficult to make investments as production might not be high enough to offset the costs. In other segments of the economy, uncertainty about supply lines for key production inputs (in this case fish harvest rights) is often handled through vertical integration, but vertical integration in the IFQ program is limited by QS control limits (see Section 2.4.4).

There may be existing businesses that are dependent on leasing quota to gear switchers for part of their revenue stream and a reduction of that revenue stream could affect their investments and continuity of operations over the long-term. Similar impacts on long-term investment and business longevity could occur for fishing operations that gear switch—depending on their degree of dependence and other fishing opportunities.

Changes in investment also impact a community’s workers and fishing infrastructure. Investments in automated filleting equipment reduces manual filleting jobs, replacing them to

greater or lesser degrees with other kinds of labor associated with maintaining the equipment and a higher throughput of product.

Where there are declines in investment, there is always a concern that a related decline in fishing activity will critically affect the maintenance of infrastructure that other fisheries also depend on. Depending on circumstances in a particular port, a limitation on gear switching could increase or decrease total fishing activity or redistribute activity among communities—thereby having local effects that are different from coastwide effects.

While a limitation on gear switching may benefit investments supporting some trawl strategies, such as DTS, those strategies will continue to be in competition with other trawl strategies which generate even greater revenue per pound of sablefish caught (e.g., whiting). This competition will likely continue to be a source of some uncertainty even if gear-switching is limited. (see Section 2.4.5).

7.4.3 Alternative Specific Short-Term Impacts

Under the action alternatives, the general intent would be to cap gear switching at 29 percent or less of the allocation, but the actual gear switching level, and therefore the amount available to be used by trawlers, would be influenced by the design of the alternative and options selected. Section 4.1.2(a) summarizes the likelihood that gear switching under each alternative would reach or exceed 29 percent. This section includes how gear-switching opportunity would be distributed among participants. A significant factor affecting this distribution is the unit that is evaluated to determine qualification, as discussed in Section 8.2.1.

7.4.3(a) Alternative 1

For Alternative 1, over the short term, the initial allocation of the any-gear QS amongst QS holders would likely impact the degree to which the available any-gear QP is used for gear switching. QP issued for any-gear QS owned by gear switching participants is likely to be used for gear switching while QP issued to other entities is more likely to be subject to acquisition by either gear switchers or trawlers. The amounts of any-gear QS received by Gear Switching Participants and Non-Gear-Switching Participants will depend on the Council selection of conversion options, gear-switching participant options, and QP split options. Under Conversion Option 1, qualified GS participants would receive all their QS as any-gear (up to the amount owned on the control date). Under Conversion Option 2 they would receive 100 percent as any gear if they met the Gear Switching Participant Option 1 qualifiers, and 50 percent as any-gear if they met the Option 2 qualifiers. If QP Split Option 2 is selected, the trawl allocation in the year of implementation will also impact the distribution of any-gear QS. Under QP Split Option 2, for the initial allocation formula, the maximum amount of any-gear quota is the lesser of 29 percent or 1.8 million pounds. When less than 29 percent, after the allocation obligation to Gear-Switching Participants has been met there will be a lesser amount (potentially zero) of any-gear quota available for distribution to Non-Gear-Switching Participants. Table 36 provides the distributions of any-gear QP and QS among gear-switching and non-gear-switching participants for various combinations of options. For QP Split Option 2, the year used is 2023 and 1.8 million pounds would be 21 percent of the total allocation. This would not provide enough any-gear quota to meet the allocation obligation for the Gear-Switching Participants and no any-gear

QS would be available for distribution to Non-Gear-Switching Participants. Further, if Alternative 1 and QP Split Option 2 were selected, by the time the program was implemented, the trawl allocations would be even higher, leaving even less any-gear QS to meet the allocational obligations for qualified gear-switching participants. For the viable combinations of options, the range of any-gear QS allocations to Gear-Switching Participants would run from 8.9 to 20.5 percent and for Non-Gear-Switching Participants, the range would run from 0 to 17.2 percent (Table 36).

Table 36. Amount of any-gear QS and corresponding QPs (including AMP) that GS and non-GS Participants would receive under QP Split Options, Conversion Options, and GS Participation Options for Alternative 1. Note- first receiver sub option qualifiers included.

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	
QP Split Option	QP Split Option 1	QP Split Option 2	QP Split Option 1	QP Split Option 2	QP Split Option 1	QP Split Option 2
GS Participants	20.5 QS (22.8 QP)	18.9 QS a/ (21.0 QP)	8.9 QS (9.9 QP)	8.9 QS (9.9 QP)	14.7 QS (16.3 QP)	14.7 QS (16.3 QP)
Non-GS Participants	5.6 QS (6.2 QP)	0 QS (0 QP)	17.2 QS (19.1 QP)	10.0 QS (11.1 QP)	11.4 QS (12.7 QP)	4.2 QS (4.7 QP)
Total	26.1 QS (29 QP)	18.9 QS (21.0 QP)	26.1 QS (29 QP)	18.9 QS (21.0 QP)	26.1 QS (29 QP)	18.9 QS (21.0 QP)

a/ Reduced from 19.1 to 18.9 because the split option would not provide enough QS to cover all the any-gear QS for which gear-switching participants qualify (and leaving nothing available to allocate to non-GS participants).

So long as non-gear-switchers hold any-gear QS, whether or not the maximum levels of gear-switching are reached depends on in season acquisition of any-gear QP by gear-switchers. The action would disrupt some of the pre-existing transaction relationships by which gear switchers acquire sablefish QPs in season from non-gear-switchers, since their traditional transaction partners may have no or limited QP usable in gear-switching (see Section 0). In order to aggregate all the any-gear QP, gear switchers would need to establish new transaction relationships. The Non-Gear-Switching Participation Option selected would influence the number of entities with which gear-switching participants would need to trade or purchase and hence the related transaction costs. Non-Gear Switching Participant Option 1 would spread the any-gear QS across more accounts than Option 2 (see Table 59 in Section 9.1). While the majority of non-qualifying accounts are likely associated with trawlers, in some cases, QS accounts may be affiliated with non-fishermen or gear switchers that did not qualify. Over the longer-term, there is a likelihood that any-gear QS might be consolidated among fewer participants—most likely those that gear switch. This would increase the likelihood of attaining the maximum gear switching allowance.

Given these allocation outcomes, we can consider how this alternative would perform under the scenarios described in Section 7.4.1. The first scenario assumes that gear switching is constraining and trawl vessels are able to utilize the available QPs for harvest of target trawl complex species. As discussed above, gear switchers will be challenged to sweep up the

available QPs because of the number of accounts across which they would be distributed, the disruption of previous QP transaction relationships, and related transaction costs. The overall trawl allocation level will also influence their ability to acquire all the available any-gear QP. Additionally, under the first scenario, trawlers receiving any-gear QP may be more reluctant to sell that QP for gear switching, further contributing to a reduction in the amount of gear-switching to levels lower than the amount of any-gear QP issued. Given these circumstances, one of the main influences on the amount of gear switching is likely to be the amount of any-gear QS allocated to gear switchers. Under GS Participation Option 1, approximately 23 percent of the QP would be expected to go to gear switchers and be used by them to gear switch. Depending on the year and other factors, this could result in an overall reduction of gear switching and increase in trawl harvest at levels at amounts between the 20 and 29 percent rows of (Table 31). For GS Participation Option 2, which would allocate 9.9 percent of the QPs to GS participants, the results could be between the 0 and 12 percent rows. Conversion Option 2 could result in impacts between the 12 and 20 percent rows.

Under the second scenario, if trawlers are unable to expand their harvest of the complex but able to change their species mix to take the additional sablefish QPs being made available, they might increase their revenue per metric ton (as shown in Table 34), so long as they can take the additional sablefish at a profit. This scenario could result in a small decrease in the overall net revenue of the trawl sector as a whole, but no change in the overall attainment. Continuing with GS Participation Option 1 as the example, gear-switchers might be expected to harvest amounts as low as just above 20 percent of the trawl allocation. For conditions like those exhibited in 2019, the loss in revenue would be estimated between the 20 and 29 percent level (i.e., between \$300,000 and \$800,000, Table 34).

If gear switching is not constraining and trawlers do not change their species mix (the third scenario), continuing with GS Participation Option 1 as the example, there would be a loss of revenue to gear switchers of approximately \$1.4 million under 2019 conditions (Table 34). There would be no compensating gain by the trawlers, so this amount would represent a net loss to trawl sector in revenue.

Under any of the short-term scenarios, and in the context of QP Split Option 1, ACL levels may also influence the degree to which gear switchers use the full amount of any-gear quota allocated to them. Assuming that gear-switchers acquire all of the any-gear QP they need from non-gear switchers (or acquire the any-gear QS) (see section 2.5.7), and ACL levels continue to be at higher than historic levels (i.e., exceeding 2019 and 2021), the amount of QP gear switchers have used historically might be less than 29 percent. Under such circumstances, so long as ACLs remain high, this alternative might not reduce gear switching harvest from historical levels, in terms of harvest weight. This conclusion would also apply to the other action alternatives.

QP Split Option 2 impacts both the initial allocations and the annual allocations that occur after implementation. Under QP Split Option 2, the maximum amount of any-gear QP issued in any year would be 1.8 million pounds, which is lower than gear-switching levels observed for 2017-2019 (Table 3). As ACLs increase, the percentage of the trawl allocation that could be taken by gear switchers would decline, as illustrated by Table 37**Error! Reference source not found.**

This provides a direct contrast to the PPA, which would eliminate gear-switching limits as ACLs rise to high levels.

Table 37. Maximum any-gear allocation under QP Split Option 2 (1.8 million pounds), expressed as a percentage of the estimated trawl allocation.^{a/}

2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
26%	27%	21%	23%	7%	7%	7%	8%	10%	11%	13%	14%	15%

a/ Trawl allocation estimates developed by on applying the expected trawl share of the northern sablefish ACL for 2024 and 2026 (46.7 percent) to projections of the northern ACL determined by applying the 2017-2022 average north/south biomass split to the 2021 stock assessment coastwide ACL projections.

7.4.3(b) Alternative 2

As with Alternative 1, for Alternative 2, the likelihood of attaining the gear-switching allowance will depend on the initial allocation and the ability of interested gear switching participants to accumulate any-gear QPs from across the other accounts to which it is distributed. For Alternative 2, that initial allocation is a combination of the designation of legacy status for certain QS owners and the amount of eligible QS owned by those entities. Under the Alternative 2 allocation provisions, legacy participants will likely be issued about 12 percent of the any-gear QP. Any-gear QPs issued to legacy participants will likely be used for gear switching. The remaining any-gear QPs (about 17 percent) would be spread across QS owned by non-legacy participants (for percentages, see Table 60). 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](#)).

If legacy participants are unable to acquire additional QPs inseason (or limited QPs inseason) and that available sablefish is used by trawling participants to harvest additional co-occurring species (Scenario 1), it is likely that impacts could be similar to those presented in the 12 percent rows in Table 31. However, if trawlers only harvest the additional sablefish and do not increase their take of other species (Scenario 2), there would likely be a loss in revenue and no change in overall attainment (12 percent rows in Table 34). If trawlers are unable to utilize that additional sablefish, it could result in revenue losses of \$700,000 to \$2.4 million for the gear switchers with no compensating gain through trawl landings (Scenario 3).

Under QP Distribution Option 1, as legacy participants divest themselves of QS, the amount of QP going to all other accounts would increase, maintaining the 29 percent limit on the amount of gear switching possible. The likelihood of reaching 29 percent would decline, as the remaining any-gear QPs would be distributed proportionally across all non-legacy accounts. Under Alternative 2 QP Distribution Option 2 and the PPA, as legacy participants divest, there would be no compensating increase in the amount of QP going to all other accounts. So, over the longer term the total amount of gear-switching possible would decline. On the one hand, this would mean smaller amounts distributed across more accounts. On the other hand, the value of the any-gear QP might increase. Overall, a larger portion of the declining maximum would

likely be attained under QP Distribution Option 2 as compared to the static maximum under QP Distribution Option 1 (29 percent).

As discussed in Section 7.4.3(a), ACL levels may also influence the degree to which gear switchers use the full amount of any-gear quota allocated to them, with higher ACLs reducing that probability.

7.4.3(c) Alternative 3

Under Alternative 3, participants could buy, sell, and trade QS or QPs as under No Action. Therefore, the amount of gear switching will primarily be driven by the factors that influence gear switching levels under No Action but not 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). It is also the 2011-2022 average percentage of the trawl allocation utilized by gear switchers. 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. If those conditions were similar to 2019 and gear switching was at 35 percent for example, this could result in a hypothetical lost opportunity described in the 29 percent row of Table 31 for gear switchers. If trawlers were able to utilize that available sablefish to harvest other co-occurring species (Scenario 1) or just the sablefish (Scenario 2), the impacts may be similar to those in the 29 percent row for 2019 in Table 31 and Table 34, respectively. If they were not able to harvest the additional amount made available, then gear-switching vessels would see the loss reflected in the 29 percent row for 2019 in Table 34 without a compensating gain from trawl vessels (Scenario 3). However, if conditions were similar to recent years (particularly with respect to increasing ACLs), then it's likely that the 29 percent maximum would not be reached. Impacts would be similar to No Action in terms of overall trawl attainment, landings, and revenue and would be affected by the market conditions and other factors described in Section 2.5.

7.4.3(d) PPA

Under the PPA, the short-term impacts would vary depending on the type of QP being issued in a particular year. For those years in which the trigger criteria are not hit, impacts would be similar to Alternative 2 with QP Distribution Option 2. For years in which the trigger criteria are hit, the impacts would be similar to no-action (since the northern sablefish QP issued would not be gear-specific, i.e. generic QP would be issued). While there are these similarities, for years in which gear-specific QP are issued, the gear switching levels might be somewhat higher than would be the case if there were no years in which generic QP are issued (i.e. higher relative to Alternative 2 with QP Distribution Option 2, under which gear-specific QPs would be issued every year). This would be because the years of unrestricted gear switching may encourage more vessels to invest in and continue to include gear-switching in their portfolio of activities to turn to in any one year. Conversely, for years in which generic QP are issued, the gear-switching levels might be somewhat lower than would be the case if there were no years in which gear-specific QP are issued (i.e. lower relative to status quo). This would be because the years of limitations on gear

switching may reduce the degree to which vessels invest in and continue to include gear-switching in their portfolio of activities to turn to in any one year.

7.4.4 Alternative Specific Long-Term Impacts

Over the long-term, if a limitation on gear switching is successful in encouraging the expansion of processing and marketing capacity for trawl caught fish (see Section **Error! Reference source not found.**), the likelihood would increase that the exvessel revenue increases described for Scenario 1 for each alternative would be realized. Among the alternatives, Alternative 1 with QP Split Option 2 is likely to provide one of the greatest limitations on gear switching and therefore the greatest encouragement of trawl related investment—comparable to Alternative 2 with QP Distribution Option 2 (gear-switching levels declining as legacy participants divest- the PPA option). Alternative 1 with QP Split Option 1 would likely encourage investment to a somewhat lesser degree and would be similar to Alternative 2, QP Distribution Option 1, and Alternative 3 (all of which maintain a 29 percent cap).

For the PPA, the encouragement of trawl related investment and consequent likelihood of increased trawl attainment (Scenario 1 used for the assessment of short-term impacts), would be expected to be intermediate to the other alternatives (less than Alternative 1 QP Split Option 2 and Alternative 2 QP Distribution Option 2, and more than Alternative 1 QP Split Option 1, Alternative 2 QP Distribution Option 1, and Alternative 3).

7.5 Efficiency

Section 2.4.5(b) demonstrates that some gear-switching vessels may be more profitable than some trawl vessels and may displace some trawl catch by outcompeting those trawlers for sablefish quota (including by offering a high enough price to bid quota away from the trawlers, convincing them to sell it). As described with respect to the scenarios in Section 7.4.1, the trawl catch that is displaced as a result of gear switching might be the complexes associated with the sablefish QP, or the sablefish portion of the trawl complex (reducing trawl revenue). Alternatively, gear-switching vessels may be using sablefish QP that would not have been not taken by trawlers. It is also possible that a mix of these scenarios is occurring. In a freely and fully functioning market, whatever mix occurs would be expected to result in the most efficient overall outcome. Catch share programs are intended to take advantage of market mechanisms to achieve efficient outcomes, and such programs, operating without other constraints, would be expected to resolve distributional questions in favor of the *most* efficient outcome. However, as mandated by the MSA, there are a number of policy objectives not directly related to efficiency that have been incorporated into the trawl IFQ program. These policies and related management measures likely interfere with maximizing efficiency. The question in this section is whether the action alternatives would introduce a restriction that would move the program further away from a maximum efficiency result and in favor of other benefits or compensate for existing measures that impose inefficiencies. In the latter case, the alternatives could result in an increase in efficiency. We will start here with a review of some of the existing measures that relate to gear-switching and may distort markets. For each we will consider whether or not a limitation on gear-switching could compensate for the market interference (increasing efficiency).

With respect to the trawl IFQ system, MSA mandated accumulation limits may be inhibiting an efficient market-based response to uncertainty created by the presence of gear switching, as discussed in Section 2.4.4(a). The potential for gear switching to expand creates some uncertainty around the reliability of the supply of trawl caught complexes. That uncertainty then may inhibit investments in infrastructure and market development. Normally, uncertainty about the reliability of supply of a key input could be overcome by vertically integrating (acquiring the source of the needed input, QS in this case). Vertical integration is more likely when an input is both essential to an operation and when the supply or number of suppliers is limited (as is the case with quota). QS control limits constrain vertical integration. If the control limit is constraining management of risk related to the potential for an expansion of gear switching, consideration could be given to increasing the limit (rather than limiting gear switching) but may have other undesirable results not related to efficiency. A limit on gear switching could counter part of the control limit's market interference effect by reducing uncertainty about the reliability of the supply of trawl caught complexes. The relative impact of each of the alternatives on reducing risk to the supply of trawl complexes that might be created by gear switching is discussed toward the end of each subsection in Section 7.4.3.

The LEFG program also includes measures designed to pursue objectives other than rationalizing the fishery (the three-permit stacking limit) or that might be no longer as useful in capacity control (separation of the fixed gear permits into longline and pot endorsed permits). Both of these measures appear to be contributing to the degree to which vessels are engaging in gear switching as a means of increasing their fixed gear fishing revenue. With respect to the stacking limit, vessels may also be seeking potential efficiency that can result from increasing their scale of operation beyond what is possible in the LEFG program (see Sections 2.4.4(b) and 2.5.4). With respect to the separation of line and pot gear endorsements, most of the gear-switching vessels that do not participate in the LEFG are using pot gear. This may be an indication that the relatively small number of pot permits in the LEFG fishery (36 out of 164 permits) is creating a constraint in that fishery which is being overcome by gear-switching in the trawl fishery. Reduction of gear switching may limit adverse impacts, if any, related to the participation of these vessels in gear switching but would not resolve the issues that motivate their entry into the fishery and could reduce overall benefits derived from gear switcher participation in the trawl sector, to the degree that they occur.

While the trawl fishery allows fixed gear vessels to fish on the trawl sector quota, the LEFG tier program does not allow vessels to take sablefish with trawl gear. In the current configuration of these two programs, the more efficient LEFG vessels might displace less efficient trawl vessels in the trawl sector but, if so, those displaced trawl vessels do not have an opportunity to see if they can compete as trawlers in the market for LEFG tier permits (and therefore compete for LEFG quota). If trawl vessels of lesser efficiency in the trawl sector are still more efficient than some of the vessels remaining in the LEFG fishery, the system does not provide an opportunity to realize those gains by allowing their participation in the LEFG fishery. Reducing gear switching could reduce any displacement of trawl gear vessels, if it is occurring, but at the loss of the within trawl sector efficiency that might be gained through gear switching vessel participation. Additionally, it would still leave unrealized the efficiency gains that could result because trawlers that may be more efficient than some of the less efficient LEFG vessels do not have an opportunity to participate in the LEFG fishery.

Finally, the division of the groundfish fishery into trawl and LEFG sectors was intended to achieve certain broader management objectives (discussed in Section 2.2), including maintaining trawl activity that supports infrastructure needed for the activity and efficiency of other fishing sectors. Allowing gear switching in the trawl sector might improve efficiency in the groundfish fishery (see discussion of VCNRs in 2.4.5(b)) but have potential adverse impacts on management objectives for west coast fisheries, in particular those that are pursued through ensuring a strong trawl sector.

Overall, if gear switching is constraining, a reduction in gear switching would likely displace the least efficient of the current gear-switching trips and replace them with trawl-gear trips of somewhat less efficiency. For example, examining Table 9, it would be expected that gear switching trips at the lower percentile of VCNR per pound of sablefish would be squeezed out and replaced with DTS trips of somewhat lesser efficiency. On that basis, the reduction in efficiency will depend on the relative efficiency of the marginal vessels participating in each strategy.

If the decision is made to restrict gear switching, Alternative 1 is most likely to achieve this aim with the greatest efficiency. The high level of efficiency would be expected due to its full reliance on the features of existing QS program. Those with gear-switching interests would be able to continue to acquire QS, as best serves their business planning as constrained by control limits (albeit the QS would now be any-gear QS). Overtime, any-gear QS would likely be consolidated such that each year gear-switching vessels would have to deal with a relatively few QS owners in order to acquire the QP they need. Full reliance on the features of the existing QS program would also keep management costs down, after implementation. However, the number of different types of qualifiers under Alternative 1 may make the determination of qualifiers more costly than under Alternative 2 (see Section 7.12.1 on management costs).

Alternative 2 is likely to result in the least efficiency among the three alternatives, mainly because it does not allow for consolidation of long-term access to any-gear QP. Any-gear QP will be dispersed across all QS accounts with northern sablefish QP. Thus, utilization of all the available any-gear QP by gear switching vessels would require consolidation of the any-gear QP issued each year. Over time, as legacy participants divest of their QS, the any-gear QP will become more dispersed across accounts. As that divestiture occurs, under QP Distribution Option 1, the total amount of any-gear QP issued will remain stable. Under QP Distribution Option 2, the total amount of any-gear QP issued will decline over time, further increasing the transaction costs per pound acquired. The need to rely on annual transactions also creates uncertainty about annual quota costs that may adversely impact long-term investments. Alternative 2 will require modifications to the existing QS program infrastructure and a few tasks that are likely to continue indefinitely or for many years (e.g. tracking legacy participant exit from QS ownership).

As long as the gear-switching opportunity ran close to a full year, Alternative 3 may have a similar efficiency outcome for fishery similar to Alternative 1 and could potentially have long-term management costs similar to or lower than Alternative 1. If the season closes before the end of the year due to reaching the 29 percent limit, vessel flexibility and efficiency would be

reduced. If seasons shorten, other management concerns often develop related to things like differences in weather and fishing opportunity along different parts of the coast at different times of year. A more detailed discussion on potential factors that may affect the season length can be found in Section 9.3.

The PPA would likely have an efficiency outcome similar to Alternative 2, QP Distribution Option 2. But for years in which generic QP are issued, the efficiency would likely be greater due to the lower transaction costs related to gear-switching vessel participation and greater reliance on the market to resolve any between gear-competition for QP (it is expected that such competition will be minimal at high ACL levels, though changing conditions could change this outcome, as discussed in Section 9.4.2(c)). Administrative costs of the PPA could be somewhat higher due to the need to facilitate the switching between the issuances of any-gear QP and generic QP, depending on whether trigger criteria are met.

7.6 Vessels and Vessel Groups

7.6.1 Harvester Flexibility

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 these individuals to restore their previous levels of gear switching if they so desired and are financially able, up to the 3 percent QS control limit and 4.5 percent vessel QP cap. 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 below 29 percent of the trawl allocation²⁷), the fishery might not be able to support as many gear-switching operations and the cost of the any-gear quota is likely to be somewhat higher than the cost of quota under No Action.

Here we discuss alternative 2 and the PPA together, with the understanding that the impacts are similar only in years for which the PPA trigger criteria are not hit (i.e. years in which gear-specific QP are issued). As with Alternative 1, under Alternative 2 and the PPA 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. Qualifying gear switchers that do not receive an initial allocation of any-gear QP that is commensurate with their historic fishing volumes and those entering after the control date would have an opportunity to acquire the needed any-gear QP on an annual basis. While the overall amount of gear-switching would be limited, the amount of gear switching by any particular vessel would not be directly constrained compared to No Action (4.5 percent annual vessel QP limit). In contrast to Alternatives 1 and 3,

²⁷ Below 29 percent in the event that QP Split Option 2 is selected, which establishes a 1.8 million pound maximum on the amount of any-gear QP issued.

vessels would not be able to acquire 3 percent of the QS and receive 100 percent as any-gear QP (with respect to Alternative 3, 100 percent as generic QP).

Under Alternative 2 and the PPA, any-gear QP would be available from both legacy and non-legacy participants; however, the amount of any-gear QP available over the long term might be significantly more limited, as compared to Alternative 1 and acquiring it might be more challenging. Under QP Distribution Option 1, the available any-gear QP would start at 29 percent. Under QP distribution Option 2 and the PPA available any-gear QP would start at 29 percent but decline to an estimated 19.4 percent over the long-term (Table 18). As with Alternative 1, the amount of any-gear QP available might support fewer gear switching vessels than under No Action. Acquiring any-gear QP would be more challenging than under Alternative 1 for two reasons. First, to secure long-term access to a given percentage of any-gear QP through the acquisition of QS, a substantially greater amount of any-gear QS would need to be acquired, since for any amount of QS acquired only a portion of the QP would be any-gear QP. Further, depending on the amount of any-gear QP desired, the three percent control limit could constrain securing long term access to QP through QS acquisition. 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 secure more ongoing access to any-gear QP through QS acquisition, the three percent QS ownership limit would mean they could not use QS ownership to secure access to more than between 0.6 and 1.0 percent any-gear QP—i.e., between 19.4 and 29.0 percent of the 3 percent QS control limit (depending on the QP distribution option applied). Second, 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 QSAs each year. There are currently (based on 2023 data) 113 QS accounts that would not be owned by legacy participants and across which any-gear QP not issued to legacy participants would be dispersed. As a percent of their QPs, each of these QSAs would initially receive 19.4 percent of their QPs as any-gear. Under Alternative 1 QP Distribution Option 1, this would rise to 29 percent over the long-term.

Under Alternative 3, the amount of gear-switching permitted by any particular operation would not be directly constrained compared to No Action (i.e., 3.0 percent QS ownership limit and 4.5 percent annual vessel QP limit) and the ease of entry and flexibility for new entrants would be similar to the past. The direct change to flexibility would be with respect to the times at which gear-switching for sablefish could be conducted. 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. 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. A more detailed discussion on trends in gear switching activity and potential factors that may affect the season length can be found in Section 9.3.

The PPA with respect to years in which the trigger criteria are not hit (i.e. gear-specific QP are issued) is discussed above in connection with Alternative 2. For years that the trigger criteria are hit (i.e. generic QP issued) the amount of gear-switching permitted for any particular operation would not be constrained compared to No Action (i.e., 3.0 percent QS ownership limit and 4.5 percent annual vessel QP limit) and the ease of entry for new entrants and operational flexibility would be similar to No Action. Because the trigger will not be hit in every year (i.e. gear switching will be constrained in some years), vessels may not invest as much in gear switching

or count on it as part of the portfolio of fisheries on which they rely, reducing their participation flexibility in any particular year, including years in which generic QP are issued.

7.6.2 Sectors

Sections 2.1 and 2.2 describe the origins of the sectors and the allocations of sablefish between fixed gear/non-trawl and trawl sectors. Under no action and all of the action alternatives, the line between the trawl and fixed gear sector allocations would continue to be blurred because gear switching is allowed in the trawl sector. The action alternatives would each put a limit on the amount of gear switching that could occur—continuing to allow but limiting the amount of sablefish north that could be taken by vessels operating with non-trawl gear in the trawl sector. As a reminder, Alternative 1 (QP Split Option 1), Alternative 2 (QP Distribution Option 1), and Alternative 3 would all restrict gear switching to 29 percent. Alternative 1 (QP Split Option 2) would cap gear switching at the lesser of 29 percent or 1.8 million pounds, which could be substantially less than 29 percent in years when the ACL is high (Table 37). Alternative 2 (QP Distribution Option 2) and the PPA would start the restriction at 29 percent but reduce it over time as legacy participants divest. For the PPA this would just apply for years in which trigger criteria are not hit. For years when the PPA trigger criteria are hit, there would be no restriction on gear switching because it is anticipated there would be sufficient northern sablefish QP available to meet the needs of gear switchers and trawl-gear vessels.

7.6.3 Vessel Strategy/Size

The impacts to vessels within the IFQ fishery under any of the action alternatives compared to No Action will be dependent on whether gear switching is constraining trawl harvest and how any sablefish made available to trawl vessels through a limitation on gear switching is utilized (i.e., the scenarios discussed in Section 7.4.1). Section 7.6.2 provides a summary of the relative degree to which gear-switching would be restricted under the alternatives, and Sections 7.4.1 and 7.4.3 includes estimates of the overall impact in the short term on revenue, depending on the scenario(s) that apply and alternatives selected. As described in Section 2.4.5, it is most likely that vessels fishing in the DTS strategy and/or other bottom trawl strategies would be the ones to benefit from the action alternatives. Most trawl vessels participate using bottom trawl gear—with a proportion using both bottom and midwater trawl annually (Table 68). Assuming that the primary strategy to benefit is DTS, vessels that participate in bottom trawl fisheries only compared to both bottom and midwater trawl may benefit more under the action alternatives as a larger proportion of their revenues comes from DTS. The size of the trawl operation (in terms of harvest revenue) does not appear to relate to the proportion of vessel revenue derived from DTS (see Section 10.1). However, in some years there appear to be a few vessels in the smaller production category of bottom-trawl only vessels (less than \$500,000 a year in total exvessel revenue on the West Coast), that are highly dependent on DTS (Figure 22). For those that do both bottom and midwater trawl, smaller operations may not be as impacted by limitations due to gear switching or changes to DTS opportunities as little to none of their revenue comes from DTS compared to larger operations. For gear switching vessels, smaller and medium sized operations may be more impacted by a reduction in gear switching overall as the proportion of revenue coming from gear switching tends to be larger than larger operations (more than \$1 million in west coast total revenue).

7.7 Recent (Post-Control Date) and Future New Entrants

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, 3, and the PPA (for years that meet the trigger criteria), recent entrants (those in the gear-switching fishery but entering after the control date) and new entrants (those entering after implementation) would be able 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 acquire their any-gear quota later. 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. Gear switchers that purchased QS after the control date would have the entirety of that QS converted to trawl-only QS. They would be impacted to the degree that there is a differential in price between the trawl-only quota they receive and the any-gear quota they need for gear switching (whether they try to exchange their trawl-only QS for any-gear QS or the annually issued trawl-only QP for any-gear QP). Under the PPA for years in which the trigger criteria are met and generic QP are issued, new and recent entrants might also be close to on par with existing gear-switchers. However, because in other years only a portion of the QP recent and new entrants receive would be usable for gear switching, any investments they make would provide them a less consistent long-term gear-switching opportunity under the PPA than under No Action, Alternative 1, or Alternative 3 (see discussion below on Alternative 2 for further analysis of the PPA impacts). Under Alternative 3, there would be no difference in opportunity between new/recent entrants and established gear-switchers (because there would be no gear-specific QS). Post-control date entrants would be able to utilize their QS as normal.

Under Alternative 2 and the PPA, recent and new entrants would not be able to establish themselves on a par with legacy participants because legacy status is not transferable. Recent and new entrants would have the same opportunity to gear switch after implementation as other non-legacy participants that were in the fishery prior to the control date. To gear switch at a level similar to a legacy participant, non-legacy participants (including recent and future entrants) would have to either acquire more QS than would a legacy participant (QS in amounts in excess of the desired any-gear QP amount) or be more reliant on the any-gear QP market (Table 21). Only a portion of the QP issued for QS owned by non-legacy participants will be any-gear QP whereas legacy participants will have at least some QS for which 100 percent any-gear QP will be issued. Because of this, in combination with the three percent cap on QS ownership, non-legacy participants would have less opportunity than legacy participants to secure access to any-gear QP through QS ownership.²⁸²⁸ Under Alternative 2 QP Distribution Option 1, the amounts of any-gear QP potentially available on the market would start and stay at 29 percent. Under Alternative 2 QP Distribution Option 2 and the PPA (for years in which gear-

²⁸²⁸ As mentioned in Section 7.6.1, “the three percent QS ownership limit would mean they could not use QS ownership to secure access to more than between 0.6 and 1.0 percent any-gear QP—i.e., between 19.7 and 29.0 percent of the 3 percent QS control limit.”

specific QP are issued), the amounts would start at 29 percent and decline as legacy participants divest of their QS (Table 39). The amounts of QP effectively on the market may also be diminished by transaction costs. For non-legacy participant owned accounts with small amounts of QS (and hence receiving even a smaller share of the any-gear QP), the effort and costs associated with buying/selling QP in comparison to the potential sale revenues might not provide a net gain sufficient to make such transactions worthwhile (see Section 4.1.1(a) for further discussion).

Table 38. Opportunity for recent (post-CD) or new (post-implementation) gear switching participants relative to established participants receiving an initial allocation of opportunity based on history—or, relative to all established gear-switching participants with respect to alternatives under which there would not be a direct allocation of the gear switching limit (Alternative 3 or the PPA in years for which the trigger is met).

		Alt 1	Alt 2 or PPA (Trigger Not Met)	Alt 3 or PPA (Trigger Met)
Possibility for recent or new entrants to acquire gear switching opportunities at the same level as qualified gear switchers already owning QS	Short-term (QP) as compared to established participants. ^{a/}	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) as compared to established participants. ^{a/}	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

^{a/} For Alt 1, Alt 2, and the PPA when the trigger is not met, established participants are those that qualify for a history based allocation.

Table 39. For Alternative 2 and the PPA for years in which trigger is not met, 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/}

	Alt 2, QP Dist Opt 1	Alt 2, QP Dist Opt 2 or PPA in years when trigger not met
Total Any-Gear QP Issued for Fleet in Year 1	29%	29%
as Legacy Participants Divest	Remains at 29%	Declines to 19.4%
Proportion of Any-Gear QP Issued to Each Non-Legacy QS Owner QS Account	Starts at 19.4% & increases to 29 percent as legacy participants divest	Starts and stays at 19.4%

a/ For related information, see Table 19 and Table 60.

7.8 LEP and QS Owners

7.8.1 Trawl LEP Owners

Limited entry permit owners may be impacted by any of the action alternatives, to the extent that earn some revenue from leasing LEPs to gear switchers and gear switching would be restricted., There could be some offset if the number of trawl vessels participating increased. 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 40 below provides an update of that analysis for gear switching vessels from 2011-2021. For some years shown in Table 40, the total counts of vessels that leased and owned permits in may be in excess of the number of gear switching vessels shown in Table 3. This is because of cases where a vessel owner utilized both a leased permit and a permit they owned in a given year.

Table 40. 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

The differences in the initial allocation criteria between Alternatives 1, 2, and the PPA will impact LEP owners differently. Under Alternative 1, owning a trawl permit used for gear switching will not provide the owner with access to a history-based allocation of any-gear QS.

Under Alternative 2 and the PPA, those who own LEP permits on the control date that have been used for gear switching will have an opportunity to qualify for a history-based allocation—if they also own QS. This includes those who owned and gear-switched the permits themselves, those who leased their permit to a vessel that gear switched, and those who may have acquired an LEP with qualifying history after that gear-switching occurred but before the control date.

Examination of the leasing history used for Table 40 shows that for Alternative 2 and the PPA, 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. While not qualifying under Alternative 2, the vessel owners leasing these permits would likely qualify as gear-switching participants under Alternative 1 (assuming they own QS on the control date).

7.8.2 QS Owners

Under No Action and the PPA for years the trigger criteria are hit, northern sablefish QS owners could continue to use, sell, or lease their northern sablefish QS or associated QPs to vessels using any gear type to harvest sablefish. The same is true under Alternative 3, noting that if the season were to be significantly shortened due to the 29 percent cap being hit, then the pool of participants available to use that quota might be more limited. For example, if whiting vessels are not able to determine whether they need their sablefish QP until after a gear-switching closure, those vessels would have a more limited number of buyers for their QP than under No Action. Under Alternatives 1, 2, and the PPA (in years when the trigger criteria are not hit), QS owners would have less flexibility with the quota they own depending on their qualification as a gear switching participant. If an action alternative is successful in stimulating an increase in the harvest of non-sablefish species, then owners of the QS for those other species might benefit.

7.8.2(a) QS/QP Value

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. For gear switchers that purchased QS (or received an initial QS allocation due to their ownership of a trawl LEP), impacts on investment and finances will depend on their ability to either continue to use the quota for gear switching or to sell their modified quota at prices comparable to what they paid for it. Taking into account these impacts to quota value is 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 and the PPA in generic QP years, any QP (i.e., all QP issued for QS) can be sold to and used by gear switchers. Section 2.5.3 provides a discussion of some 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 41.

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 QP and QS under 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 the proportion of sablefish in their catch 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](#)). Any decline could be reduced over time 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, as well as the QP for other species caught in those complexes.

Those who rely on selling QP to gear switchers could be adversely impacted under Alternative 1. 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 0²⁹-48.7³⁰ percent of each non-qualifiers eligible QS, depending on options selected Table 58). 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). If the portion of any-gear QS they receive is not sufficient to cover previous transactions with gear-switchers, a portion of the revenue loss might be made up by a price increase in any-gear QP. Over the long-term, individual 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. While this adjustment may be feasible for some individuals, as a whole, the group would still experience reduced opportunity.

Under Alternative 2 and the PPA (in non-trigger years), legacy participants would receive all any-gear QP for their eligible QS and non-legacy participants would receive a portion of their QP as any-gear QP. 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 Alternative 2 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 Alternative 2 QP Distribution Option 2 and the PPA (in non-trigger years), 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 19.4 percent.

²⁹ Based on QP Split Option 2 applied to 2023 and Gear-Switching Participant Option 1.

³⁰ Based on Gear-Switching Participation Option 2 (including FR suboption), Non-Gear-Switching Participation Option 2 (without FR suboption) under QP Split Option 1.

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

- Comparable under Alternative 2 QP Distribution Option 1
- Generally comparable under Alternative 2 QP Distribution Option 2 and the PPA (years the trigger is not hit), but over time lower in quantity and somewhat higher in price

Under Alternative 2 QP Distribution Option 1, while the amount of any-gear QP would be the same as Alternative 1 QP Split Option 1 (29 percent), the price might be 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 Alternative 2 QP Distribution Option 2 and the PPA in gear-specific QP years as well, and it might be more pronounced over time because there would be less QP in each account than under Alternative 2 QP Distribution Option 1.

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 price decline would increase over time under QP Distribution Option 2, 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 the objective of increasing the attainment of trawl allocations, as discussed for Alternative 1.

Under Alternative 2 and the PPA, 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 and the PPA result in a diminishment in the flexibility for the use of the QS (i.e. the issuance of a portion of the QP for the QS as trawl only in all years or, with respect to the PPA, in some years), the QS value would be expected to decrease somewhat—with a substantial decrease occurring only if trawlers are unable to utilize the available trawl-only QP. Over the long-term, Alternative 2 QP Distribution Option 2 would result in more constraint (less any-gear QP issued for a given amount of QS) and therefore QS prices might be lower, relative to Alternative 2 QP Distribution Option 1. For the PPA, because generic QP would be issued for years that meet the trigger, QS prices might be somewhat higher than under Alternative 2. Given that there is expected to be a long period of high ACLs triggering the issuance of generic QP, a notable decline in QS values may not occur right at implementation. 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 and the PPA in non-trigger years, 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. If the portion they receive is not quite sufficient to cover previous transactions with gear-switchers, some of the decrease in sales/trades might be made up by a price increase in any-gear QP. For Alternative 2 and the PPA in gear-specific QP years, initially individual non-legacy participants would receive 19.4 percent of their QP as any-gear QP (Table 60). 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 and the PPA in gear-specific QP years 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.

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 29.0 percent of the annual allocations. Historically, in six out of 12 years a 29 percent limit would not have been a constraint. The maximum gear-switching percentage was 35.3 percent of the trawl sector's northern sablefish 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 the other action alternatives, 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 41. 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	PPA
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 2). 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.	Non-trigger years: similar to Alt 2. Trigger years: similar to no action.
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.	Similar to changes for QP.	Similar to Alt 2 but lesser change in QS prices because it will be influenced by years in which the trigger is met (generic QP are issued).
Selling QP to gear-switchers	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. 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.	Non-trigger years: similar to Alt 2. Trigger years: similar to 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.	Same as No Action.	Non-trigger years: similar to Alt 2. Trigger years: similar to no action.

7.8.2(b) QS Account Ties to Gear-Switching via QP Trading

Depending on the business arrangements of QS owners, their ties to gear-switching operations, amounts of quota for each gear type received, and the prices for gear-specific QP (trawl-only QP in particular), the impact of Alternatives 1, 2 and the PPA will vary. Utilizing a method developed by the Washington Department of Fish and Wildlife, Figure 22 shows the relationships between QS accounts and gear switching operations from 2011-2022. 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 VAs [vessel accounts] 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.” ([Agenda Item E.2, Attachment 1](#) SaMTAAC Meeting, October 2019) 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 vessels 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 and no or weak connections to gear-switching operations. 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.³¹ A tabulated summary of these scores are provided in the following section.

³¹ These ratios are calculated as QP traded to gear switchers divided by total QP including unused QP, which results in lower gear-switching scores than if the unused QP were not included in the calculation.

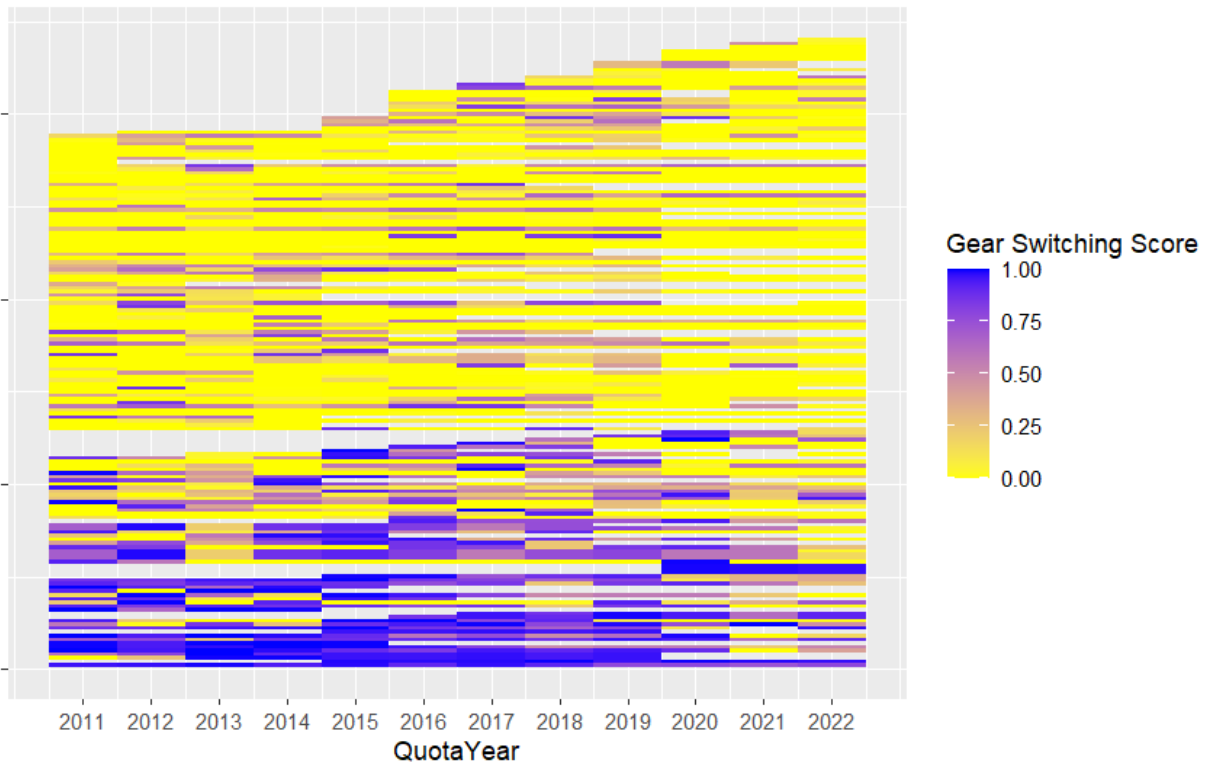


Figure 22. Gear switching “score” for the 170 QS accounts with sablefish north by year, 2011-2022.

All of the qualification requirements for Alternatives 1, 2, and the PPA require the individuals to currently (at the time of implementation) own QS. Given that these alternatives would have direct implications on the usage of the QS and associated QPs by participants, the following two sections examine the relationship between QSAs and gear switching operations and the type of QS owners associated with qualifying and non-qualifying QS accounts.

7.8.2(c) Scoring Analysis

In order to understand how Alternatives 1, 2 and the PPA (in gear-specific QP years in particular) may influence QS owners that do not qualify under a particular alternative, the following tables look at the number of QSAs not associated with a qualifying gear switcher by their QP trading-based³² gear switching score in five recent years (2018-2022). Each alternative is presented at the same score breaks, except for the first non-zero bin (i.e. grey shaded column in each table) which was set as the percentage of QPs that would be issued to individual non-qualifiers for their eligible quota as any-gear in each alternatives/participant option.³³ Note that the breaks are based on the updates using 2023 information on the amount of QS in each account but the underlying QSA categorization is still based on 2018-2022 information. While there may be slight differences with updated QS information, the overall impact is likely to be similar. As

³² “QP trading” can mean a self-trade or trading/selling to another participant’s QS or VA

³³ Note that the percentages used below are assuming that all participants within a QSA are the same type and the same split is given to each individual owner (i.e., non-gear-switching or non-legacy participants). QSAs with mixes of individuals would have different percentages of any gear QPs available.

an example of how to interpret the table, under Alternative 1, Gear Switching Participation Option 1, each non-gear switching participant would receive 13.3% of their QS (or 14.8% of their QPs) as any-gear. Therefore, 14.8 percent is the upper bound of the first non-zero bin (grey column). Of the QSAs not associated with gear switching participants under this alternative in 2018, 13 had no QP trading association with gear switched landings (gear switching score of 0) and 11 had a score less than 0.148. Therefore, those 11 accounts would receive a proportion of any-gear QPs to cover the historical QP trading to gear switchers in 2018. The 70 other non-qualifier owned QSAs with higher gear switching scores in 2018 would have not received enough QPs to cover their QP trading to gear-switchers.³⁴ Because the scoring keeps track of transactions that might move through multiple accounts, those who are selling their QP might not be aware that down-stream from them one of the QP buyers is selling to a gear-switcher. Finally, for Alternative 1, only QP Split Option 1 (71 percent trawl only, 29 percent any gear) and Non-Gear Switching Participation Option 1 (all QS owners on control date) are used in the examples.

Under Alternative 1, Alternative 2, and the PPA (in gear-specific QP years), a majority of QSAs appear to receive any-gear quota at levels that would accommodate their historic trading with gear switchers, with the exception of Alternative 1 Gear Switching Participation Option 1 for 2018 and 2019 (first columns plus grey columns of Table 44) and Alternative 2 for 2019 (49 percent of QSAs, first columns plus grey columns of Table 44) . Since more individuals and QSAs qualify under Alternative 1 Gear Switching Participation Option 1 there is less any-gear QS/QP available for distribution to non-gear switching participants, as compared to Alternative 1 Gear Switching Participation Option 2 or the amount of any-gear QP available to non-legacy participants under Alternative 2 (including the PPA) (7.8%³⁵ compared to 20.7% and 17.1% respectively). Impacts under Alternative 1, Conversion Option 2 would be somewhere between Table 42 and Table 43. QP Split Option 2 for Alternative 1 would result in little to no any-gear QS being issued to non-gear switching participants.

QSAs not associated with qualifiers and above the first non-zero bin (three columns to the right of the grey column) would likely be impacted by each of the action alternatives as the proportion of any-gear quota they would be issued is less than the proportion of their QP that would typically be traded/sold to gear switchers. Of those accounts, between 2018-2020 and across both gear-specific quota alternatives (Table 42, Table 43, and Table 44), there were 14-23 QSAs that could be seen as highly dependent on gear switching activity (score of 0.76-1). Starting in 2021 however, there appears to have been a shift in the number of QSAs associated with a high gear switching score (shifting from an average of 18 in 2018-2020 to 4 in 2021-2022). Further investigation is needed to determine the cause of this shift.

³⁴ An exception to this would be mixed accounts, those owned by both qualified and non-qualified participants.

³⁵ Includes those that qualify with QS ownership groups.

Table 42. Number of QSAs associated with non-qualifiers by gear switching score under Alternative 1 Gear Switching Participation Option 1.

Year	Gear Switching Score				
	0	0-0.148	0.149-.5	.51-.75	.76-1
2018	13	11	46	8	16
2019	25	3	36	13	14
2020	48	2	14	7	15
2021	47	2	27	6	3
2022	36	9	31	6	5

Table 43. Number of QSAs associated with non-qualifiers by gear switching score under Alternative 1 Gear Switching Participation Option 2.

Year	Gear Switching Score				
	0	0-0.321	0.322-.5	.51-.75	.76-1
2018	19	55	13	11	22
2019	37	38	9	16	17
2020	66	16	3	12	15
2021	65	21	10	13	3
2022	45	54	1	9	5

Table 44. Number of QSAs associated with non-legacy participants by gear switching score under Alternative 2 and the PPA.

Year	Gear Switching Score				
	0	0-.197	.198-.5	.51-.75	.76-1
2018	19	43	25	9	23
2019	36	21	25	15	19
2020	65	11	7	11	17
2021	65	11	20	12	3
2022	44	46	9	7	7

7.8.2(d) Characterization of Fishery Roles for Qualifiers and Non-Qualifiers

Note: This section has not been updated with the most recent QS ownership survey or qualification analysis and therefore values may be slightly different than other sections of the document. Results are expected to be similar.

There have also been discussions around who the QS owners are that would qualify and their roles in the fishery. In other words, are these active participants in the IFQ or other West Coast fisheries or are these owners not active in the fishery. Using the results of the 2021 EDC QS Ownership Survey, below characterizes each qualifying individual under Alternative 1 (both gear-switching participation options and including the first receiver sub-option), Alternative 2,

and the PPA by the four main categories developed by the EDC program based on capital ownership and participation type. Based on responses to the Quota Share Owner Survey, QS owners that reported actively fishing or processing were considered “active” while those who do not were considered “inactive”. Capital ownership was defined as owning a vessel or processors. For those active capital owners, it also describes whether those individuals identify as a processor or a west coast vessel owner (any fishery). Trusts, not for profits, or governmental entities are not subject to the participation type component of the survey and are identified by those categories where applicable. For further details on the survey questions and the categorization of individuals, please see Connelly, et.al 2022.

For Alternative 1, Gear Switching Participation Option 2, Alternative 2, and the PPA, all of which require for qualification landings of 30,000 pounds per year in at least 3 years prior to the control date, approximately half of the qualified individuals are active, capital owners where the other half are inactive capital owners. For Alternative 1, Gear Switching Participation Option 1, which has a minimum landings requirement of only one gear switched landing, the number of inactive owners more than doubles compared to Gear Switching Participation Option 2. For all alternatives and options, the individuals that identify as a processor also own a vessel that fished on the West Coast in 2021 and therefore are counted twice in the table.

Table 45. Classification of qualified gear switchers by QS ownership survey results (2021) by alternative and option.

Categories	Alt 1		Alt 2 and PPA
	GS Opt 1 (incl. GS FR opt)	GS Opt 2(incl. GS FR opt)	
Active, Capital Owner	9	6	7
<i>Processor^{a/}</i>	3	3	***
<i>West Coast Vessel Owner</i>	9	6	7
Inactive, Capital Owner	18	8	8
Inactive, No Capital	4	***	***
Trusts	7	***	3
Suppressed to protect confidentiality	0	2	2

a/ Processors are counted more than once in this table because all three are both processors and vessel owners.

Of those QSAs associated with the qualified gear switchers presented in Table 45, Table 46 describes each of those QSAs in a hierarchical fashion. In other words, all QSAs that are owned by at least one active, capital owner (any owner- qualified or not) are categorized first. Of the remaining QSAs, it looks at whether there is at least one inactive, capital owner and so forth down the table. The majority of accounts associated with qualified gear switchers have at least one active, capital owner.

Table 46. Classification of 2022 QSAs associated with qualified gear switchers (Table 34) by QS ownership groups by alternative and option.

QSAs with at least one	Alt 1		Alt 2 and PPA
	GS Opt 1 (incl. GS FR opt)	GS Opt 2(incl. GS FR opt)	
Active, Capital Owner	13	8	7
Inactive, capital owner	26	5	6
Inactive, no capital	***		***
Remainder	***		***
Suppressed to protect confidentiality	3		1

Of the 2022 QSAs not associated with qualified gear switchers in each alternative and qualification option, the hierarchical categorization of QSAs is provided below in Table 47. The plurality of QSAs not qualifying for elevated levels of gear switching opportunity are held by inactive capital owners.

Table 47. Classification of 2022 QSAs not associated with qualified gear switchers by QS ownership groups by alternative and option.

QSAs with at least one	Alt 1		Alt 2 and PPA
	GS Opt 1 (incl. GS FR opt)	GS Opt 2(incl. GS FR opt)	
Active, Capital Owner	28	33	34
Active, No Capital	3	3	3
Inactive, Capital owner	30	51	50
Inactive, No Capital	13	15	15
Trusts	8	9	8
Not for Profit/Government	4	4	4

7.9 Crew

For gear switching vessels and their crews, the action alternatives would likely result in some loss of income and job opportunity relative to No Action. The losses would likely be least under Alternatives 1 and 3 because of the greater likelihood that the 29 percent maximums might be achieved. Under Alternative 2 and the PPA, because of the dispersion of any-gear QP among more accounts, less of it may be utilized and overall levels of gear switching might be lower. Both Alternative 1 and Alternative 2 include options for gear switching levels lower than 29 percent and the PPA would reduce gear switching to levels below 29 percent over the long-term (i.e. for years triggers are not hit, the PPA would implement Alternative 2 with QP Distribution Option 2). Relative to historical levels of gear switching under the trawl program, under the PPA the reduction for gear switching might be around 16 percentage points below the maximum (~35 percent in 2019). But if there would have been greater increases in gear-switching under No Action, then the adverse impacts of the action alternatives on gear-switcher crew jobs and income might be more substantial. See Section 7.7 on new entrants for discussion of how future opportunities for crew members seeking to become gear-switching vessel owners might be impacted.

Under Alternative 3, there might be other types of impacts. There are situations that might lead to an early closure of the opportunity for gear switchers to retain sablefish. For example, if trawl ACLs go down (such that a 29 percent cap is a much lower amount of QP) at a time when sablefish prices are high, there could be a more substantial shortening of the season. This could impact crew through shifts in the geographic areas and times of years of harvest, as well as reduced flexibility with respect to when harvest occurs.

For trawlers, if the actions are effective in their purpose to increase trawl attainment, there is the potential for increased income opportunity, particularly if catch of complexes can be expanded (as opposed to just increasing the proportion of sablefish in the catch). More substantial expansions could increase the number of crew positions available. Crew members that would like to become vessel owners might be benefited if there is an increase in trawl activity.

7.10 First Receivers and Processors

In order to purchase IFQ fish, a business must have an FR license. FRs include both businesses that purchase and process and also those that purchase and transfer fish to others for processing. Over the first eleven years of the IFQ Program (through 2022) there have been a total of 107 FR licenses issued to 65 different businesses with recent years averaging around 43 FRs and 33 businesses (Figure 23). Businesses that act as FRs often have multiple licenses when they have different fish receiving sites.

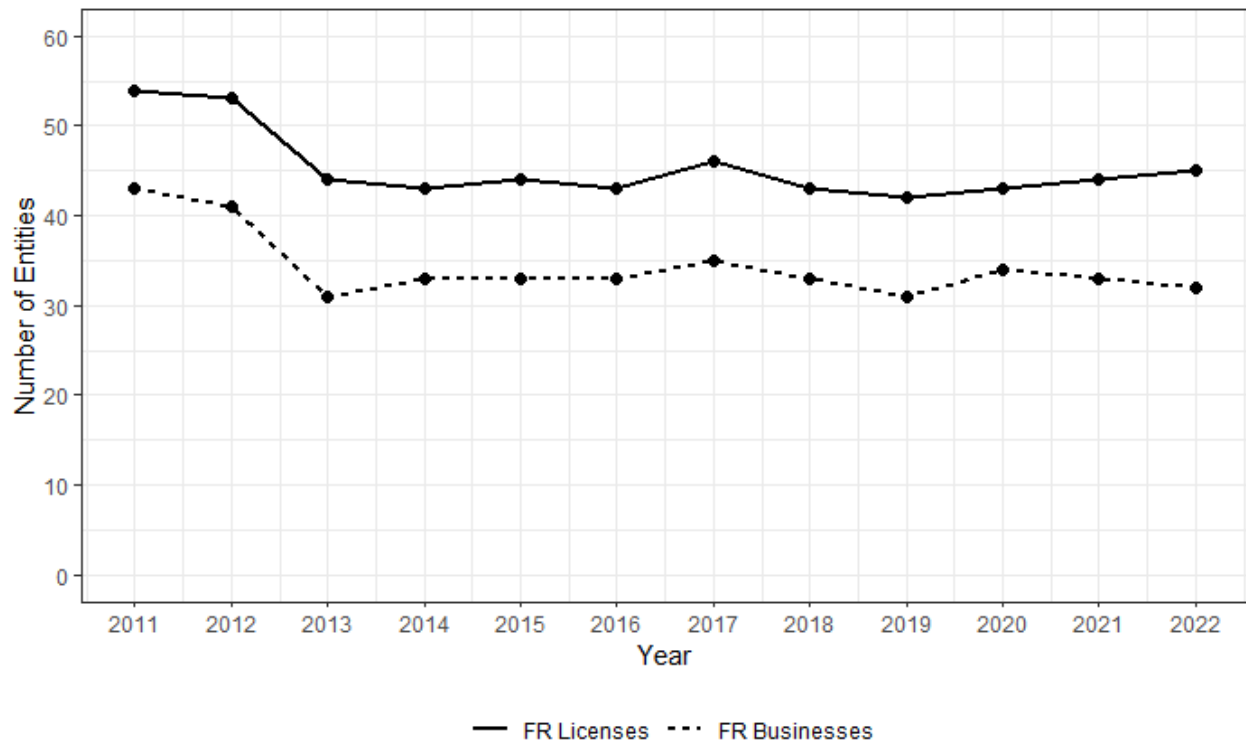


Figure 23. Number of FR licenses (solid line) and associated businesses (dashed line) by year, 2011-2022.

Under No Action, first receivers can access to fish by negotiating with vessels and owning QS or annually acquiring QP. In terms of an the annual average, 40 percent of FR licenses that actively purchased IFQ fish in a given year received gear-switched sablefish landings for 2011-2018,

with the percentage declining to 27 percent for 2019-2022. Approximately half of all gear-switched landings are purchased by FRs who also purchase midwater (rockfish or whiting) and bottom trawl species. The other half of the gear-switched landings has varied between those FRs that purchase only gear-switched landings to those that also purchase bottom trawl species but not midwater landings. However, in recent years, there has been a shift to gear-switched landings being purchased by FRs who only buy gear-switched landings or those that buy all IFQ groundfish (Figure 24).

Ultimately, FRs would be affected differently by a change in gear-switching levels proposed under the action alternatives, depending on the degree to which they are reliant on trawl or gear-switched landings. With respect to the IFQ deliveries they receive, FRs that might be most affected by restricted gear switching would be those that purchased only gear-switched sablefish and no other IFQ landings. FR licenses receiving deliveries from both gear-switched and bottom trawl vessels would also be negatively impacted by a decrease in gear-switched landings but might also be positively affected if gear switching is constraining to trawlers, such that trawl landings increase as a result of a decrease in gear-switched landings. FRs that receive only bottom trawl landings would be positively impacted if gear switching is constraining trawlers and the action alternatives resulted in an increase in trawl landings. The proportion of landings delivered to bottom-trawl only FRs increased in 2019 and 2020) (as seen by the light grey bars on left panel of Figure 24). This might bring more consistency in deliveries and promote investment by these FRs specializing in bottom trawl groundfish. However, if gear switching is not constraining and gear switching is restricted, there would likely be little impact to these FRs.

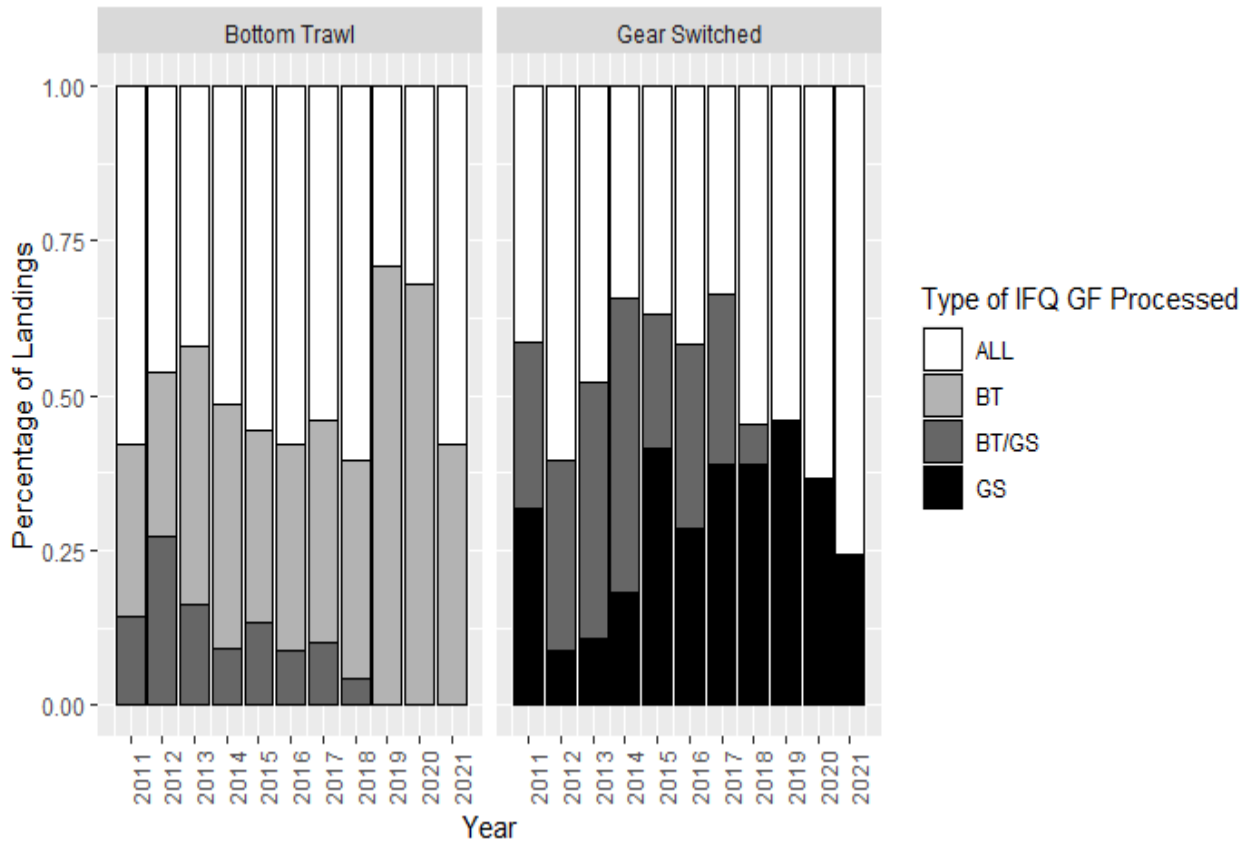


Figure 24. Percentage of IFQ bottom trawl and gear switched landings from 2011-2022 by type of IFQ GF purchased by FRs (All=midwater, bottom trawl, gear switched, BT=bottom trawl only, BT/GS=bottom trawl/gear switched, GS=gear switched only). Note that due to confidentiality, the “All” category in 2021 includes less than 3 FRs that purchased only bottom trawl and gear switched landings.

Not only will the change in actual deliveries impact FRs, but the 2017 catch share review (PFMC & NMFS, 2017) emphasized the importance of the certainty of raw product supply to developing competitive products and potential interaction with other constraining factors.

Without a predictable supply, processors have a difficult time securing premium markets (fresh, for example) and, instead, may have to rely on less discriminating protein markets that offer lower prices. Increased flexibility for vessels and limited communication between vessels and processors about production plans can contribute to inconsistent supply to processors if vessels and processors are not coordinating optimally, making it difficult to employ a labor force ready to process groundfish year-round. Some processors impose trip limits on vessels that deliver to them to limit deliveries of species for which they lack processing or marketing capacity. Low demand and corresponding lower prices from processors, in turn, make fishing less profitable and result in fewer trips, lower landings, and ultimately, low utilization. It is difficult to quantify the effect of individual factors on utilization, as they are all related in an endogenous (cyclical) way [Figure 25]. (PFMC and NMFS, 2017, page ES-22).

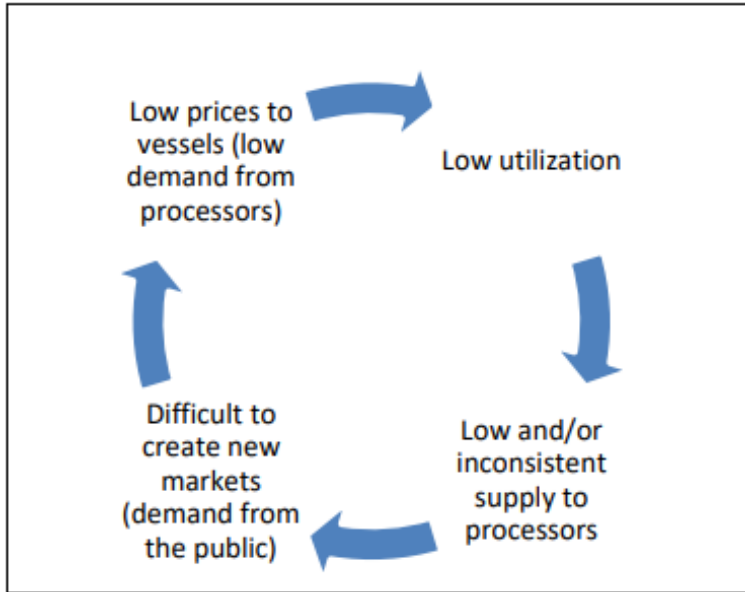


Figure 25. Illustration of cycle of low demand and low utilization

It is important to consider that a FR license is specific to IFQ landings, but a dealer (or business) may receive and process non-IFQ species. Some operations may be large enough to absorb any losses from reduced gear-switching deliveries via other processing opportunities, while others may be reliant on those deliveries. Of those businesses associated with FR licenses from 2016-2019, the average annual ex-vessel revenue (in active years) paid to all vessels ranged from just over \$57,000 to tens of millions of dollars across all West Coast fisheries. Depending on the size of the business and reliance on gear switching, there could be significant impacts to a business if gear switching is reduced. Those businesses for which the average proportion of total IFQ fishery exvessel expenditures is more than half of what they paid to vessels in all fisheries, tend to be “smaller” businesses that range in ex-vessel paid values of 57,000 to 4.2 million on average from 2016-2019 (Table 48).

Table 48. Number of businesses that purchased IFQ deliveries from 2016-2019 by the average proportion of revenue paid to vessels in years actively purchased and the range of average ex-vessel revenue paid by those businesses (millions of 2021\$)

Number of Businesses	Average Proportion of Revenue paid to IFQ Fisheries	Range of Average Exvessel Revenue Paid 2016-2019 (Millions of \$2021)
11	0-25%	0.57-16.48
8	26-50%	0.15-Tens of Millions
4	51-100%	0.06-4.20

Each specific action alternative will impact FRs in different ways. Some FRs that own QS 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). Those that qualify would receive 100 percent any-gear QS (Alternative 1) or 100 percent any-gear QP (Alternative 2 and the PPA) 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 based on their receipt of the

appropriate landings types (i.e., gear switched or bottom trawl) and amounts of deliveries. Alternative 2 provides FRs with no alternative qualifying avenues to attain legacy participant status and thereby receive 100 percent any-gear QP for their QS. 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, 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 with respect to the acquisition of quota for gear switching, except total gear-switched landings would be more limited and the season could be shortened, both of which may increase uncertainty for FRs that receive gear-switched landings.

If gear switching is constraining trawl attainment, then each of the action alternatives would provide a degree of constraint on gear switching, reducing it from recent levels or preventing an expansion. This may be a benefit to FRs that are more dependent on trawl landings than gear-switched landings (including providing more security in relation to trawl fishery related investments) but be a detriment to those FRs more dependent on gear switching than trawling. Through 2023, gear-switching vessels have taken just under 29 percent of the trawl harvest, on average. Alternative 2 QP Distribution Option 2 and the PPA (for years that gear-specific QP are issued) might provide more certainty of trawl access and therefore more encouragement of investments that support trawl gear harvest—though discouraging investments in gear switching. Under the PPA, for years the triggers are not hit and generic QP are issued, the gear-switcher caught sablefish supply for FRs would not be directly constrained but it might take some time to develop wholesale markets and take advantage of the increased supply that occurs in trigger years.

Under Alternative 3, 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. Shortened seasons could have geographic and operational impacts that might adversely impact some FRs while benefiting others. Such a shortened season may be more likely when ACLs are low. Section 9.3 provides some details on the seasonality of the fishery and how seasonality might change under changing fishery conditions.

7.11 Communities

Gear-switching opportunities that are affected through an action alternative may impact communities through their effect on vessel-, permit-, and QS-owner income. Communities would also be impacted through changes in fish deliveries/processing and vessel activities, as well as the income of those working for vessels, processors and supporting sectors. While a gear switching limitation might reduce gear switching activity in some or all gear-switching ports, it would also free up northern sablefish QP that might provide additional bottom trawl opportunities. Scenarios for different outcomes are discussed in Section 7.4.1 and factors influencing the likelihood of the different outcomes are discussed in Sections 2.4 and 2.5. Section 7.1.2 provides a summary of the relative degree of constraint the different alternatives would impose on gear switching. If the gear switching constraint results in an increase in trawl

deliveries in lieu of gear-switched sablefish, those ports with recent trawl landings might benefit from that expansion. The distribution of those benefits would be influenced by the geographic distribution of the trawl strategies that could potentially increase as a result of a reduction in gear switching and whether the ports have the infrastructure to process larger amounts of trawl caught groundfish.

Table 49 provides the recent distribution of exvessel revenue and associated community impacts, jobs, vessels, and dealers for the gear switching and bottom trawl fleets. Bottom trawl vessels were split into two categories- DTS and non-DTS (e.g., mixed shelf, flatfish). While DTS has been the focus of many discussions related to a possible gear switching constraint, the other strategies have seen increasing levels of sablefish utilization and might potentially benefit from the availability of additional sablefish, as shown in Table 6. The distribution of changes in trawl activity across ports will depend on which specific strategies are impacted. Looking at the distribution of revenue from DTS and non-DTS, ports from Fort Bragg south appear to have a higher dependency on non-DTS compared to DTS trawl strategies, from 2018-2022. On the other hand, Brookings-Coos Bay and Crescent City-Eureka are more closely tied to DTS operations. See Section 10.3 for additional information on community reliance and vulnerability and for finer area breakdowns of participation by various ports in the various commercial groundfish sectors, including total groundfish exvessel revenue compared to total exvessel revenue from all fisheries.

Table 49. Average revenue (millions) by port group and sector (GS= Gear Switched, Non-DTS= Bottom Trawl Other than DTS) from 2018-2022. Distinct count of vessels and dealers by sector and port group from 2018-2022. “c” denotes a confidential strata.

IOPAC Port Group	Number of Vessels			Number of Dealers			Average Revenue (millions)			Income Impacts (millions)			Jobs		
	GS	DTS	Non-DTS	GS	DTS	Non-DTS	GS	DTS	Non-DTS	GS	DTS	Non-DTS	GS	DTS	Non-DTS
Washington a/	5	10	8	3	3	3	\$0.40	\$0.31	\$0.42	\$0.76	\$0.66	\$0.89	16.2	7.3	9.9
Astoria-Tillamook	7	26	25	4	5	c	\$0.87	\$2.93	c	\$1.94	\$7.16	c	26.1	76.0	c
Newport	9	15	14	4	c	c	\$1.39	c	c	\$2.20	c	c	38.1	c	c
Brookings-Coos Bay	c	17	13	c	4	4	c	\$1.50	\$0.64	c	\$3.03	\$1.30	c	58.4	20.2
Crescent City-Eureka	c	13	8	3	8	5	c	\$2.29	\$0.95	c	\$3.51	\$1.46	c	37.7	15.7
Fort Bragg	0	8	8	0	3	4	\$ 0	\$0.24	\$1.50	0	\$0.37	\$2.30	0	4.0	24.8
San Francisco-Bodega Bay	3	c	3	c	c	4	c	c	\$0.37	c	c	\$0.96	c	c	9.6
Monterey	c	c	3	c	c	3	c	c	\$0.07	c	c	\$0.42	c	c	5.0
Morro Bay	c	0	c	4	0	c	c	\$ 0	c	c	\$0	c	5.7	0	c

a/Of the Washington vessels, 3 gear switchers, 3 DTS, and 4 non-DTS delivered into Puget Sound. Other values were combined into single Washington values to preserve confidentiality at the dealer level.

All three action alternatives may constrain the total amount of gear switching to at or below levels that were frequently observed prior to 2020. If there were to be an expansion of gear switching under No Action, the constraint may be greater than reflected by that comparison. The distribution of the reduction in gear switching among communities is difficult to predict under any alternative. How each community would be impacted by limitations in gear switching depends on if there is infrastructure in the port to process landings and if trawl vessels utilize the additional sablefish freed up from the limitation in gear switching to land fish in those ports.

Impacts from gear switching limitations may be amplified if vessels in other fixed-gear fisheries also deliver into that port and the limitation affects the infrastructure or processing/fish receiving services for overall fixed-gear deliveries into the port. Most ports that have gear switching deliveries also have LEFG or OA groundfish activities (see Table 71). If a port's capacity to receive fixed gear deliveries is adversely affected then vessels might need to switch ports and there could be other adverse impacts to that port or port group because of the overall reduction in deliveries.

If gear-switching is constraining the total deliveries of trawl complexes or causing trawl vessels to avoid sablefish in order to conserve sablefish QP, trawl ports might benefit from a limitation on gear switching and an attendant increase in trawl activity. How each community would be impacted by limitations on gear switching that increase trawl deliveries depends on if there is infrastructure in the port to process landings. Moreover, other non-sablefish/non-groundfish sectors that operate in community ports could be impacted by changes resulting from the action alternatives, to the degree that sectors are co-reliant on one another to provide sufficient demand to maintain services in a community.

Gear-switchers would be impacted differently by the alternatives based on the initial distributions and the mechanisms used to limit gear switching. These differences would in turn have different impacts on communities. Under Alternatives 1, 2 and the PPA the impacts to gear-switching communities will depend on the ability of gear switchers in each 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 and the PPA in non-trigger years), acquiring any-gear QS (Alternative 1 only) or acquiring any-gear QP from others each year. Under Alternative 3 and the PPA in trigger years, there would be no direct allocation of gear-switching opportunity. Alternative 1 allows gear switchers to consolidate any-gear QS and thereby secure stable access to the gear switching opportunity. Impacts on communities would partially depend on the geographic distribution of initial allocations and the degree to which gear switchers in those communities were able to consolidate any-gear QS relative to other communities. Alternative 2 and the PPA also provide an initial allocation of gear switching opportunity to historical gear switchers that are QS owners but there is little opportunity to further consolidate that opportunity. Initially, and increasingly over time, gear switchers would be reliant on acquiring any-gear QP on the market each year for non-trigger years (rather than receiving it for the QS they own). This would create more uncertainty about the distribution of opportunity among communities each year and more potential for such redistributions, reducing security for community-based planning and investments that might rely on gear-switching deliveries. 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.

Overall, communities that are gear switching dependent will likely see more negative impacts related to disruption of gear switching under Alternative 2 and the PPA (particularly in non-trigger years) as 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 and the sablefish QP freed up by a restriction is utilized to increase trawl harvest, those communities that have both trawl and gear-switched deliveries may see benefits due to increased landings into their ports. If gear switching is not limiting trawl attainment though, then communities with both trawl and gear-switching deliveries will likely see an overall net loss.

Under Alternative 3, the seasonal approach, the impacts to communities could be similar to No Action so long as gear-switching activities would have been below 29 percent under No Action. It is possible that even if gear-switching stayed below 29 percent, the limitation might change fishing behavior, in that gear switching vessels may shift their effort to earlier in the season if they wanted to ensure that they were able to gear switch before the cap is hit. 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. Under Alternative 3, if gear-switching would have been above 29 percent under No Action, there would likely be a closure to sablefish retention while gear switching before the end of the year. Under such circumstances, 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, impacting ports in different regions differently. When ACLs are low, the likelihood that levels of gear switching would cause a closure would be higher. Section 9.3 provides an initial analysis on spatio-temporal patterns of gear switching and where shifts in activity may influence communities.

7.12 Governance: Fishery Management System

7.12.1 Management Costs

7.12.1(a) Implementation and Ongoing Costs

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 50). NMFS will provide report for the April 2024 Council meeting that focuses more specifically on the implementation steps, timing, and its administrative burden related to the PPA.

The following overview of the costs of action alternatives are relative to a no action scenario in which there is no need to impose a constraint on gear switching in the future. If instead, the Council returns deliberate on gear switching at some time in the future, then there would be costs related to no action.

With respect to the one-time implementation costs, they would likely be the least for Alternative 3. Alternative 1, in its current form, includes some more substantial implementation tasks related to determining initial qualification for history-based gear-switching opportunity. 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. Both Alternatives 1 and 2 would require tracking the gear for QPs, which is not included in the current IFQ program. The PPA would include all of the Alternative 2 implementation tasks plus determination of procedures for dealing with things like post season trading or carry-over that cross between a year when gear-specific QP are issued and a year when generic QP are issued.

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 50. To a large degree, these tasks might be automated during the implementation phase, but there may be some need for non-programmable interventions. The PPA would be like Alternative 2 with respect to the ongoing tasks, plus the need to monitor and respond to the trigger criteria that determine whether gear-specific or generic QP will be issued for a particular year. Alternative 3 would require some annual monitoring and/or modelling effort to determine if and when closure of the opportunity to retain sablefish while gear switching is needed, 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 post closure sablefish discard mortality by vessels gear switching to target other species (currently, there is little to none of the latter, but this could change over time).

Table 50. Implementation and ongoing tasks related to costs for each alternative.

<p>Alternative 1: Initial implementation costs—</p> <ul style="list-style-type: none"> • Initial FMP amendment and rule changes related to implementation and ongoing tasks—including Paperwork Reduction Act (PRA) clearance from Office of Management and Budget (OMB). • Modify system to track transfers of a new type of QS and QP (splitting northern sablefish QS/QP into any-gear and trawl-only) and acquire information on gear used from fish tickets and WCGOP. • 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 and the PPA: Initial implementation costs—</p> <ul style="list-style-type: none"> • Initial FMP amendment and rule changes related to implementation and ongoing tasks—including PRA clearance from OMB). • Modify system to track transfers of a new type of QP (splitting northern sablefish QP into any-gear and trawl-only) and acquire information on gear-used from fish tickets and WCGOP. • Identify individuals that qualify as legacy participants and the amount of QS they owned as of the control date. Make first determination of their gear-specific QP ratios and the resulting standard ratio. • 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 interventions³⁶). <ul style="list-style-type: none"> ○ Track legacy participants and their QS holdings over time, including expiration of legacy status. ○ Calculate the ratio of any-gear and trawl-only QP to be issued for all other QS—the standard ratio (not required as an ongoing task for QP Distribution Option 2 or the PPA). ○ 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.³⁷ ○ 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). • PPA only: check trigger conditions each year and issue notice announcing the type of QP to be issued for the coming year.
<p>Alternative 3: Initial implementation costs—</p> <ul style="list-style-type: none"> • Rule change and possibly an FMP amendment to specify closure of non-trawl retention of northern sablefish after 29 percent of trawl allocation is projected to be gear switched (PRA clearance not required). • Modify system to track gear switched catch and acquire information on gear-used from fish tickets and WCGOP. • 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 to sablefish discard mortality by vessel using non-trawl gear to target other species—20 percent discard mortality rate). • Announcement of closure dates.

7.12.1(b) Costs of Future Changes and Manager Flexibility

Manager flexibility has to do with what it would take to modify a gear switching limitation policy in response to changing conditions or unanticipated outcomes. For example, the Council might adopt an action alternative and later discover either that a substantial amount of northern sablefish QP is going unused or that even at the gear switching cap (e.g. 29 percent) gear-switching is constraining the harvest of trawl complexes. Therefore, there is a need to consider under no action and each action alternative, how complicated and costly 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 variations in outcomes and contingencies—including responses to unusual future conditions that might result from climate change.

Under No Action, to modify gear switching levels in the future, the Council would be facing a similar set of circumstances as it did at the start of the current process and would likely need to republish a control date.

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 to making temporary changes have been identified. NMFS input will be needed to determine their technical feasibility:

- Modification Approach 1: Leave the total amount of sablefish QP issued for each unit of QS the same. To achieve a change in the proportion of any-gear QP issued, QP of one gear type would have to be issued to QS of the opposite 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.
- Modification Approach 2: Change the total amount of sablefish QP issued for each unit of QS. To achieve a change in the proportion of any-gear QP issued, 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 northern sablefish allocation is then distributed between these two types of QS, which determines the amount of QP of each type issued.

Neither of these approaches would change the amount of QS of each type that a person owns. Approach 1 would create additional regulatory complexity and programming costs as two types of QP would be issued for one type of QS but might be less disruptive to participants, as compared to Approach 2. Under Approach 1, facilitation of an increase in gear-switching would require providing any-gear QP to owners of trawl-only QP. This would not disrupt gear-switching or trawler activity, since any-gear QP could still be used for trawling. A decrease would require providing trawl-only QP to any-gear QS owners. While a QSA with any-gear QS might be unable to support as much gear-switching activity, they would still have trawl-only sablefish QP that could be sold to trawl gear vessels. Under Approach 2, the total amount of QP

³⁶ 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.

³⁷ 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.

a person receives for a given amount of QS would change. Thus, there would be a greater reallocation of QP value and greater allocation and related issues, as compared to Approach 1. However, under Approach 2, all the QS and QP gear-type categories would be used consistent with their original designation as trawl-only and any-gear, resulting in greater regulatory simplicity and lower implementation and ongoing costs, as compared to Approach 1.

Other approaches might be identified and explored, for example, changing the type of QS each person owns—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. A more permanent change might be more reallocative and disruptive and additional policy development efforts would be required to develop the approaches.

For Alternative 2 and the PPA, changes to the amount of any-gear and trawl-only QP could be made by changing the ratios of gear-specific QP issued to legacy participants, non-legacy participants, or both. For a change implemented through the legacy participants (Approach 1), a reduction in gear-switching opportunity could be achieved by issuing some trawl-only QP for legacy participants' eligible QS. Implementing a gear-switching increase via legacy participants only would not be possible. With respect to non-legacy participants, the Council might achieve an increase or decrease in the any-gear QP issued by modifying the proportion of QP issued as any-gear to non-legacy participants (Approach 2).

The public process, analytic, rule-making, and administrative burdens for changes might be similar for Approach 1 under both Alternative 1 and Alternative 2. Both would involve issuing QP of a particular gear-type for QS holdings that were not originally intended to receive that type (either gear-specific QS under Alternative 1 or eligible QS owned by legacy participants under Alternative 2). Approach 2 under both Alternative 1 and Alternative 2 may also be similar to one another with respect to the public process, analytic, rule-making, and administrative burdens and the implementation costs of Approach 2 may be less than Approach 1 under each alternative. As compared to Alternative 1 Approach 2, Alternative 2 Approach 2 would be substantially less reallocative in that it would not change the total amount of QP an individual received for a given amount of QS.

The PPA includes criteria that would determine whether gear-specific or generic QP are issued for a particular year. These criteria could be modified over time based on what the Council learns about their performance and changing conditions in the fishery. The type of action required to make such a change, regulatory or an FMP amendment, will depend on the language of the FMP amendment adopted to accompany this action.

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, the gear-switching amounts allowed under Alternative 3 would be the simplest and least costly to change from analytical, rule-making, and administrative perspectives. It would also have the least direct impact on fishery participants (i.e., QS held and QP 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 competition for the opportunity to gear switch.

7.12.2 Regulatory Complexity

Regulatory complexity impacts the management system and fishery participants in several ways:

- Impacts may be limited or extend through time.
 - Complexity that affects only the initial allocation may eventually no longer be a point of reference and be removed from regulations (as has occurred for past initial allocation rules for limited entry systems).
 - Complexity that is related to ongoing provisions must be explained to new fishery participants and managers who are learning the system.
- Complexity is cumulative, increasing the work required to develop, analyze, and communicate new policy actions which modify already existing complex regulations.

A [NWFSC 2017 survey of participants in West Coast fisheries](#) found that regulations were “the biggest challenge or impediment in making a living as a fisherman” (39 percent) and that “ability to access fisheries or the cost of license or quotas” was the second (26 percent). This regulatory action is likely to affect both areas of fishermen’s experiences.

Relative to No Action, all the action alternatives add some degree of complexity to the management system. A qualitative summary is provided in Table 51.

Table 51. Qualitative summary of relative complexity of the action alternatives (See Section 7.12.1(b) for additional discussion of complexity related to future modifications).

Alternative	Complexity of Initial Implementation	Complexity of On-Going Administration	Complexity of Modifying Future Gear Switching Levels
Alternative 1-- Gear Specific QS	Most Complex	Simplest	Possibly Some Complexity, Depending on Approach
Alternative 2-- Gear Specific QP	Less Complex than Alt 1	Somewhat More Complex	Potentially Simple
Alternative 3 – Seasonal Approach	Simplest	Simple	Simplest
PPA	Slightly more complex than Alternative 2 due to the need to build a system that can switch between gear-specific and generic QP.		Same as Alternative 2.

With respect to complexity of initial implementation, while Alternative 1, 2, and the PPA require similar types of implementation tasks (see Table 50), Alternative 2 and the PPA requires fewer such assessments. Depending on options selected, in addition to qualifying gear switchers based on personal history, Alternative 1 involves assessing qualification by non-gear-switchers,

whether QS ownership groups or co-ops include a qualifying gear-switcher in their membership (potentially qualifying all members of such groups), qualification by first receivers, and QS transfer among family members after the control date. Alternative 2 primarily involves looking at the amounts of QS an individual owns on the control date and the gear-switching history for the LEPs they own at that time. One aspect of implementation complexity that would be somewhat greater for Alternative 2 compared to Alternative 1 is the distribution of the gear-switching opportunity. For Alternative 1, different types of QS are designated (any-gear and trawl-only), the specification and manipulation of which would fit with the functions of the existing system. For Alternative 2 and the PPA, new functions would have to be added to the system: any-gear/trawl-only QP ratios would have to be specified for each QS account. It would be the same ratio for most accounts but might vary among accounts owned by legacy participants. System design for the PPA would also need to include functions to address transitions between the issuance of gear-specific and generic QPs. Alternative 3 would close the fishery to sablefish retention while gear-switching on projected attainment of the gear-switching limit and be the simplest to explain and implement.

With respect to the complexity of ongoing administration, the simplest is likely Alternative 1 in that after initial issuance it makes use of the existing QS and QP tracking system and only requires the system be modified to pass the gear-used information from the landings tracking system to the QP tracking system. The new QS/QP categories would function similar to the new species categories that have been created in the past and require little Council or public attention thereafter (e.g. the north-south division of lingcod). For Alternative 2 and the PPA, the new gear-specific QP ratios and the variability of ratios among accounts would be an ongoing feature of the program that varies from the way other QS/QP are handled. While the variability among accounts would end after legacy participants divest, the difference in the way the QP are distributed would need to be explained and understood on an ongoing basis, as would the shifts between issuance of generic and gear-specific QP based on the trigger criteria. Alternative 2 with QP Distribution Option 1 would be somewhat more complex than Alternative 2 QP Distribution Option 2 and the PPA. The former would require ongoing adjustment to the standard ratios applied to QS owned by non-legacy participants (and ineligible QS owned by legacy participants). The latter would maintain the same standard ratio, once they are established. While Alternative 3 is simple, on an ongoing basis it would require more monitoring, action, and anticipation of contingencies (early season closures) than the Alternative 1 quota distributions. In the post-implementation phase, Alternative 3 would be less complex than Alternative 2 and the PPA.

7.13 General Public and Consumers

If the action alternatives result in the catch of more trawl caught complexes, domestic consumers would likely benefit. Factors influencing whether or not there might be more trawl harvest under an action as compared to no action are discussed in Sections 2.4 and 2.5. Scenarios for different possible outcomes are provided in Section 7.4.1. The relative constraint on gear switching that each alternative would impose is described throughout this document succinctly reviewed in Section 7.1.2. Much of the trawl caught fish competes with commodified whitefish for the shopping baskets of domestic consumers (see discussion in Section 2.4.2). Increased domestic trawl production could increase overall world seafood protein supply as well as either augment US imports (expanding US supply) or substituting for them, benefiting the trade balance.

Sablefish production also benefits domestic consumers as well as a global market. Almost all of the global supply of sablefish comes out of the US and Canada (Alaska Fisheries Science Center, 2019). Alaska contributed 63 percent and the West Coast 26 percent of the global supply from 2012 to 2016). Importers of sablefish include, in approximate order of importance, Japan, mainland China (lower price small fish), Hong Kong (higher value larger fish), the Netherlands and the United Arab Emirates. There has been increased domestic consumer interest in sablefish in recent years, particularly in high end markets and restaurants. Increased imports (from Canada) and reduced exports have caused the domestic sablefish market to expand in recent years (based on 2013- 2017 data) (Alaska Fisheries Science Center, 2019). Currently, sablefish production is high and could go higher based on anticipated ACL increases (Figure 18 and Figure 34) but prices have been low (Figure 16).

Trawl caught sablefish tends to be smaller and receive a lower exvessel price. If an action alternative is implemented and trawlers increase catches of sablefish with concomitant decreases in catches by fixed gear vessels, the smaller lower priced trawl caught sablefish could also serve different domestic markets and thus benefit, a different set of consumers. Since the mainland China market also has a preference for lower price smaller fish, trawl caught sablefish could also potentially be of interest to their buyers. If trawlers were unable to utilize the sablefish made available by a gear-switching limit, there would be a reduction in supply for consumers.

7.14 Impact Summary

For summary, see Section 4.5.2.

8.0 APPENDIX: ALTERNATIVE DESIGN – OVERARCHING ISSUES

8.1 Control Date

When the Council identified that a limitation on gear switching might be one of the follow-on actions it would consider as a part of the trawl catch shares program review, it adopted a control date of September 15, 2017 to put participants on notice that a change in opportunities related to gear switching may occur.

Federal Register summary: “This advance notice provides information on a request by the Pacific Fishery Management Council (Council) to establish a control date of September 15, 2017, for the Pacific Coast groundfish fishery. The Council may use the control date to limit the extent, location, or ability to use non-trawl gear types to harvest individual fishing quota (termed ‘gear switching’) in the Pacific Coast groundfish fishery. The Council may or may not provide credit for any gear switching related activities after the control date in any decision setting limits on gear switching. The control date would account for Pacific Coast groundfish fishery participants with historic investment to engage in gear switching should the Council set limits to future participants eligible to gear switch.” [Federal Register April 28, 2018](#)

The purpose of announcing a control date in advance of developing a new limited entry policy is to discourage speculative entry into a fishery and increased harvest while the Council goes through the process of developing the program details. If the Council develops a pattern of announcing and abandoning control dates, then the veracity of control dates may be diminished and their announcement could become a signal to harvesters to intensify efforts to catch fish after the control date in order to increase their odds of qualifying for greater initial allocations because they presume the control date will not impact them. Such a response would be disruptive to fisheries and exacerbate the challenges of meeting conservation objectives. Additionally, abandoning the original control date would reduce the perceived fairness of the program by rewarding those who fished speculatively after the control date at the expense of those already in the fishery and those who heeded the control date. In other words, if control dates are not maintained then those who fished primarily on the chance that the control date would be abandoned could acquire more fishing privileges as a result of their post control date fishing, which is potentially unfair to other fishery participants.

8.2 Allocation of Gear Switching Opportunities to QS Owners, Permits and Vessels

Section Summary: This section focuses on the choice of the unit on which to base initial allocation of the gear switching privileges (which are currently available to all participants in the trawl IFQ program) and reviews the history of similar Council decisions.

Under its license limitation program, the Council chose to allocate limited entry permits based on vessel history rather than the history of individual fishermen. The owner of a qualifying vessel at the time of initial allocation received the permit. This helped both to limit the number of permits initially issued and provided a means for entry and exit while the program was under development (a means by which current participation was taken into account without expanding the qualifier pool with post control date entrants). For its sablefish endorsement, sablefish tier, and the Amendment 20 IFQ program, the Council allocated based on permit history. It was argued that, as with the vessel, permit transfers allowed entry and exit during development of the program and that the permit had become the primary asset associated with the fishing privilege (and had little value except to the extent that it conveys such a privilege). With the implementation of the IFQ program, vessels require two permit-based assets to fish: a vessel permit (the LE Permit) and quota (another type of permit issued as QS and QP).

One of the key components affecting the distributional impacts of the alternatives that directly allocate is the choice of the basis for qualification. In the past, for the groundfish fishery, this Council has often used the vessel or permit history as the basis for allocation. In this action, alternatives also consider the use of personal history and history of QS ownership. Under the IFQ program, in order for a vessel to harvest fish, it must have an LE permit with a trawl endorsement and quota. There are different types of arrangements by which harvesters secure access to the assets they need to fish. Some own their vessels, permits, and quota shares. Some own a vessel but lease their permit and quota pounds. Others may lease all the assets they need to fish, and there are other possible combinations. Therefore, the choice of the basis for qualification will affect different participants in different ways.

The Amendment 6 license limitation system was fully implemented in 1994. During development of the program, the Council considered whether to allocate based on this history of the fisherman or the vessel. Amendment 6 limited entry permits were allocated to the persons that owned vessels with a qualifying history at the time of implementation. Using the vessel as the unit for which fishing history was assessed allowed the Council to develop a policy that accurately anticipated the number of qualifying limited entry permits and allowed fishermen to move in and out of the fishery during the period of program development, with a lesser risk to their investments. Thus, even though the vessels had to accrue their qualifying history prior to the 1988 control date, when the program was implemented in 1993, permits went to those who owned the vessels at that time. Between 1988 and 1993, fishermen were able to retire and new fishermen enter through the acquisition of a vessel that was likely to qualify. Additionally, once it became clear that vessels would likely be the basis of allocation, with increasing frequency fishermen wishing to replace a vessel without leaving the fishery would write sales contracts that reserved the rights to any future permit issued for the replaced vessel based on activity during the time they owned it. By choosing to allocate permits to current vessel owners of vessels with qualifying catch history, the Council maintained the integrity of the control date and took into account recent and historic participation as well as investment in the fishery.

Another, advantage of allocating limited entry permits based on the history of the vessel rather than that of the fisherman was that it reduced the need to consider the various intricacies of ownership history. These intricacies include how to treat catch history when partnerships formed and separated or individuals joined together and left legal entities that might own a vessel accruing catch history. As will be seen, these issues needed to be worked through for the alternatives considered here.

For the sablefish fixed gear endorsement, sablefish tier, and IFQ program, the Council allocated based on the history of the Amendment 6 limited entry permits rather than the vessel. By allocating permits based on vessel history, Amendment 6 essentially associated the vessel history with the newly created permit asset. In doing so it established a precedent which the Council chose to follow as it created new groundfish limited access programs. As with Amendment 6, associating the privilege with a transferable asset allowed for entry and exit while the programs were under development, again taking into account recent participation (permit ownership), historic participation (history of the permit), and investment in the fishery (the amount paid for the permit). By allocating based on the permit, these programs put a greater weight on permit investment than the vessel investment. Part of the rationale was that while a vessel that did not receive an initial allocation would still have substantial value, limited entry permit that did not receive associated fixed gear sablefish harvest rights or trawl catch shares would be substantially diminished in value, substantially diminishing the permit owners asset value.

The trawl catch share program is the first limited entry program subsequent to Amendment 6 that allowed the separation of the main harvest privileges from the LE permit subsequent to initial allocation. Individuals holding trawl LE permits were issued QS accounts into which NMFS deposited the QS they were allocated. This separation and the divisibility of QS makes the allocation for a limitation on gear switching more challenging.

8.2.1 Alternative Specific Impacts

For the current action, Alternative 1, 2, and the PPA (in years when the trigger is not hit such that gear-specific QP are issued) would directly reallocate the opportunity to gear switch among participants. The alternatives would restrict the opportunity to gear switch by issuing gear-specific QP (quota valid for any-gear or trawl-only). This means QS owners would be the initial recipient of gear switching opportunity. While under the PPA gear-specific QP would only be issued in years when the trigger is not hit, the recipients of the gear-switching history-based allocations of gear-specific QP (legacy participants) would be designated when the action is implemented and those designations would not change across time (including in years when gear-specific QP are not issued). Alternative 3 does not include a direct reallocation, but rather indirectly allocates to those who carry out their gear-switching activity prior to the fleet reaching its 29 percent cap on gear switching. Generic quota, valid for use with any gear, would continue to be issued under No Action, Alternative 3, and the PPA (in years when the trigger is hit).

Alternatives 1, 2, and the PPA (in years where gear-specific QP issued) would provide more gear switching opportunity (more any-gear quota) to a subset of QS owners with certain history of gear-switching vessel ownership (Alternative 1) or gear-switching permit ownership (Alternative 2 and PPA), as laid out in Table 52.

Table 52. Basic elements of Alternative 1 and 2 qualification criteria and post implementation criteria.

	Alt 1 (Gear Specific QS) ^{a/}	Alt 2 (Gear Specific QP) and PPA (in years where gear-specific QP issued)
Allocate historic participation-based opportunity to QS owners who		
prior to the control date	owned a vessel ^{b/} while it engaged in gear switching;	(No requirement)
on the control date	owned QS;	owned QS and a permit with qualifying gear-switching history;
after the control date until the time of implementation	(no requirement)	continuously owned at least some QS and the permit;
at the time of initial implementation	own QS;	own QS and the permit;
After implementation provide history-based gear-switching opportunity to those who	own the any-gear QS (opportunity can be transferred between individuals) ^{c/}	originally qualified (history based opportunity cannot be transferred between individuals) ^{d/}

a/ Alternative 1 also includes provisions that would allow members of certain QS ownership groups or co-ops to qualify if one member of the group qualifies (see Section 8.2.3).

b/ A suboption would allow qualification through the ownership of a first receiver that received a qualifying level of gear-switched landings.

c/ Under Alternative 1, QS owners without a qualifying history will receive a lesser amount of any-gear QS than those with qualifying history.

d/ Under Alternative 2 and the PPA, all QS owners will receive some of the annually issued any-gear QP.

Note that for Alternative 1, the set of individuals that potentially qualify for a history-based allocation is restricted based on personal fishing activity prior to the control date, while for Alternative 2 and the PPA, the group is restricted based on assets owned as of the control date.

For Alternative 1, qualification for initial allocation requires some period of vessel and quota ownership, while Alternative 2 and the PPA requires some period of permit and quota ownership. For Alternative 1, a QS owner does not need to maintain vessel ownership after the qualifying gear switching activity is accrued (the qualifying history goes with the person). Since permit ownership is not required, a vessel owner that leased a trawl LE permit in order to gear switch would be able to qualify. In contrast, for Alternative 2 and the PPA, the gear-switching history is associated with the permit and transfers with it, such that a QS owner who owns the permit on the control date qualifies, even if they did not themselves participate in the qualifying gear-switching activity. For Alternative 2 and the PPA, the LE permit owner that leased its permit to the gear-switching vessel would qualify.

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 53 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 Alternative 2 and the PPA. For those that qualify under both alternatives, the individual would have had to both owned a vessel when it gear switched and own a qualifying permit as of and since the control date. Table 54 shows the inverse of Table 53, displaying, for those qualifying as legacy participants under Alternative 2 (and the PPA), the number that would qualify as gear-switching participants under each of the Alternative 1 qualification options. As an example, Table 53 shows all 12 individuals that would qualify under Alternative 1, Gear-Switching Participant Option 2 based on their personal history of vessel ownership would also qualify as a legacy participant under Alternative 2 or the PPA. Yet the other six of the 18 qualifiers for Alternative 2 or the PPA, would not qualify under Alternative 1. This can be seen in the far-right column of each table which shows the number of individuals that would only qualify under the alternative and option for that row.

Table 53. Number of individuals qualifying under Alternative 1 and number qualifying and not qualifying under Alternative 2 (the PPA), by qualification option (qualification via group or co-op membership or qualified first receiver status not included).

Alternative 1 Qualification Options	Total Individuals Qualifying under Alt 1	<i>Number of Individuals that</i>	
		Also Qualify Under Alternative 2 and the PPA	<i>Do not Qualify Under Alt 2 and PPA</i>
<i>Basic Qualifier: Own QS and Own a Vessel When It Made Gear Switched Landings</i>			
GS Participation Option 1 <i>Only One Landing Required</i>	31 ^{a/}	13	18 ^{a/}
GS Participation Option 2 <i>30,000 lbs in each of 3 yrs Required</i>	12	12	0

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 54. Number of individuals qualifying under Alternative 2 (the PPA) 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 and PPA Qualification Option	Total Individuals Qualifying under Alt 2 and PPA	Number of Individuals Also Qualify Under Alternative 1		Individuals that Do not Qualify Under Alt 1
		<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>	
<i>Own QS and Own Permit With History (30,000 lbs in each of 3 yrs)</i>	18	13	12	5

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. 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 and the PPA, the person who bought the permit used for gear switching could qualify, if they owned QS on the control date and acquired the permit with qualifying history 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 and the PPA the current owner of the permit would qualify. (See discussion in Section 7.8.1).

Approaches were available which would not have allocated gear switching opportunity to QS owners. The Council considered gear-switching endorsement alternatives that would have assigned limited gear switching opportunity to certain LE permits based on a permit or vessel’s history of gear switching, leaving all QS and QP valid for use with any-gear (see Appendix 11.0 for the version based on permit history). Consistent with earlier limited entry actions described above, this could have allocated gear-switching limits to the permit owner, even if the permit was being leased to a vessel that was carrying out the gear switching activity. An approach based on vessel history would have provided vessels with a gear switching history the opportunity to assign an endorsement to the permit of their choosing, providing lessees more leverage in determining the distribution of the allocational benefits. Like the current gear-specific quota-based alternatives, most of the qualification options for the endorsement-based alternatives would have still required ownership of both a permit (or vessel) and QS as of the control date, however, one would not have required ownership of QS. For that option, ownership of the permit (or vessel) would not have been required until the time of implementation—providing the opportunity for entry and exit during Council deliberations, while at the same time maintaining the integrity of the control date, and providing a different balance in the consideration of recent and historic participation, as well as some investment in the fishery, in a manner similar to past limited entry actions. However, in the final version of the endorsement alternative, the Council chose to require QS ownership as of and since the control date to place further emphasis on investment by historic gear-switching participants. In order to

make this requirement effective it was specified that the permit (or vessel) be owned as of and since the control date,³⁸ eliminating the opportunity for entry and exit during deliberations.

8.2.2 Recent Entrants

Transfer opportunities prior to initial allocation relate to entry/exit during deliberations and the consideration of current vs. historic participation as well as investments. Between the control date and initial allocation neither alternative allows the transfer of catch history and the attendant opportunity to receive a history-based allocation. Alternative 1 qualifying gear switching history is personal and cannot be transferred prior to initial allocation (including prior to the control date). After initial allocation, the long-term access to gear-switching opportunity can be transferred (i.e. the any-gear QS would be transferable, last line of Table 52). In contrast, under Alternative 2 and the PPA, qualifying history can be transferred up to the control date via permit transfer, but after the control date the history-based status is associated with the person (legacy participants) and cannot be transferred to others. Even after implementation, the additional gear-switching opportunity given to the legacy participant cannot be transferred to others. See Section 4.2.4(c) for further discussion of the reasons for these differences in post implementation transferability.

Note that unlike previous limited entry actions by the Council, described above, neither of the quota-based alternatives provide an opportunity for those entering the fishery after the control date and before initial allocation to secure access to a history-based allocation of the new harvest privilege—i.e. during the time that the Council has been deliberating this policy. This restriction on entry/exit opportunity between the control date and implementation (as compared to previous limited entry action) is due to the divisible and fungible nature of the asset to which the gear-switching opportunity is applied (the gear-specific quota). The association of particular quota with gear-switching history is challenging and requires making certain assumptions. And, it would likely be even more difficult for individuals entering and exiting the fishery to know the degree to which the quota they are buying is associated with gear-switching history. If those assignments could be made, then it would be possible to allocate based on the historic use of the quota for gear-switching and take into account quota transfers during deliberations. Because of the challenge, the alternatives assign history to more trackable entities, the person (Alternative 1) and the permit (Alternative 2 and the PPA). However, this leaves open the amount of quota for which a history-based allocation will be provided. To avoid a situation where people try to enhance their initial allocation by acquiring more quota prior to implementation, the requirement is included that the quota must be owned as of the control date, and, for Alternative 2, that the qualifying permit must also be owned (so that permits with qualifying history are not transferred to individuals that own large amounts of quota but had not previously gear-switched, also see footnote 38).

While the alternatives do not provide history-based allocations of gear-switching opportunity to those entering after the control date, some gear switching opportunity is provided. Generally,

³⁸ Absent this requirement for permit (or vessel) ownership as of and since the control date, the intent of the provision could have been circumvented. Anyone that owned QS on the control date and acquired a percentage interest in a permit with qualifying gear-switching history sometime before implementation could qualify all their QS for a gear-switching history-based allocation.

Alternatives 1, 2, and the PPA (in years where gear-specific QP are issued) would provide some any-gear quota for individuals that own QS as of the control date but do not meet gear-switching qualification requirements—but in lower amounts than for those that meet qualification requirements.³⁹ With respect to individuals who acquire QS after the control date, Alternative 1 would provide those individuals with no any-gear quota while Alternative 2 and the PPA (in years where the trigger is not met) would provide them with any-gear quota in the same standard ratio received by non-qualifiers that owned QS on the control date. Under Alternative 2 and the PPA (in years where gear-specific QP are issued), QS owners that gear switched or own permits that did not have qualifying history, QS owners that began gear switching between the control date and implementation of the alternative, and QS owners that acquire their QS after implementation would all receive the same proportion of any-gear QP as part of their annual QP allocations. The any-gear opportunity allocated to those that qualify based on historic participation (legacy participants) would expire over time such that eventually all participants are on a common footing with respect to the proportion of any-gear QP they receive for their QS. In years where the trigger is met and generic QP are issued under the PPA, then all QS owners would receive 100 percent generic QP.

The qualification requirements and basis for allocation also interact with the control date, impacting the time frame during which the fishery must be entered in order to qualify (consideration of historic participation). The alternatives and options differ on the latest date by which a person must have entered the fishery in order to qualify for a history-based allocation. Alternative 1, Gear-Switching Participant Option 2, requires that the person have three years of gear-switched landings as a vessel owner. Thus, a qualifying individual must have begun gear switching no later than 2015 in order to be able to accumulate three years of history. In contrast Alternative 1, Gear-Switching Participant Option 1, requires only one landing (which could have been made as late as the control date); and Alternative 2 and the PPA allow a person to qualify by acquisition of a qualifying permit any time up to the control date (without themselves necessarily having engaged in gear switching).

8.2.3 Additional Opportunities for Qualification

In addition to qualifying based on individual history of owning a vessel while it made qualifying levels of gear switched landings, Alternative 1, also provides qualification based on group membership for individuals that:

- were part of a QS ownership group when at least one member of the group owned a vessel or vessels and met this landing criteria; OR
- were members of a registered cooperative that transferred their sablefish QP⁴⁰ to gear switching vessel(s) owned by members of the cooperative which met this landing criteria.⁴¹

³⁹ One option in Alternative 1 would only provide that any-gear quota for individuals that meet a bottom trawl participation requirement.

⁴⁰ “Their sablefish QP” means the individual owns northern sablefish QS for which they received QP.

⁴¹ The vessel receiving the QP must have been making gear-switched landings in the year of the QP transfer. This criteria does not require that the particular year in which such a transfer is made be one that counts toward meeting the requirement.

While Alternative 1 includes some criteria relevant to qualification of all participants in certain organized groups, it does not allocate based on the vessel ownership history of legal entities. For example, if ABC Fish Inc. owned a vessel that gear switched prior to the control date, each individual owner of ABC Inc., would potentially qualify but not ABC Fish Inc. itself. If the ownership of ABC Fish Inc. decided to leave fishing and sold the business to another individual or group, the new owner(s) would not accrue credit for the gear-switching history of ABC Fish Inc. or its previous owners. For Alternative 2 and the PPA, if the transfer of ownership occurred prior to the control date and, as part of the transfer, the new entity also acquired the permit used by the gear-switching vessel, then ABC Fish Inc. would accrue credit for that gear switching history via the permit.

As described above, the qualification provisions for Alternative 1, 2, and the PPA have substantial differences in the ways that they take into account current, recent, and historic participation and investment. Note that the qualification provisions of the alternatives could be switched with each other while still maintaining the same basic differences between the alternatives (i.e., Alternative 1 provides gear specific QS while Alternative 2 and the PPA, in non-trigger years, provides gear specific QP).

8.3 Determination of Qualification Criteria

During the SaMTAAC deliberations, the question of who would receive the gear switching opportunity and the required landings need to qualify were discussed at length. In May 2019, staff produced an initial assessment of the number of vessels or permits that would qualify based on a given number of years with a minimum amount of landings prior to the control date ([SaMTAAC Agenda Item F, Attachment 1, May 2019](#)). Table 55 and Table 56 below provide an update of those initial analyses with more discrete minimum landing levels and number of years with the minimum landing requirement. For both Alternative 1 and 2, a minimum qualification limit of 30,000 pounds for at least three years prior to the control date was included—with Alternative 1 using vessels as the qualifier and Alternative 2 using permits. There appears to be a strong relationship in the shift from two to three years across almost all landing levels. For the PPA (permits history, Table 56) as the number of years required is increased in single year increments up to the three-year level, the number of qualifying participants drop off substantially. Focusing on the rows with higher poundage requirements, after three years are reached, with each year added the changes in numbers of qualifiers is relatively small. This indicates more homogeneity of participation levels in the fleet that participated for at least three years and less ability to discriminate between members by increasing the qualifying requirement. Three years was viewed by the SaMTAAC as a time period that demonstrated a reasonable degree of commitment to the fishery. It is also the same number of years used for the Amendment 6 license limitation program. Under that program, vessels receiving a “Provisional A” endorsed permit were required to fish for three years in order to prove their investment in the fishery and have their permit upgraded to a full “A” endorsed permit. With respect to the poundage of landings required and examining the three-year column, as the minimum landing requirements are increased in 5,000 pound increments, the number of qualifiers drops substantially, until the 30,000 pound level is reached. The average annual revenue associated with the minimum landings amount is provided in the far-right column of Table 36 as an indicator of the revenue difference between the levels.

Table 55. Number of vessels that gear switched a given amount of sablefish north by the number of years (2011-CD)

Amount of Gear Switched Landings	Number of Years							Annual Average Revenue Associated with Minimum Landings Amount a/
	1	2	3	4	5	6	7	
5,000 lbs	33	21	15	13	10	6	3	14,150
10,000 lbs	32	21	15	12	10	6	2	28,300
15,000 lbs	29	21	15	12	9	5	2	42,450
20,000 lbs	28	19	13	10	9	5	1	56,600
25,000 lbs	27	19	13	10	8	5	1	70,750
30,000 lbs	27	18	11	10	7	5	1	84,900
35,000 lbs	25	17	10	8	7	5	1	99,050
40,000 lbs	23	15	10	8	6	5	1	113,200
45,000 lbs	23	15	10	8	7	5	1	127,350
50,000 lbs.	23	15	10	8	6	5	1	141,500
70,000 lbs	19	14	6	6	6	5	1	198,100
100,000 lbs	18	8	6	5	3	3	0	283,000

a/ assumes avg. price of \$2.83 (2011-CD avg. price)

Table 56. Number of permits that gear switched a given amount of sablefish north by the number of years (2011-CD).

Amount	Number of Years					
	1	2	3	4	5	6
5,000 lbs	33	25	15	13	10	5
10,000 lbs	33	25	15	11	10	4
15,000 lbs	33	23	15	11	9	3
20,000 lbs	31	21	13	10	9	2
25,000 lbs	30	21	13	10	8	2
30,000 lbs	30	20	11	10	7	2
35,000 lbs	28	19	10	9	7	2
40,000 lbs	26	17	10	8	6	1
45,000 lbs	26	17	10	8	7	1
50,000 lbs	26	17	10	8	6	1
70,000 lbs	22	16	6	6	6	1
100,000 lbs	21	9	5	4	3	1

9.0 APPENDIX: ALTERNATIVE DESIGN – ALTERNATIVE SPECIFIC ISSUES

This section is intended to provide a more detailed examination of some of the unique elements of each action alternative.

9.1 Alternative 1—Gear Specific QS

At the November 2022 Council meeting, [Appendix 2.0 of Agenda Item H.3, 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 allocation approaches that were being considered at that time. The following section provides a higher level assessment of the revised participant qualification options and QP Split Options adopted by the Council in November 2022 and April 2023 with updates from November 2023.

“Current” QS holders are specified as those that owned northern sablefish QS in 2023. Changes in the amounts of QS in the accounts between the end of 2023 and the implementation date may cause actual results to vary from this analysis. Additionally, the QP Split Option chosen affects the amount of QS converted (issued as) to any-gear QS and trawl-only QS. 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 2023, the sablefish north allocation was 8,583,698 pounds and 29 percent of that allocation would be nearly 2.5 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 21.0 percent of the QPs in 2023—which would be 18.9 percent of the QS being issued as any-gear QS.

Table 57 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 58 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 57). As noted in Table 19 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. In contrast, Conversion Option 2 would issue any-gear QS for 100 percent of the eligible QS owned by those qualifying under Gear-Switching Participant Option 2 and for 50 percent of the eligible QS owned by those qualifying only under Gear Participant Option 1. For the other 50 percent of their eligible QS, QS would be issued as any-gear and trawl-only in the same ratio that it is issued to non-gear switching participants.

For example, under Conversion Option 1 and Gear-Switching Participant Option 1, there would be 31 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 57). Those 34 participants would be issued a total of 19.1 percent QS (21.2 percent of the QPs) as any-gear QS (Table 58). There would be 7.0 percent QS (7.8 percent of the QPs) that would be issued as any-gear QS, distributed proportionally across all non-gear-switching

participants under QP Split Options 1 (to be reduced by any amounts of QS owned by those that would qualify as gear-switching participants via co-op memberships). With the selection of the FR Suboption, an additional three individuals would qualify (Table 57) with an associated 1.4 percent of the QS would be issued as 100 percent any-gear.

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 (as can be seen by comparing values in the top of Table 58 with those on the bottom). Of note, under Gear-Switching Participant Option 1, which qualifies the most 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. Depending on the number of qualifiers resulting from co-op transfers, non-gear-switching participants could receive minimal, if any, any-gear QS. Under QP Split Option 2 and using 2023 as the example year, the total percentage of QS estimated to be owned by qualifying individual participants (19.1 percent) actually exceeds the amount of any-gear QS available (18.9 percent). Therefore, there would not be any any-gear QS issues to non-gear switching participants. Further, the Council would need to specify a policy on what should occur if QP Split Option 2 were to be selected. For 2026, the year of likely implementation, the estimated amount of any-gear QS to be issued would be 6.3 percent—far less than the amount of eligible QS owned by historic participants. If including the FR suboption, under Gear-Switching Participant Option 1, 6.3 percent is only about a third of what would be needed and under Gear-Switching Participant Option 2 it would only be about 71 percent of what is needed.

Table 57. 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	31	12	31
QS Ownership Group	3	0	3
Co-Op	TBD	TBD	TBD
First Receiver	3	3	3

Table 58. Distributional impacts (amounts of any-gear QS and any-gear QP issued) 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	19.1 QS (21.2 QP)	18.9 QS ^{a/} (21 QP)	7.5 QS (8.3 QP)		13.3 QS (14.8 QP)	
Non-GS Participants	7.0 QS (7.8 QP)	0 QS	18.6 QS 20.7 QP	11.4 QS (12.7 QP)	12.8 QS (14.2 QP)	5.6 QS (6.2 QP)
Total	26.1 QS (29 QP)	18.9 QS (21 QP)	26.1 QS (29 QP)	18.9 QS (21 QP)	26.1 QS (29 QP)	18.9 QS (21 QP)
With First Receiver Suboption (1.4% QS)						
GS Participants	20.5 QS (22.8 QP)		8.9 QS (9.9 QP)		14.7 QS (16.3 QP)	
Non-GS Participants	5.6 QS (6.2 QP)	0 QS (0 QP)	17.2 QS (19.1 QP)	10.0 QS (11.1 QP)	11.4 QS (12.7 QP)	4.2 QS (4.7 QP)
Total	26.1 QS (29 QP)	18.9 QS (21 QP)	26.1 QS (29 QP)	18.9 QS (21 QP)	26.1 QS (29 QP)	18.9 QS (21 QP)

a/ Reduced from 19.1 to 18.9 because the split option would not provide enough QS to cover all the any-gear QS for which gear-switching participants qualify (and leaving nothing available to allocate to non-GS participants).

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 58) 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 59 shows the numbers of individuals that would qualify under each non-gear-switching participant option. This analysis uses 2021-2022 data for the bottom trawl landings history to develop the estimate for Non-Gear-Switching Participant Option 2. 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). With the FR suboption, no estimate is provided as ownership information is not available for FR licenses but individuals that own QS would be able to meet the criteria as they would only need to purchase DTS from a bottom trawl vessel in bottom trawl gear in the IFQ fishery, in one of the two years prior to the year in which the above QS conversions to gear-specific QS are conducted.

Table 59. 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
GS Option 1	132	47
GS Option 2	151	54

9.2 Alternative 2 and the PPA—Gear Specific QP

Under Alternative 2 and the PPA (for years in which gear-specific QP are issued), 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.

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 column of Table 60). 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. Under QP Distribution Option 2, the PPA Option, the any-gear QP level would decline because the ratio would not be adjusted (last column of Table 60).

Table 60. 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.

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	11.9	17.1	19.4	80.6	Yes ^{b/}	29	29
2					No		19.4

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

b/ Increases to a maximum of 29 percent.

9.3 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 26). 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 28, where the percentage of catch occurring in earlier months is higher in recent years.

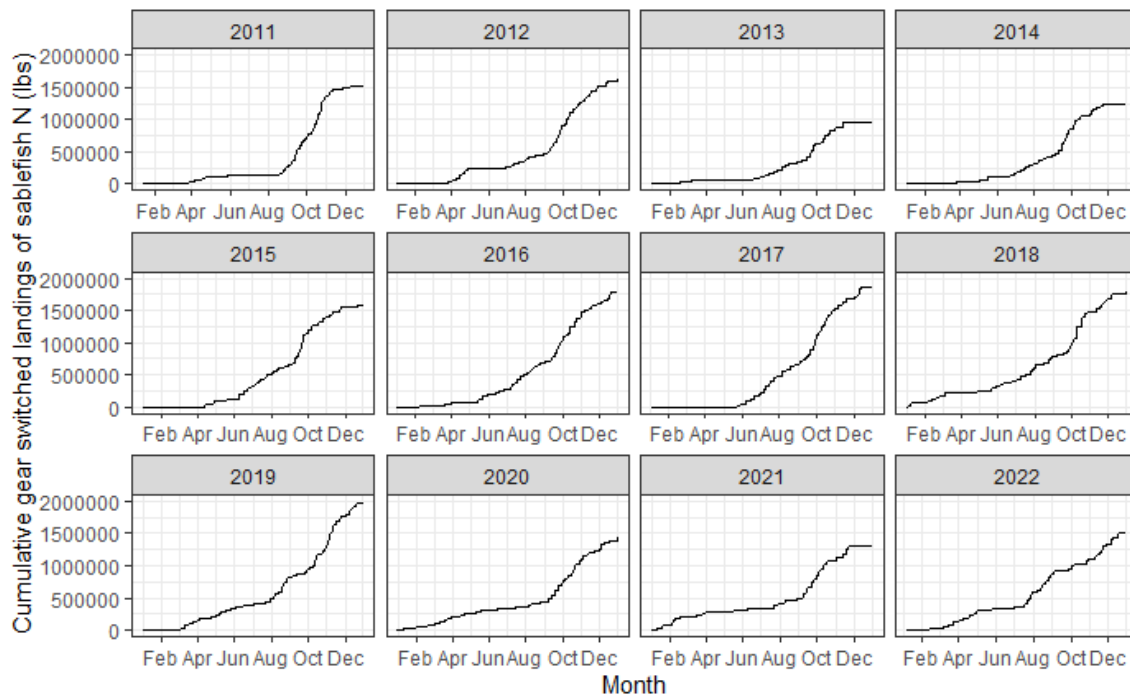


Figure 26. Cumulative gear switched landings by month and year, 2011-2022.

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 29) 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, if ACLs decline such that the total poundage represented by the 29 percent cap is substantially smaller, or if the fleet size were to expand (see discussion in Section 2.5 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 27). In the last four years, landings into California have shifted earlier in the year. In contrast, Oregon typically sees landings starting in June and Washington's pattern has been inconsistent (occurring earlier in some years and later in others). 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.

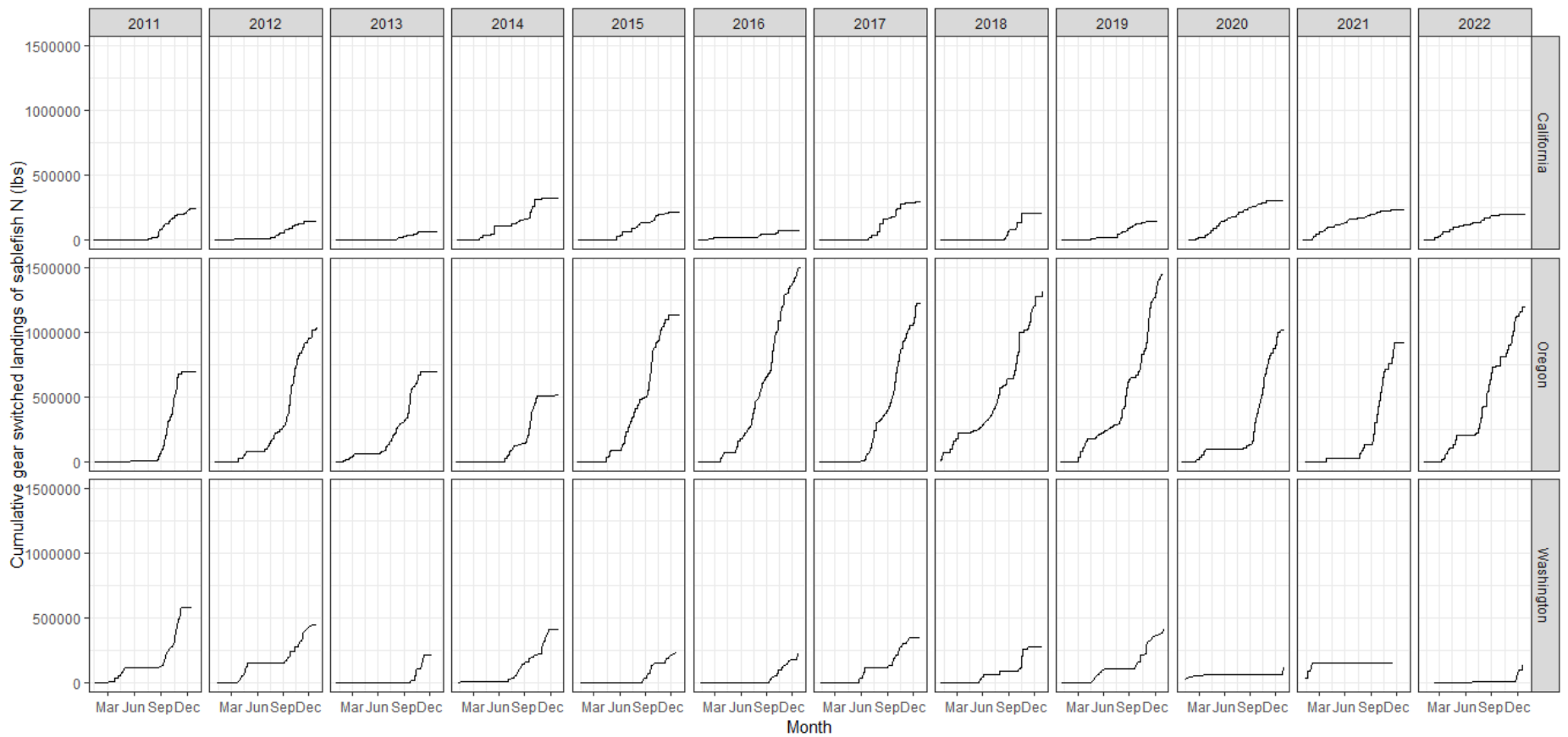


Figure 27. Cumulative distribution of gear switched landings of sablefish north annually by state and year, 2011-2022.

Competing opportunities (discussed in Section 2.5.4) 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 (after October 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.

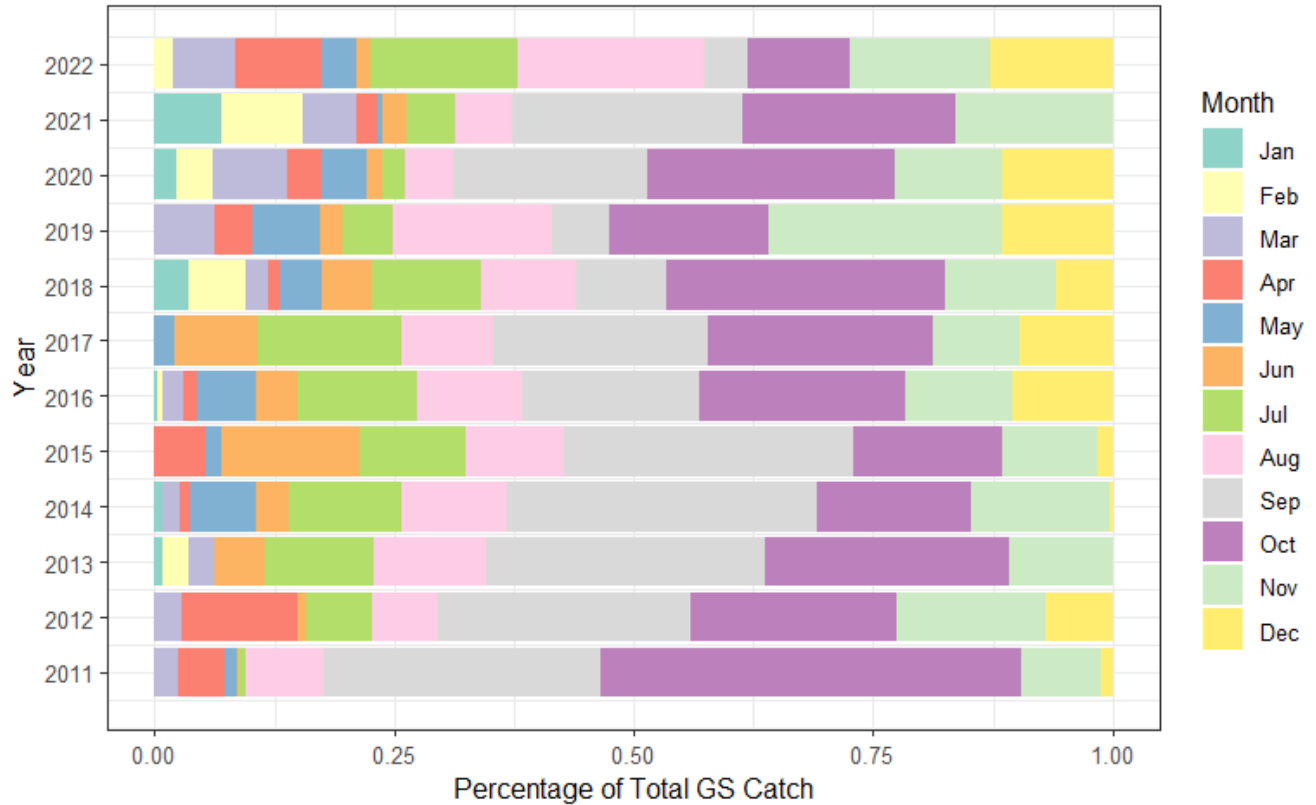


Figure 28. Percentage of total gear switched catch of sablefish north by month, 2011-2022

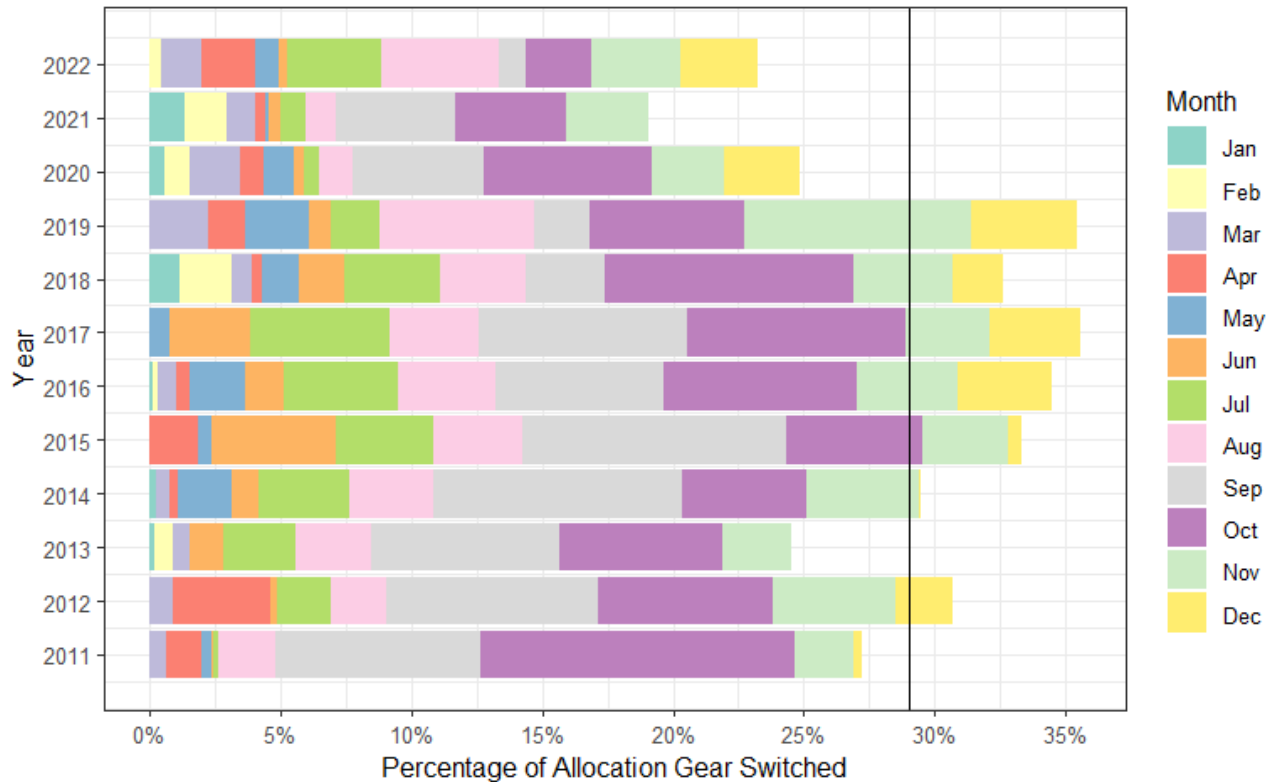


Figure 29. Percent of sablefish north IFQ allocation gear switched by month and year, 2011-2022. 29 percent shown as reference line in black.

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, the amount that is available for gear switching would be limited to less than 29 percent and the season limit would not come into play. Looking at historical trawl catch of sablefish north by month (Figure 30), the trends over the 2011-2022 time series generally appears to be more stable compared to the gear switching trends (Figure 29). There have only been two years in which trawl catch of sablefish was greater than 71 percent—2013 and 2022 (Figure 31). 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 3), 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 acquire and utilize more than 71 percent of the allocation then the chances that gear-switchers will exceed 29 percent would be reduced, increasing the likelihood of year-round gear-switching.

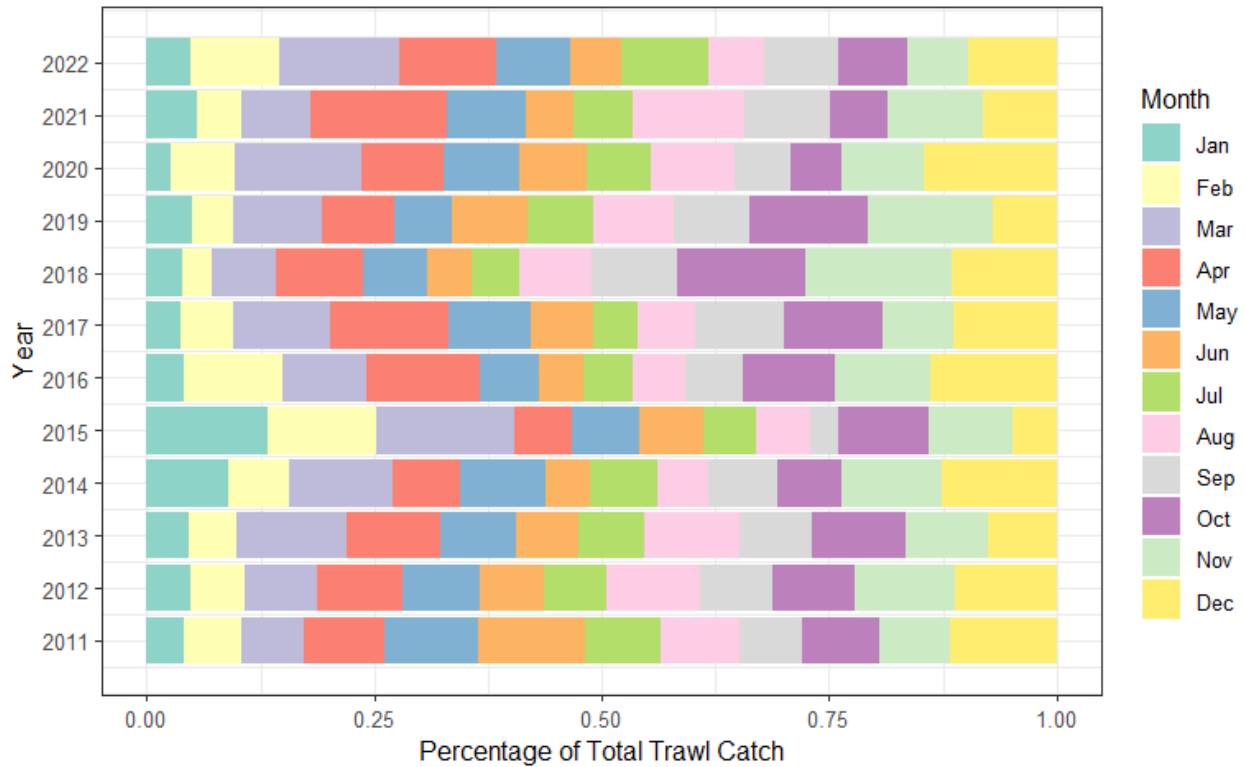


Figure 30. Percentage of total trawl catch of sablefish north by month, 2011-2022

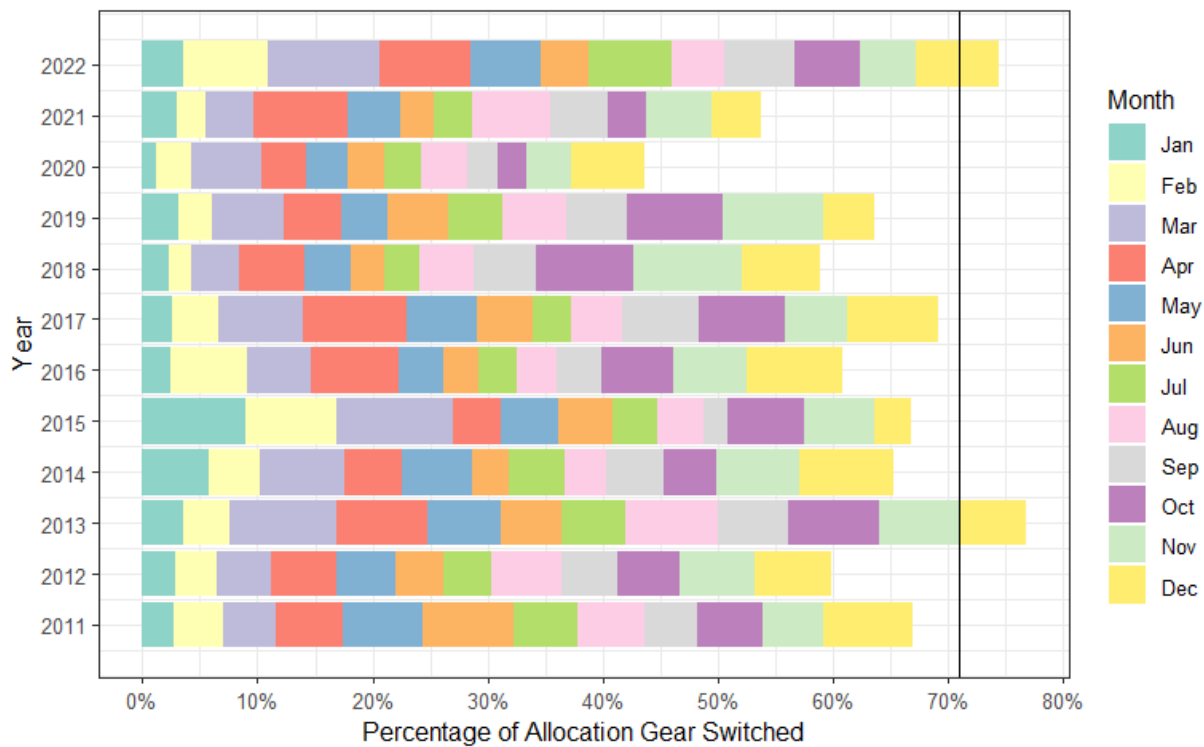


Figure 31. Percentage of sablefish north IFQ allocation caught by trawl gear 2011-2022. 71 percent shown by black line.

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 4.1.2(e)).

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.

9.4 PPA--Gear-Specific QP When Criteria Are Met

Under the PPA, gear-specific QP will be issued as specified for Alternative 2, except when certain criteria are met, in which case all northern sablefish will be issued as generic QP (i.e. status quo QP valid for use with any gear). The Council has specified the following criteria (trigger criteria) for consideration when it selects its FPA.

ACL Criteria: When the northern sablefish ACL is at or above X (a single value between 5,000 to 10,000 mt to be determined by the Council when it selects an FPA) generic QP will be issued (QP valid for use with any-gear).

GS Criteria Sub-Option (not part of PPA but available for consideration for the FPA): Additionally, generic QP would be issued if average gear-switching level for the previous three years is at or below 29 percent of the trawl allocation.

The intent would be to not restrict gear switching when there is a low probability that the use of sablefish QP by gear switchers might adversely impact the harvest of trawl complexes. The decision rules for the type of quota to be issued are laid out in Table 61 and conceptual schematics of the application of the criteria provided in Figure 32 and Figure 33.

Table 61. Gear-specific QP issuance decision rules, if the sub-option is included (also see Figure 33).

Issue <i>generic QP</i> when...	$ACL \geq X,XXX$ mt	OR	3-Yr Avg GS $\leq 29\%$
Issue <i>gear specific QP</i> when...	$ACL < X,XXX$ mt	AND	3-Yr Avg GS $> 29\%$

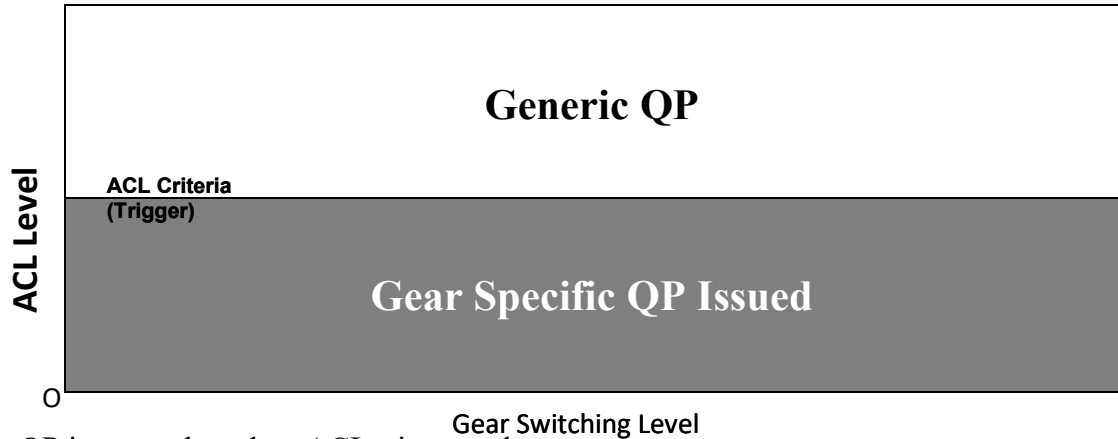


Figure 32. QP issuance based on ACL trigger only.

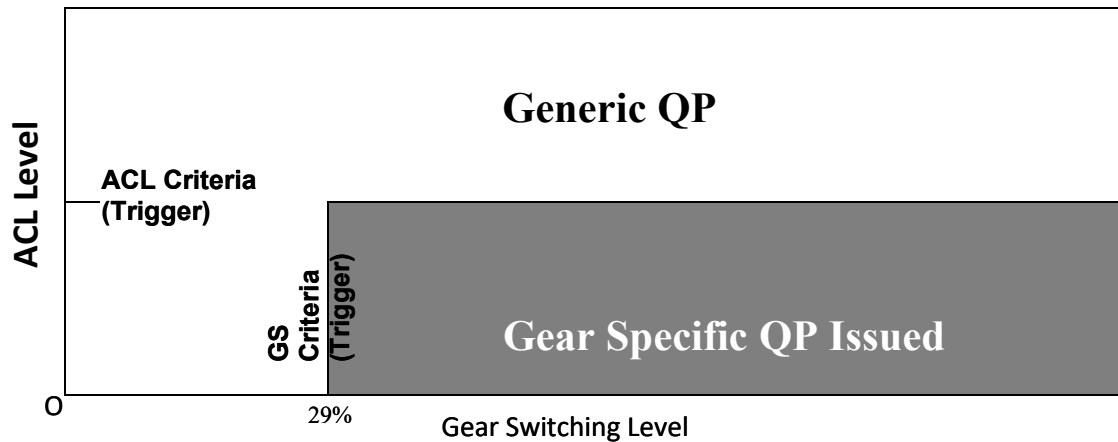


Figure 33. QP issuance based on ACL criteria and the gear-switching level QP criteria.

Northern sablefish ACLs, gear-switching levels and percentage of trawl attainment in each year are provided in Table 64.

9.4.1 Impacts of Switching to Generic QP in Some Years

Summary

- *Disadvantage of a trigger for the issuance of generic QP: higher implementation costs, and some possibility of higher ongoing administrative costs and increased complexity in future deliberations, relative to Alternative 2 without the trigger.*
- *Gear-switching limitation has potential positive effects that might accrue even in a year in which there is no limitation because trigger criteria are met:*
 - *Encouragement of investment in processing equipment and marketing needed to facilitate greater trawl harvest.*

- *Discouragement of investment in gear switching, including QS purchase.*
- *For years in which there is no gear switching limitation and gear switchers are not likely to displace trawlers.*
 - *Potential positive effects identified include*
 - *Reduction in costs for gear switchers due to greater ease in finding QP and possibly lower costs for it.*
 - *Greater opportunity for QS owners to sell their QP to gear switchers.*
 - *Greater attainment of the sablefish trawl allocation and related OYs.*
 - *A potential negative effect for those selling to gear switchers would be lower prices for generic QP, relative to more restricted amount of any-gear QP that would be available in gear-specific QP years. For many QS owners, this lower price might be offset by larger volumes of QP sales to gear switchers. For those QS owners that only sell a small portion of their QP to gear switchers (less than the amount that they receive in years when gear-specific QP are issued) there would not be an offsetting increase in total sales.*
 - *Those selling/buying QP for trawl vessels may see somewhat higher prices in years in which generic QP are issued compared to trawl-only QPs.*
- *The actual effects of the trigger depend critically on whether the criteria suspend issuance of gear-specific QP only in years when gear switching activity would not displace trawlers. No criteria will perform perfectly. The triggers could be modified to improve performance at a later time.*

The potential costs and benefits of a limitation on gear-switching, as compared to no action, are discussed in the general impact analysis (Section 7.0) and summaries of that analysis (Section 4.0). The PPA is basically Alternative 2 with a trigger such that its provisions would only be active in some years. Here, we consider the disadvantages and advantages of this trigger-based switch to the issuance of generic QP as compared to having a limitation on gear switching in every year.

Disadvantages of changing between issuing and not issuing gear-specific QP include:

- Some additional regulatory and administrative costs associated with initial implementation, including figuring out how to deal with issues like post season trading of unused QP to cover previous years catch.
- Increased complexity that would need to be taken into account in explaining the program, analyzing it, and making program modifications in the future.

For years in which the trigger is hit and all QP are issued as any-gear (i.e. generic QP), the PPA may still have some impacts relative to status quo, particularly with respect to fishery investments. The current absence of a limit on the expansion of gear switching might be inhibiting investments in processing equipment and market development that would support trawl harvest (see Sections 2.4.2, 2.4.3 and 2.4.4(a)). The creation of a gear-switching limit that would be imposed for years in which gear switching is more likely to restrict trawl harvest, even if not applied in other years, may still increase confidence that investments will pay off.

Conversely, the expectation that there will be some years in which gear switching is limited (even if the limit is intermittent or not expected to be activated for a number of years) is likely to

have some inhibitory impact on investment in gear-switching activities (e.g. the purchase of QS for the purpose of supporting gear-switching operations). To the degree that the issuance of gear-specific QP appears to be further into the future (based on stock assessment projections), this inhibitory effect will be diminished. There has been a general consensus among parties on different sides of this issue that unlimited gear switching is not desirable (see guiding principles adopted by SaMTAAC Section 1.2) and concern about the investment in gear switching that might occur and then have to be displaced if a limit were imposed at some time in the future. One route that has been suggested for discouraging additional investment is to maintain the control date indefinitely. However, using a control date in such a manner could not be done because control dates do not have regulatory effect.⁴² Trying to use only a date to inhibit investment for the purpose of future GS without any indication of how or when it might be used would create substantial uncertainty regarding future GS opportunity. In contrast, the PPA would allow each participant to know their status when GS constraints are imposed, enabling them to make informed investment decisions. The PPA action would establish qualifiers (somewhat like a moratorium on new gear-switching) but, in contrast to a complete moratorium, provide flexibility for expansion of gear switching in years where it can likely be accommodated (e.g., years in which the ACL is at higher levels). The regulations in place would make it clear that opportunity would very likely be constrained in the future and each person would know their status when that constraint is imposed. This would give participants the opportunity to make an informed choice of the investment and risk level appropriate for them.

With respect to not limiting gear switching (i.e., not issuing gear-specific QP) in years when gear switchers are less likely to displace trawlers, the benefits include the following:

- A reduction in the costs to gear switchers including:
 - costs of searching for willing sellers of any-gear QP that are dispersed across many QP accounts; and
 - the possibility that generic QP may be less expensive than any-gear QP issued under a gear-specific QP year.
- Greater volume opportunity for QS owners to sell their generic QP to gear switchers (albeit possibly at a somewhat lower price than received for any-gear QP in years in which a limited amount is issued).
- For QS owners selling QP to trawlers, somewhat higher QP prices as compared to prices for trawl-only QP in gear-specific QP years.
- Greater attainment of the sablefish OY along with the attendant benefits to consumers, processors, suppliers, fishers, and communities, etc.
- Some possibility of lower administrative costs in the years gear-specific QP are not issued—though, once the system is set up to issue gear-specific QPs, it is not clear that the costs would be substantially less to issue and track non-gear-specific QP as compared to gear-specific QP.

The primary disadvantage of changing to generic QPs in years in which the trigger is met would be for those who sell a small portion of their QP to gear switchers and trawlers buying QP. For example, with respect to selling to gear switchers, for years in which gear-specific QP are issued,

⁴² Control dates are announced as advanced notice of proposed rule makings – i.e. they themselves are not rulemakings and not subject to the standard requirements for analysis and public comment until they are incorporated in a rule making.

individuals who typically sell small amounts⁴³ of their sablefish QP to gear-switching vessels and use the rest for trawling would be able to maintain their sales and benefit from higher any-gear QP prices, as compared to years in which there is no gear-switching limitation.

Overall, the impacts depend critically on the effectiveness of the criteria used to determine years in which trawlers would be less likely to be displaced by gear-switching activity and suspend the issuance of gear-specific QP only for those year. Any criteria chosen are unlikely to perfectly identify the years in which there would be an advantage to not issuing gear-specific QP. Once the system is in place, if the triggers chosen are not performing as expected, additional action might be taken to either adjust the levels or change the indicators used for the criteria.

9.4.2 Analysis of ACL Trigger

Summary:

- *Use of a trigger related to the amount of northern sablefish QP available is based on the idea that when QP availability is high, there is enough to meet the needs of trawl vessels and allow gear switcher participation. The northern sablefish ACL was designated as the metric for indicating the availability of northern sablefish QP.*
- *The Council discussed a number of alternatives to using the northern sablefish ACL as a trigger. These included*
 - *the coastwide OFL, which is determined by science but has less relation to the amount of sablefish QP available; and*
 - *trawl allocations of northern sablefish, which is closely related to the amount of QP available for the shoreside trawl IFQ program but more subject to modification by other Council action.*
- *The Council could modify the trigger as experience is gained or conditions change.*
- *Assuming a policy objective of issuing gear-specific QP in years when gear switching is above 29 percent, and generic QP when gear switching is below that, a retrospective analysis shows that for 2011-2023 this objective would have been achieved in*
 - *6 out of the 13 years at a 5,000 mt northern sablefish ACL trigger,*
 - *9 out of 13 years at a 6,000 mt level northern sablefish ACL trigger,*
 - *7 out of 13 years at an 8,000 mt level northern sablefish ACL trigger, and*
 - *6 out of 13 years at the 10,000 mt northern sablefish ACL trigger (Figure 35).*
- *One indicator of the degree of competition for sablefish QP between trawlers and gear-switching vessels may be the overall level of trawl attainment for northern sablefish.*
 - *In most years there has not been a significant surplus of northern sablefish QP available (Table 64), but the question remains as to whether those high levels of attainment are reached in the context of such competition between the gears, or were trawl vessels selling unneeded QP to gear switchers.*
 - *In 2023, when the ACL jumped to above 8,000 mt, trawl allocation attainment dropped to just below 69 percent, indicating a surplus.*
 - *Two factors in particular might impact the level of ACL at which there is sufficient sablefish QP for trawlers and gear switchers: changes in the co-*

⁴³ Amounts equal to or less than the amount of any-gear QP they would receive when the standard any-gear to trawl-only QP ratio is applied to their QS

occurrence of sablefish in the trawl catch and changes in the price of sablefish. Prices may change for a variety of reasons relatively unrelated to West Coast ACL levels, including changes in consumer preferences, availability of close substitutes, and changes in supply from other regions, particularly Alaska.

- *Evaluation of the ACL trigger criteria will use data (the ACL) for a coming year to determine the type of QP issued for that year. This contrasts with the gear-switching level trigger criteria, which will use data from previous years to evaluate the criteria and determine the type of QP issued for a coming year.*

9.4.2(a) Relation Between ACL Trigger Criteria and Amounts of Trawl IFQ QP Issued

Use of the northern sablefish ACL trigger is based on the idea that when ACLs are at high levels, there is plenty of northern sablefish QP to meet the needs of trawl vessels and allow gear switcher participation, but that at low levels, the activity of gear switchers are more likely to constrain harvest of trawl complexes and attainment of OY. In November 2023, the Council discussed other harvest-volume related criteria that could be used, including OFLs and the trawl allocations. Here we discuss the relationship between OFLs, northern sablefish ACLs, and the amounts of QP available in the shoreside trawl fishery.

OFL levels are determined based on stock assessment results and are a scientific decision (i.e., not a policy choice). From the OFL, the ABC is set based on the sigma recommended by the SSC to account for scientific uncertainty and a P* selected by the Council to account for their risk tolerance. The Council can set ACLs at or below the ABC. Sablefish is defined as a coastwide stock and the OFL and ABC are set coastwide. However, the ACLs are divided between north and south of 36° N. lat. Because of the number of factors that can impact the difference between the OFL level and the northern sablefish ACL, the relationship has varied over the years. As an example, from 2011-2024, northern sablefish ACLs ran between 61 and 73 percent of the coastwide OFL/ABCs and were at 73 percent from 2021 through 2024. When sablefish biomass is at precautionary or overfished levels, there may be greater differences between the OFL and the ACL.

As compared to the OFL, the ACL is more related to the amounts of northern sablefish available for fisheries, including the allocation to the trawl sector. The allocation for the trawl sector is divided between an at-sea set-aside and the amount issued as northern sablefish QP to the shorebased IFQ program. From 2011 through 2024, the shorebased IFQ allocation, as a percentage of the northern sablefish ACL, has varied narrowly—between 45.5 and 46.7 percent of the total northern ACL, averaging 45.9 percent. Thus, there is a more direct correlation between the level of shoreside IFQ allocation (the direct amount issued to the fishery) and the northern sablefish ACL than between the shoreside IFQ allocation and the coastwide OFL.. Over the period being considered here (2011-2024) the main cause of the fluctuation in the proportional relationship between the shoreside IFQ allocation and the northern sablefish ACL has to do with the amount set aside to cover bycatch in the at-sea whiting fishery.

Table 62 shows for some ACLs within the trigger criteria range being considered the corresponding trawl allocation and OFL levels, based on certain assumptions about the relationships between these values across recent years.

Table 62. Triggers within the range and corresponding trawl allocations.

Mt	Trawl IFQ Alloc Equivalent (Based on 45.9%, 2011-2024 avg)			Coastwide OFL Equivalent (based on the most recent four years: 73%)
	Mt	Rounded (Mt)	Millions of Lbs	Mt
5,000	2,294	2,300	5.1	6,821
6,000	2,753	2,800	6.1	8,185
8,000	3,670	3,700	8.1	10,914
10,000	4,588	4,600	10.1	13,642

9.4.2(b) Retrospective Analysis

A retrospectively analysis applies the ACL trigger criteria to 2011 to 2023 in order to identify the years in which gear-specific QP or generic QP would have been issued (Table 63) and how those outcomes compare to the actual level of gear switching in each year (Table 64 and Figure 34—Table 65 on the gear-switching level criteria is provided here for ease of comparison but will be discussed until Section 9.4.3). At the low end of the ACL trigger criteria range (5,000 mt), the trigger would have been hit and generic QP would have been issued for 10 years—gear-specific QP issued for 3 years (2013-2015). In contrast, for an ACL trigger of 6,000, from 2011-2023 the trigger would have been hit and generic QP issued for 3 years— gear-specific QP issued for 10 years.

Assuming that the policy objective is to issue gear-specific QP in years when gear switching is above 29 percent, and issue generic QP when gear switching is below 29 percent, the results of a retrospective analysis can be summarized in terms of whether or not these objectives would have been met (Figure 35). For the 2011-2023 period, this objective would have been attained in 6 out of the 13 years at the 5,000 mt level, 9 out of 13 years at the 6,000 mt level, 7 out of 13 at the 8,000 mt level, and 6 out of 13 at the 10,000 mt level, at which there were no years in which generic QP would be issued during the 2011-2013 period. At the 5,000 mt level, gear switching was above 29 percent in half of the years in which generic QP would have been issued; and was above 29 percent in only one year in which gear-specific QP would have been issued. At the 6,000 mt level and above, gear switching was never above 29 percent in the years in which generic QP would have been issued. When gear-switching was below 29 percent, gear-specific QP would have been issued in 2 of 7 years at the 5,000 mt level, 3 of 7 years at the 6,000 mt level, 6 of 7 years at the 8,000 mt level, and 7 of 7 years at the 10,000 mt level.

Prospectively, given the most recent stock assessment, northern sablefish ACLs are not expected to be below 10,000 mt until sometime after 2034 (Figure 34). However, stock assessments have fluctuated historically, as indicated by the projections of coastwide OFL/ABC levels for sablefish from past stock assessment documents (Figure 36).

Table 63. Retrospective evaluation of years in which gear specific QP would be issued using the ACL criteria alone (GSp QP = gear specific QP would be issued, SQ QP indicates that QP would not be gear-specific, i.e. generic or status quo QP).

Criteria	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025-2033
5,000	SQ QP	SQ QP	GSp QP	GSp QP	GSp QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP
6,000	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP
8,000	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	SQ QP	GSp QP	SQ QP
10,000	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	SQ QP

Table 64. Northern sablefish ACLs, gear-switching levels, and percent trawl attainment for 2023-2025.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
ACL	5,515	5,347	4,012	4,349	4,793	5,241	5,252	5,475	5,606	5,723	6,892	6,566	8,486	7,780	26,785
Gear Switching Level	27.4%	30.5%	24.3%	28.9%	32.6%	33.9%	35.1%	32.5%	35.3%	25.4%	19.0%	23.3%	22.2%	n/a	n/a
Avg Gear-Switching for Previous 3 Years ^{a/}					27.4%	27.9%	28.6%	31.8%	33.9%	33.8%	34.3%	31.1%	26.6%	22.6%	21.5%
Percent Trawl Attmnt	94%	90%	101%	94%	99%	94%	104%	91%	99%	70%	73%	98%	69%	n/a	n/a

a/ Three year averages are displayed in the column for the year in which the criteria would have been applied—on year lag due to the need to wait for complete data.

Table 65. Retrospective evaluation of years in which gear specific QP would be issued using the ACL and gear-switching percentage criteria in combination (GSp QP = gear specific QP would be issued, SQ QP indicates that QP would not be gear-specific, i.e. generic or status quo QP underlined values are the results that changed when the criteria were combined).

Criteria	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
5,000					<u>SQ QP</u>	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP
6,000		Avg gear switching data for 2011-2013 apply to 2015			<u>SQ QP</u>	<u>SQ QP</u>	<u>SQ QP</u>	GSp QP	GSp QP	GSp QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP
8,000					<u>SQ QP</u>	<u>SQ QP</u>	<u>SQ QP</u>	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	SQ QP	<u>SQ QP</u>	SQ QP
10,000					<u>SQ QP</u>	<u>SQ QP</u>	<u>SQ QP</u>	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	<u>SQ QP</u>	<u>SQ QP</u>	SQ QP

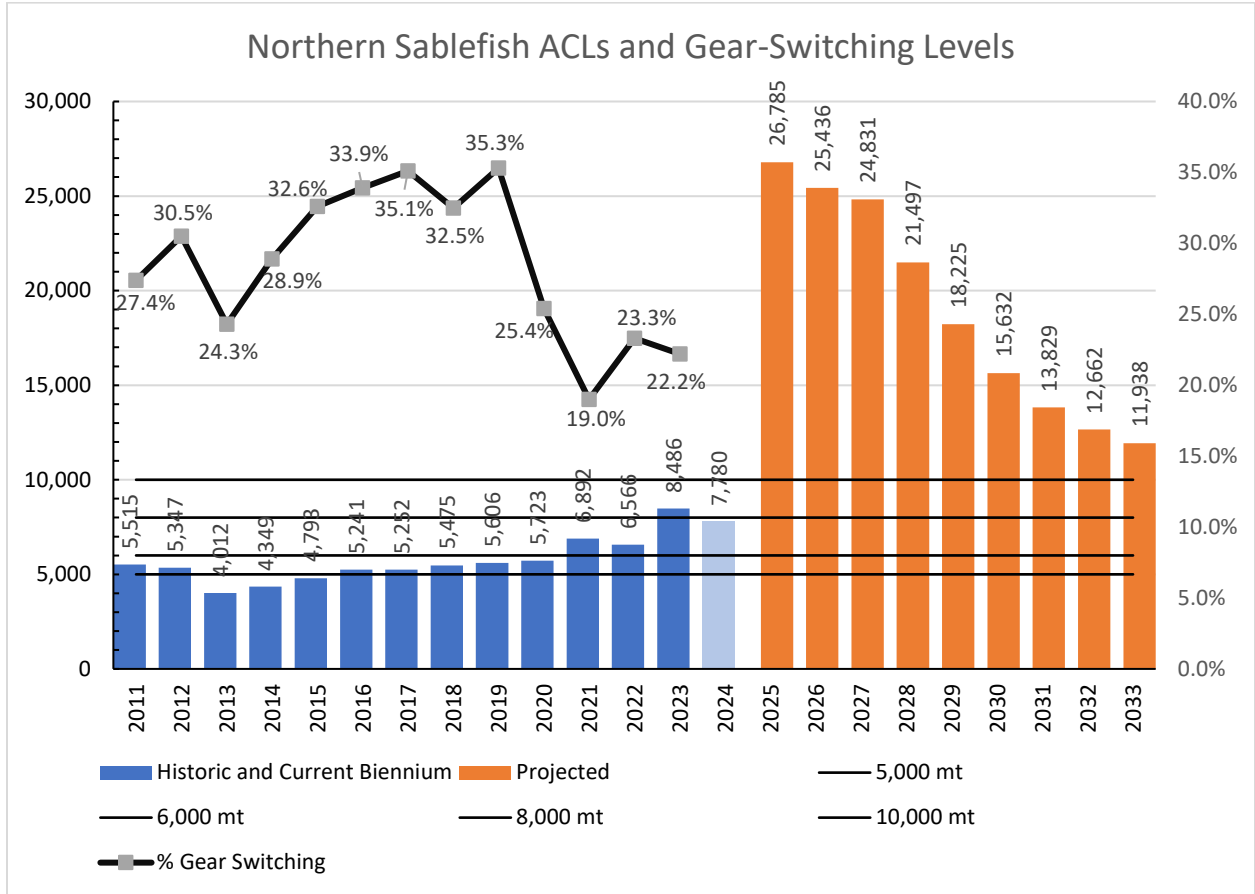


Figure 34. Historic, current, and projected northern sablefish ACLs, 2011-2033 (dark lines indicate some of the threshold values that have been discussed within the 5,000 – 10,000 mt range). (Internal Reference: PPA_TriggerAnalysis.xlsx)

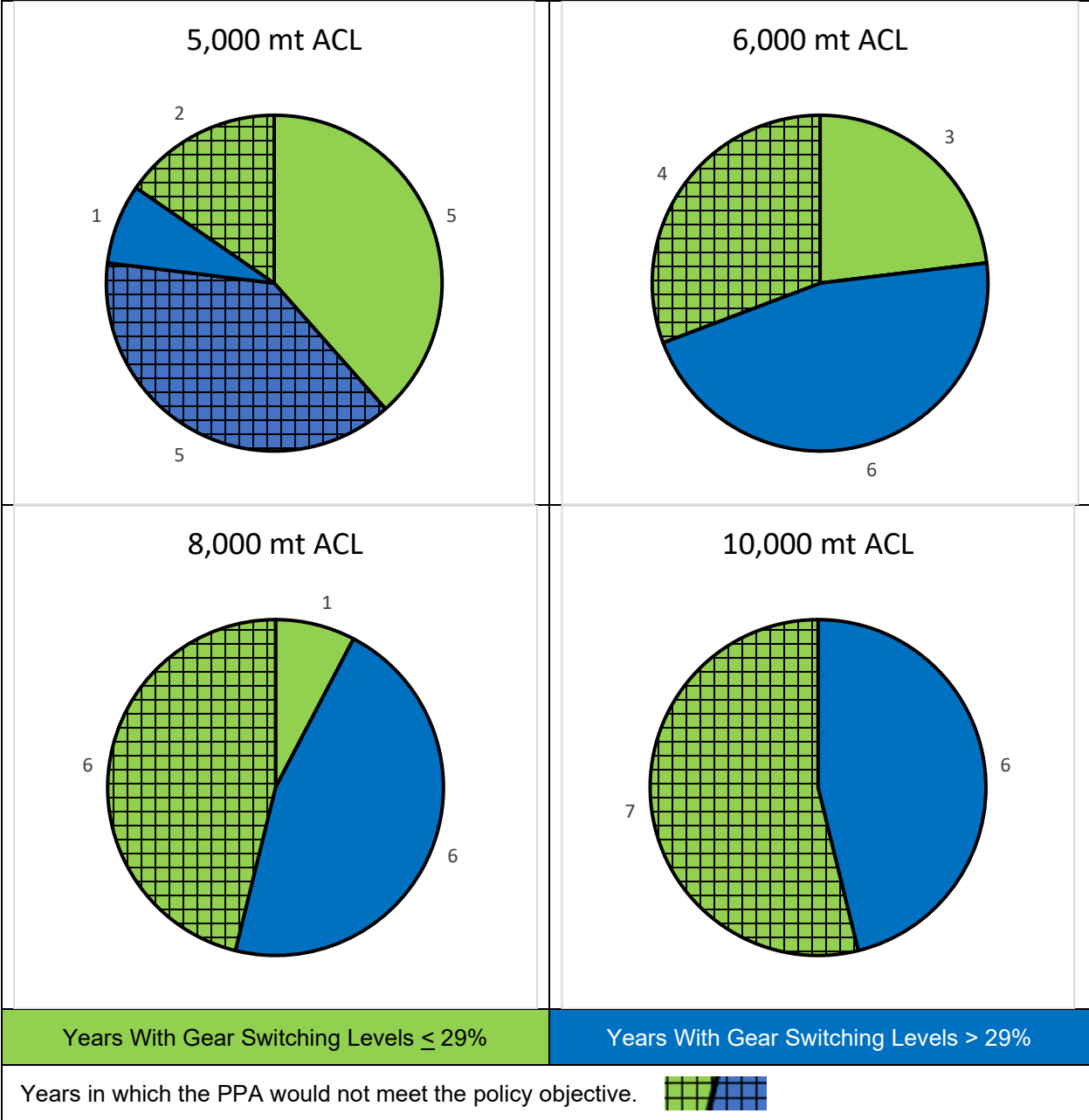


Figure 35. Numbers of years (2011-2023) in which the PPA would not have met the policy objective (gear-specific QP would have been issued when gear switching was below 29 percent or generic QP issued when gear-switching was above 29 percent). (Internal Reference: PPA_TriggerAnalysis.xlsx)

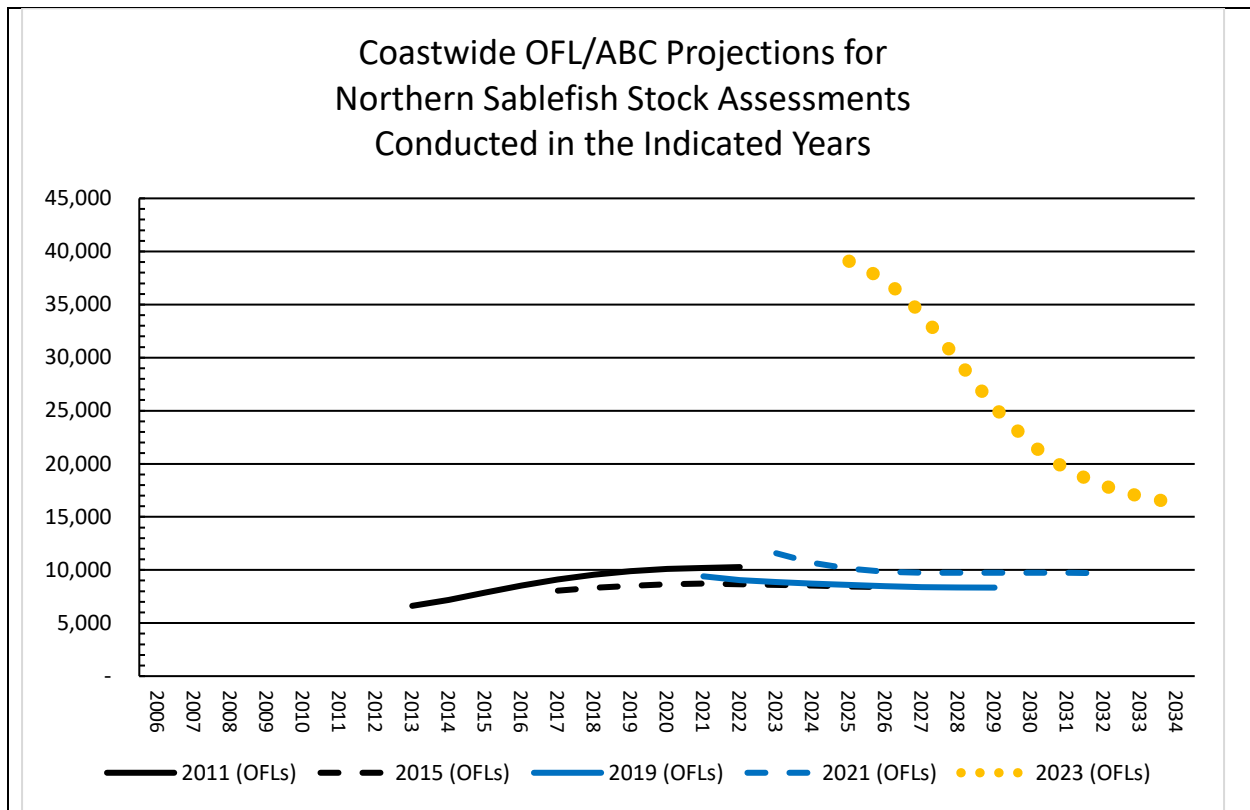


Figure 36. Historical changes in stock assessment projections for coastwide sablefish OFL. (Internal Reference: PPA_TriggerAnalysis.xlsx)

9.4.2(c) ACLs as an Indicator of Likelihood of Surplus Trawl QP

One indicator of the degree of competition for sablefish QP between trawlers and gear-switching vessels may be the overall level of trawl attainment for northern sablefish. In most years, when the ACL has been below 6,000 mt, the trawl allocation has been attained at a 90 percent or higher level, making it more likely that there could be competition between trawl and gear-switching vessels for northern sablefish QP, regardless of the actual level of gear switching (Table 64). However, the question still remains as to whether those high levels of attainment are reached in the context of such competition between the gears or were trawl vessels selling unneeded QP to gear switchers. The one exception to the high level of attainment at ACLs below 6,000 mt was 2020, which was impacted by COVID and low exvessel prices (Figure 16). The allocation attainment level in that year was 70 percent. In 2021, the ACL level was above 6,000 mt and trawl attainment was low, but this year may still have been impacted by COVID and exvessel prices were still relatively low. In 2022, the ACL was again above 6,000 mt and the attainment level was up to 98 percent, even though gear switching only accounted for 23.3 percent. Then, for 2023, the ACL jumped to above 8,000 mt and the trawl allocation attainment dropped to just below 69 percent, indicating a surplus of northern sablefish QP that could not be absorbed by gear switchers. While gear switching as a percent of the trawl allocation declined in 2023, the volume of gear switcher harvest (estimated at 864 mt) increased by 24 percent over the previous year (about 694 mt) and was exceeded only in one year historically (2019, just prior to

COVID, Table 3). At the same time LEFG and gear-switched sablefish prices declined to levels below those seen during the time of the trawl catch share program (Figure 16).

Under recent harvest and market conditions, it appears that at high ACLs there might be sufficient sablefish to allow harvest of trawl complexes and meet the demand from gear-switching vessels. However, this is based on a very small amount of historic data that was confounded by COVID and over time these conditions could change. During its discussion, the Council recognized the uncertainty about the appropriate level for the trigger and Council members discussed that there would be opportunities to make adjustments to the trigger level in the future.

Two factors in particular might impact the level of ACL at which there is sufficient sablefish QP for trawlers and gear switchers: changes in the co-occurrence of sablefish in the trawl catch and changes in the price of sablefish. For example, with respect to co-occurrence, the percentage of sablefish taken by three of the strategies with low sablefish bycatch levels (whiting, mixed shelf, and midwater rockfish, Table 6) went from an average of 7.7 percent for 2016 to 2019, to 16.4 percent in 2020, and 16.1 percent in 2023. The share of catch in another strategy (other flatfish, including Petrale sole), went from 11.8 percent for the 2016-2019 average to 7.2 percent in 2020 and 16.0 percent in 2023. Further as the amount of sablefish co-occurring in trawl strategies increases, the total revenue trawlers generate per pound of sablefish decreases, making it more difficult for trawlers to compete with gear switchers. As long as fixed gear prices are also down, this tends to be less of a problem because demand for sablefish QP by gear switchers is substantially reduced. However, if prices for sablefish improve, gear switcher ability to compete with trawlers for sablefish QP would improve. Because gear-switching vessels taking sablefish catch very low amounts of non-sablefish species (particularly compared to trawl vessels), for a given sablefish price increase their revenue will increase more substantially than for trawlers. Despite high West Coast northern sablefish volumes (which may tend to depress prices), increases in sablefish prices could still occur due to

- an increase in consumer preference for sablefish (domestically or internationally),
- a decrease in availability of other protein sources for which sablefish is a substitute (e.g. sockeye, chum, and Chilean seabass, or other meats; Huppert and Best, 2004, Warpinski, 2015), or
- a decrease in the availability of sablefish produced in other regions (primarily Alaska which provided 63 percent of the global supply from 2012-2016, see Section 7.13).

9.4.3 Analysis Percent Gear-Switching Trigger

Summary:

- ***This discussion applies to periods in which the ACL is below its trigger level.***
- *When gear-switching levels are below 29 percent, the trigger would work relatively smoothly with no oscillation between the issuance of generic and gear-specific QP.*
- *When gear-switching levels are generally above 29 percent, there would be oscillation between the issuance of generic and gear-specific QP. When the issuance of gear-specific QP is triggered, then gear switching levels would be forced below 29 percent. As soon as the three-year average caught up with the years of gear-specific QP issuance,*

then generic QP would be issued and gear-switching levels would go back up until the average caught up with those higher gear-switching levels.

- *When gear switching is above 29 percent but at moderate levels such as those seen in the previous decade, there would be a slower oscillation between the issuance of gear-specific and generic QP.*
- *When gear switching levels are substantially above 29 percent, gear-specific QP would be issued for a number of years followed by just a few years of issuance of generic QP before a return to the issuance of gear-specific QP for a number of additional years.*
- *Oscillation frequency will increase as legacy participants divest of QS, causing a decline in the amount of any-gear QP issued each year.*
- *Using a three year average as the metric for evaluating the percentage-gear switching criteria results in less oscillation than would use of a single year metric.*
- *The metric used to evaluate the percent gear-switching criteria would be influenced by data from as many as four years earlier.*
 - *There may be some ways to reduce this delay by at least a year.*

The actual percentage of gear switching occurring is another indicator of the degree to which gear switchers may be competing with trawl vessels for northern sablefish. The option proposed would combine the gear-switching level criteria (three year average below 29 percent) with the ACL criteria (ACLs above a level to be determined) such that meeting either would trigger the issuance of northern sablefish QP without gear designations (i.e., generic QP, see Figure 33). ***The following discussion applies with respect to periods in which the ACL is below the trigger level (i.e. the lower half of Figure 33).***

9.4.3(a) Hypothetical Time Series Analysis

Use of a gear-switching level as a trigger could result in the issuance of generic QP for many years in a row or oscillations between the issuance of generic and gear-specific QP. The oscillations would be caused more by the specification of the provision than conditions in the fishery. The frequency and duration of the oscillations would vary with conditions in the fishery.

The gear-switching level criteria work without oscillations in periods when gear-switching levels are relatively low. This is illustrated by the hypothetical time series of gear-switching levels provided in Figure 37. The average for this hypothetical time series is 25 percent. Note that the three-year average (grey line) never reaches 29 percent (hashed line) and therefore in each year generic QP are issued. It should also be noted here that the metric used to evaluate gear switching is a three-year rolling average, applied to the coming fishing year (indicated by the bracket and arrow showing the average of years 1-3 applying to year 5). The one-year lag between the years used for the three-year average and the year to which the metric is applied to determine the type of QP to be issued (generic QP or gear-specific QP) is due to the need for the data to be complete before it can be used to determine the type of QP to be issued for the coming year.

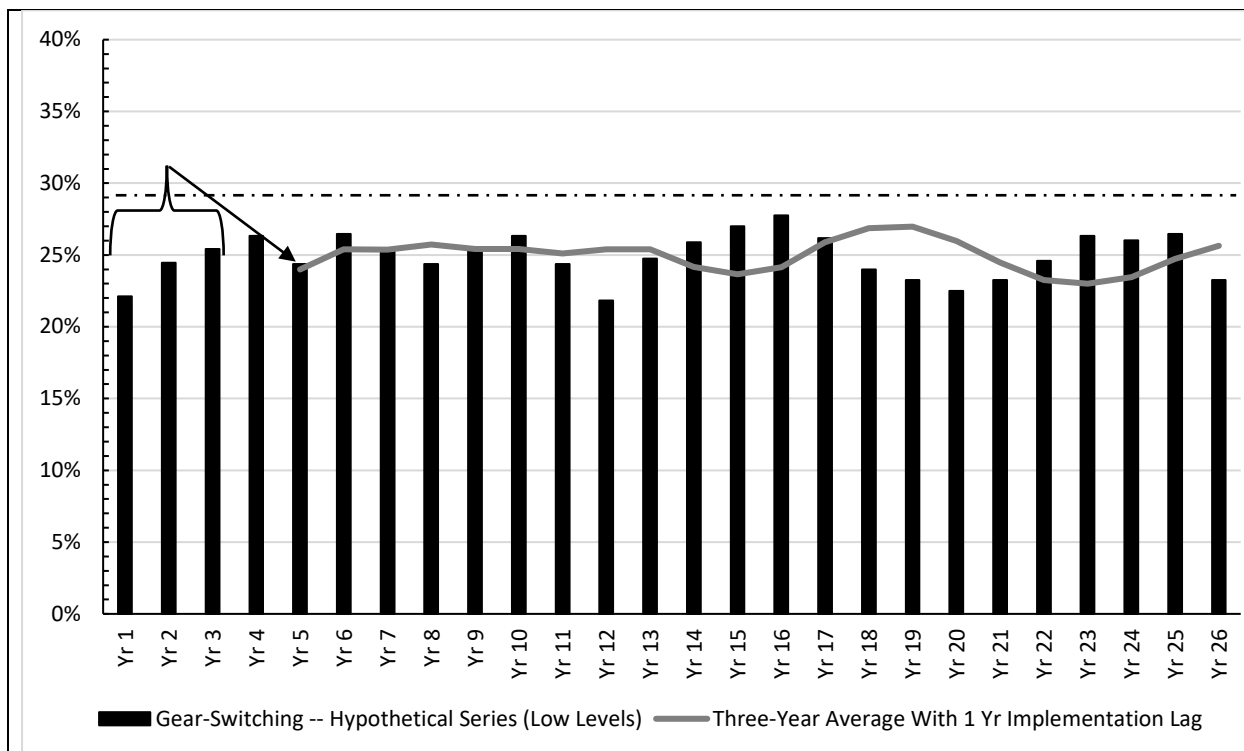


Figure 37. Hypothetical time series of gear switching at relatively **low levels** (averaging 25 percent, about 25 percent less than values seen from 2014-2019) and the previous three-year average, lagged one year—because the average starts and remains below 29 percent, all QP issued would be generic.

When gear-switching levels are at moderate levels above 29 percent, there would be oscillation between the issuance of generic and gear-specific QP (reminder: assuming that ACLs are at levels lower than the trigger level). Figure 38 provides another hypothetical time series in which the values are generally similar to those observed from 2014-2019. The average for this hypothetical time series is 33 percent attainment by gear-switchers. The three-year average (grey line) shown in that figure is also lagged one year (as in Figure 37). Figure 39 shows how the gear-switching levels would be affected by applying the PPA, along with the gear-switching level criteria contained in the suboption, starting in year 5 of the time series. The PPA is applied assuming that 29 percent of the QP would be issued as any-gear but that 10 percent of those QP would go unused (i.e. approximately a 26 percent level of gear switching). In the figure it can be seen that for the hypothetical time series, in years one to three, the gear-switching levels were above 29 percent so the average (lagged one year as described in the previous paragraph) results in gear-specific QP being issued for years 5 through 8. Because the issuance of gear-specific QP necessarily drives the three-year average to below 29 percent, there is a reversion back to the issuance of generic QP within four years (year 9 based on average of years 5-7), regardless of whether incentives for gear-switching are low or high for year 9. For this hypothetical series and level of issuance of any-gear QP (29 percent), gear-specific QP are issued for three or four years in a row, followed by two or three years of issuance of generic QP. Overall, gear-specific QP would be issued in 14 out of the 22 years in which the criteria is applied in this hypothetical example (years 5 to 26 in Figure 39). Based on the assumptions used in this analysis, average gear-switching levels would drop from 33 percent to 29 percent.

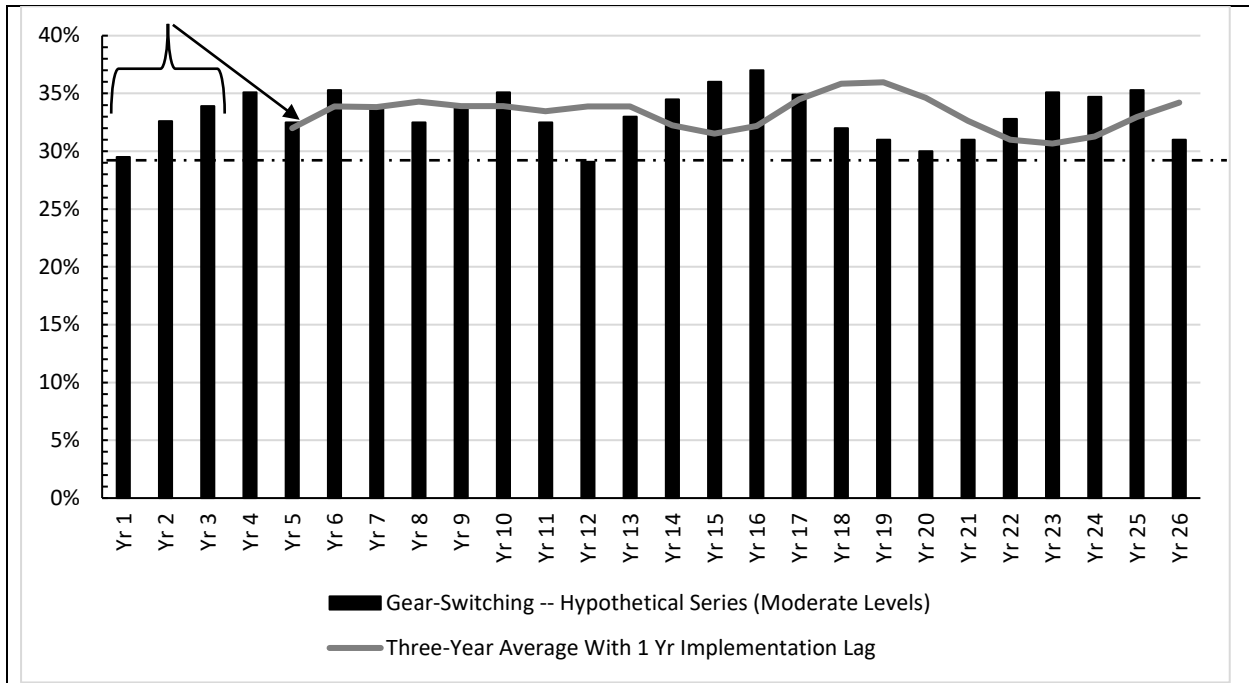


Figure 38. Hypothetical time series of gear-switching at relatively **moderate levels** (similar to those seen from 2014-2019— averaging 33 percent) and the previous three-year average, lagged one year.

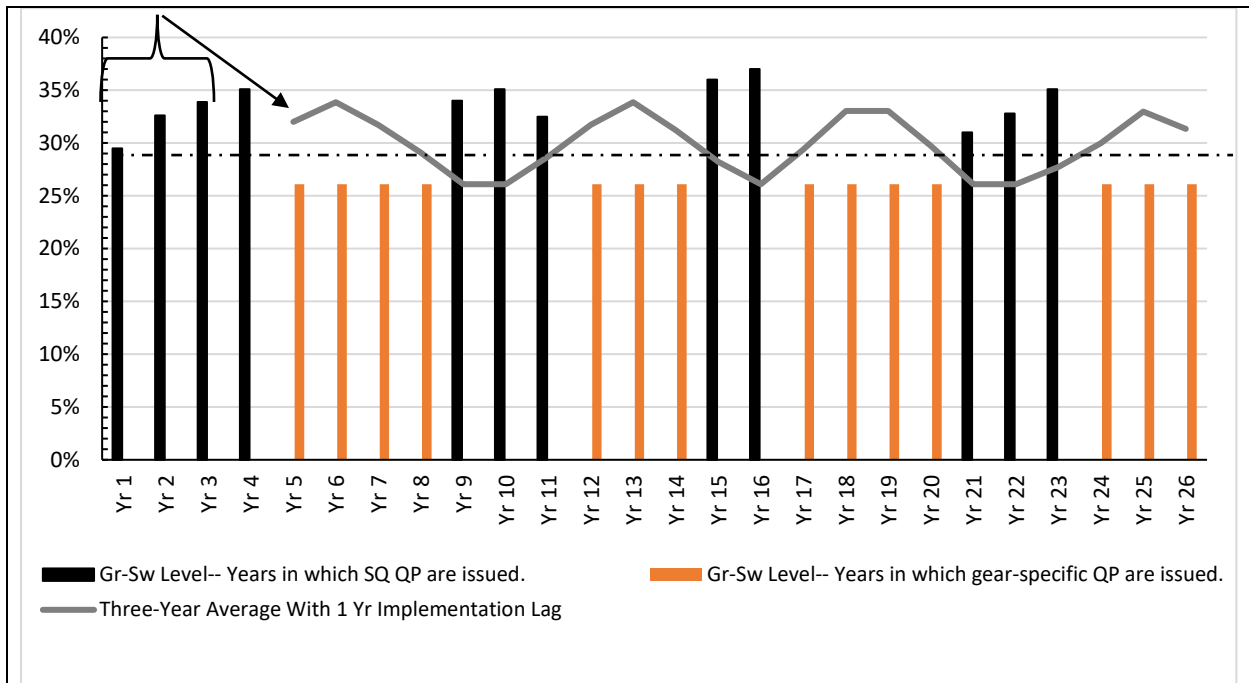


Figure 39. Hypothetical time series of gear switching at relatively **moderate levels** (averaging 33 percent, from Figure 38), as modified based on applying the PPA and 29 percent gear-switching criteria (i.e. issue generic QP when the three year average is below 29 percent)— assumptions: ACLs are below the trigger level and when gear-specific QP are issued 10 percent of the any-gear QP issued (**29 percent**) is not used for gear-switching.

Over time legacy participants are expected to divest themselves of their QP, and, based on the option selected for the PPA, the amount of any-gear QP issued would decline from 29 percent (at the time of implementation) to a lower amount. As the proportion of QP issued as any-gear declines, the three-year average will drop more quickly and to lower levels. This would result in gear-specific QP being issued in fewer years and more years in which generic QP are issued. For the hypothetical time series used in Figure 38 and Figure 39 and gear-specific QP issued at the 20 percent level (assuming that legacy participants have divested of most all their QS), the type of QP issued would cycle between two to three years of gear-specific QP and three to five years of generic QP (Figure 40). Overall, gear-specific QP would be issued in 9 out of the 22 years in which the criteria is applied in this hypothetical example (years 5 to 26 in Figure 44). Based on the assumptions used in this analysis, average gear-switching levels would drop from 33 percent to 26 percent. One approach for reducing the effect of declines in the amount of any-gear QP issued would be to tie the gear-switching level trigger to the total amount of any-gear QP issued. In this example, the trigger would instead be 20 percent.

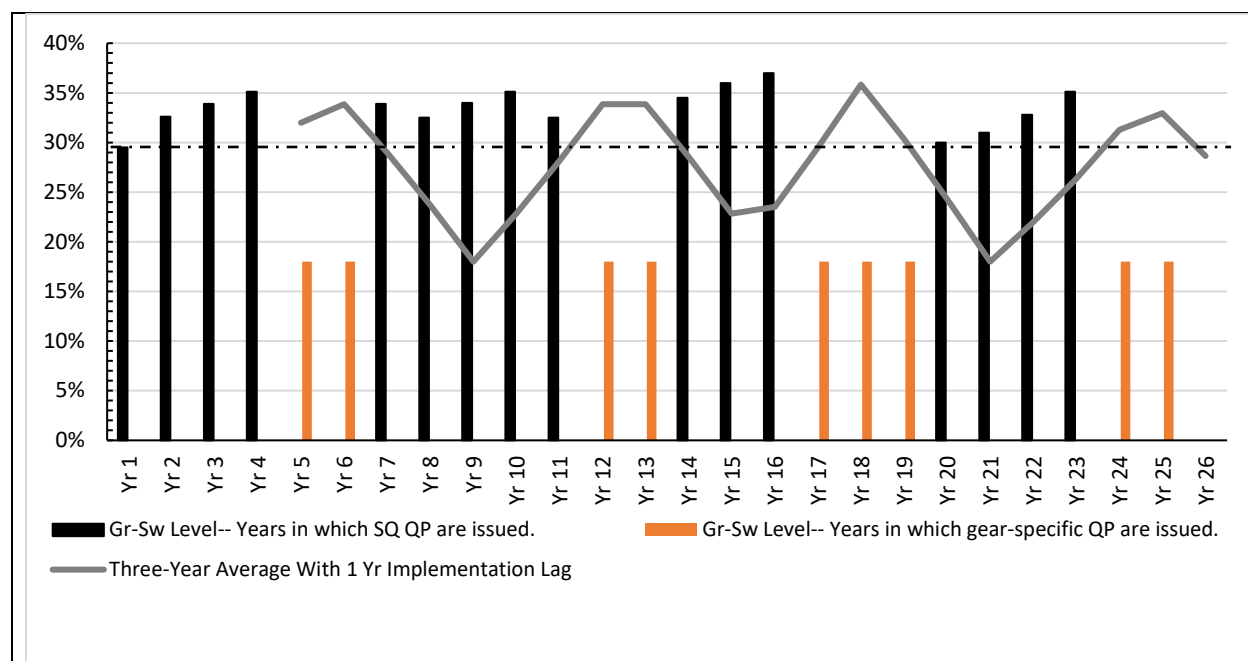


Figure 40. The same as Figure 39, except when gear-specific QP are issued, only 20 percent of the QP are issued as any-gear because of the departure of most legacy participants.

The trigger would also result in fewer oscillations and more consistently issue gear-specific QP if the unconstrained gear-switching levels tended to be higher. For example, if the hypothetical time series were higher than that used for Figure 37 (i.e., averaging 42 percent as compared to 33 percent for the Figure 37 series) and 29 percent of the QP are issued as any-gear in gear-specific years, generic QP would only be issued for two years at a time, followed by around four years of issuance of gear-specific QP (gear-specific QP would have been issued in 16 of 22 years, Figure 41). Based on the assumptions used in this analysis, average gear-switching levels for years 5 to 26 would drop from 42 percent to 33 percent⁴⁴.

⁴⁴ The fact that the time series with moderate gear switching averaged 33 percent and the higher time series dropped to 33 percent is a coincidence.

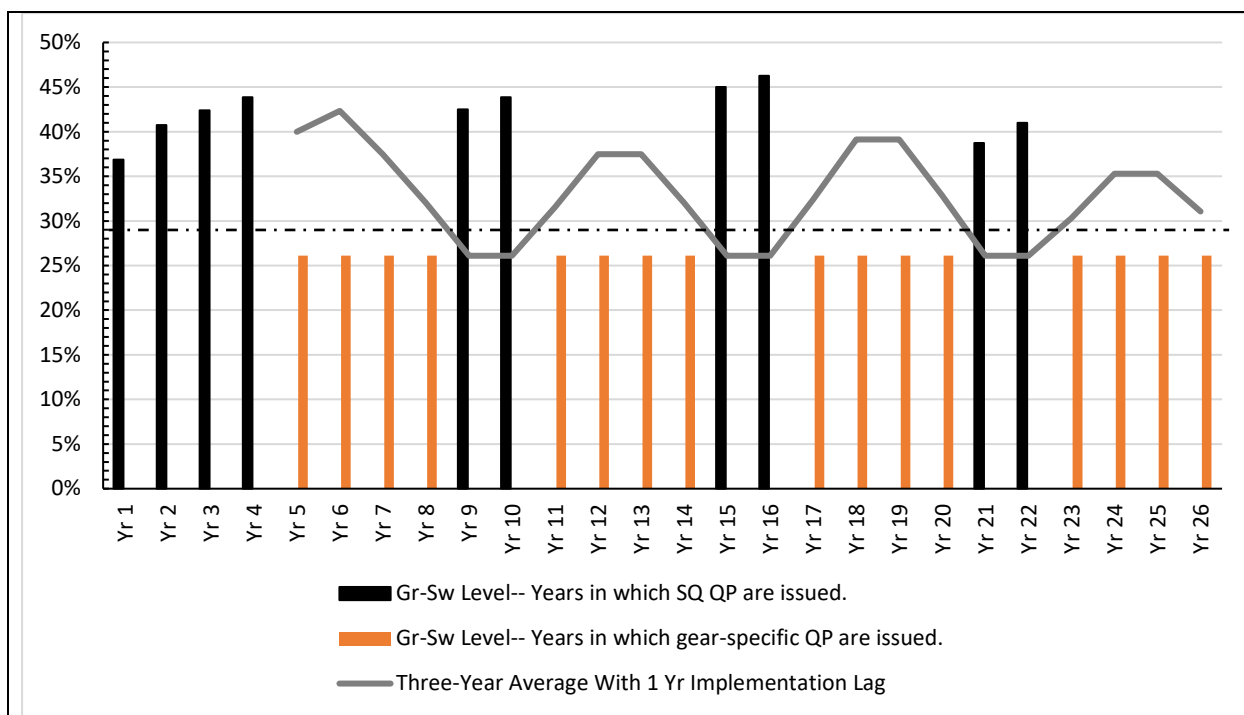


Figure 41. Hypothetical time series of gear switching at relatively **high** levels (averaging 42% gear switching), as modified based on applying the PPA and 29 percent gear-switching criteria (i.e. issue generic QP when the three year average is below 29 percent)—assumptions: ACLs are below the trigger level and when gear-specific QP are issued 10 percent of the any-gear QP issued (**29 percent**) is not used for gear-switching.

9.4.3(b) Retrospective Analysis

The impact of the management response to hitting the gear-switching trigger is also illustrated in the retrospective application of the gear-switching percentage trigger criteria provided in Table 65 (for ease of reference, duplicated here and provided as Table 66). In this table, based on the actual conditions that occurred, applying only the ACL triggers of 8,000 and 10,000, gear-specific QP would have been issued in 2022 (Table 66). However, if gear switching had been constrained to 29 percent in 2018-2020, as would likely have occurred if the PPA and gear-switching criteria suboption had been applied for the entire time series, generic QP would have been issued for 2022 (based on $ACL < 8,000$ mt and gear-switching average being forced below 29 percent due to gear-specific QPs being issued in 2018-2020). Generic QP may also have been issued for 2021, depending on how close gear switchers would have come to the 29 percent limit if gear-specific QP had been issued in 2018 and 2019 (Table 65). If the gear-switching level declined to just below 26 percent in 2018 and 2019, then generic QP would also have been issued for 2021.

Table 66. Retrospective evaluation of years in which gear specific QP would be issued using the ACL and gear-switching percentage criteria in combination (GSp QP = gear specific QP would be issued, SQ QP indicates that QP would not be gear-specific, i.e. generic or status quo QP underlined values are the results that changed when the criteria were combined).

Criteria	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
5,000					<u>SQ QP</u>	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP
6,000		Avg gear switching data for 2011-2013 apply to 2015			<u>SQ QP</u>	<u>SQ QP</u>	<u>SQ QP</u>	GSp QP	GSp QP	GSp QP	SQ QP	SQ QP	SQ QP	SQ QP	SQ QP
8,000			<u>SQ QP</u>	<u>SQ QP</u>	<u>SQ QP</u>	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP ^{a/}	SQ QP	SQ QP	<u>SQ QP</u>	SQ QP
10,000			<u>SQ QP</u>	<u>SQ QP</u>	<u>SQ QP</u>	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP	GSp QP ^{a/}	<u>SQ QP</u>	<u>SQ QP</u>	SQ QP

a/ If gear specific QP were issued in 2018-2020, gear-switching would have been held to below 29 percent in those years and it is unlikely that gear-specific QP would have been issued in 2022. This would not likely have affected the results for 2023-2025, since gear-switching under status quo QP was low in those years.

9.4.3(c) Time Lag in Data Used to Evaluate the Criteria

The gear-switching criteria uses a three-year average. The three-year rolling average is intended to reduce oscillation between issuing generic and gear-specific QP and is effective in that regard. For example, if instead of applying a three-year rolling average, the issuance of generic or gear-specific QP were determined based on a single year criteria, then for the scenario displayed in Figure 39 QP issuance would switch between generic and gear-specific QP every two years.

At the same time, the three year rolling average results in a substantial difference in time between the years in which gear-switching activity occurred and application of that information to determine the type of QP to be issued for a specific year. For example, in preparation for QP issuance for any upcoming particular fishing year (2025), the trigger would be evaluated in the current year (2024) based on an average of fishing from three years prior to the current year (2021-2023). Thus, whether the criteria were met for 2025 would be influenced by gear-switching levels from as much as four years prior (2021). For particular circumstances, there might be ways to reduce that delay to three years. For example, in the current year (2024), it might be that data is available part way through the year that is sufficient to determine whether the 29 percent threshold will be exceeded for the 2022-2024 average, allowing 2022-2024 data to be used in determining the type of QP to be issued for 2025. Another possibility might be to issue gear-specific QP at the start of a year but then revert to generic QP part way into the year (and retroactively to the start of the year⁴⁵), if it is determined that the threshold had been met with the previous year's final gear switching estimate. Continuing with our example years, gear-specific QP would be issued at the start of 2025 and, if with upon finalization of the 2024 data it was determined that the 2022-2024 average was below 29 percent, all 2025 QPs would be changed to generic any-gear QPs. This latter approach could have benefits in reducing the time delay, making it more likely that the type of QP issued would be more in line with the gear-switching levels. Those benefits would have to be weighed against administrative and communication feasibility/cost/complexity issues. It is also the type of complexity that compounds the development of other separate but related policies in the future and makes it more difficult to fully explain the catch share program. As a reminder, this issue has practical effect only when the ACLs are below the ACL trigger.

10.0 APPENDIX: BACKGROUND INFORMATION

10.1 Trawl Sector Fleet Descriptors

The shorebased IFQ fishery is comprised of fleet of vessels targeting a variety of different strategies using multiple gear types, many of which use sablefish north quota (as described in Section 2.4.5). On average, approximately 95 percent of all vessels with IFQ landings landed sablefish north. Table 67 below shows the number of vessels that harvested sablefish north in the IFQ program with fixed gear (gear switching), bottom trawl, and midwater trawl (rockfish and whiting) from 2011 to 2022. Over the time series, there were 106 distinct vessels and 110 permits that harvested sablefish north with trawl gear compared to 42 vessels and 42 permits associated with gear switching. Within these gear-switching totals are also a very small subset of

⁴⁵ To simplify the system, this could be done retroactively to the start of the year, so that all QP issued for the year would become any-gear, including that already used.

vessels and permits that harvested sablefish north with fixed gear and trawl gear in the same year. Since 2011, there have been 10 distinct vessels and 12 permits that used both fixed gear and trawl gear in the same year to land sablefish north, with an average of just over one vessel and permit per year. Due to confidentiality, no yearly totals can be provided for those vessels or permits.

Table 67. Number of vessels with sablefish north landings by sector compared to total IFQ vessels coastwide, 2011-2022. Note- vessels can be included in multiple sectors each year.

Year	Gear Switching	Bottom Trawl	Midwater Trawl	Total IFQ Vessels
2011	17	70	24	108
2012	20	64	24	105
2013	11	66	19	103
2014	15	62	24	101
2015	14	58	22	93
2016	16	56	20	92
2017	16	62	26	95
2018	15	57	30	96
2019	15	54	28	93
2020	9	50	31	82
2021	7	47	27	78
2022	10	51	32	81

With the trawl fleet participants, there have been concerns about the impact of gear switching utilization of sablefish and the constraints to the DTS fleet. In particular, there have been concerns about the smaller operations that may be impacted more than larger operations if they were unable to target DTS due to sablefish constraints. Bottom trawl vessels could be thought of in two categories- those who only bottom trawl in the IFQ fishery and those who fish both midwater and bottom trawl. Approximately half of the bottom trawl fleet fit into each category in the last four years since the allowance of carrying multiple trawl gear types on a single trip in 2019. There are also a fairly consistent number of vessels that participate in only midwater trawl, however, as discussed in Section 2.4.5, these vessels are thought to be able to outcompete bottom trawl and gear-switching vessels for sablefish QPs and are therefore not discussed further.

Table 68. Number of trawl vessels by strategy, 2018-2022.

Year	Bottom Trawl Only	Midwater/Bottom Trawl	Midwater Trawl Only
2018	36	21	23
2019	28	32	19
2020	27	26	20
2021	28	24	18
2022	27	30	14

DTS contribution to each vessel groups' (bottom trawl only, midwater/bottom trawl) portfolio varies (based on total West Coast revenue in 2023\$). In looking at the bottom trawl only group, across operational sizes, there does not appear to be large difference in the median proportion of

DTS is contributing to the vessel revenue (Figure 42). While there are smaller vessels that rely more heavily on DTS in most years (shown by the extent of the boxes and tails to the upper bounds of the y-axis), there are also vessels that rely on DTS less than do the larger operations. For those vessels that participated in both bottom trawl and midwater trawl, the medium (\$500,000 to \$1 million) or larger (over \$1 million) operations, tend to have a larger proportion coming from that DTS compared to smaller vessels- suggesting that those smaller vessels that do both strategies may not be as impacted by limitations or changes to DTS opportunities. A count of the number of vessels in each group and revenue bin is provided Table 69.

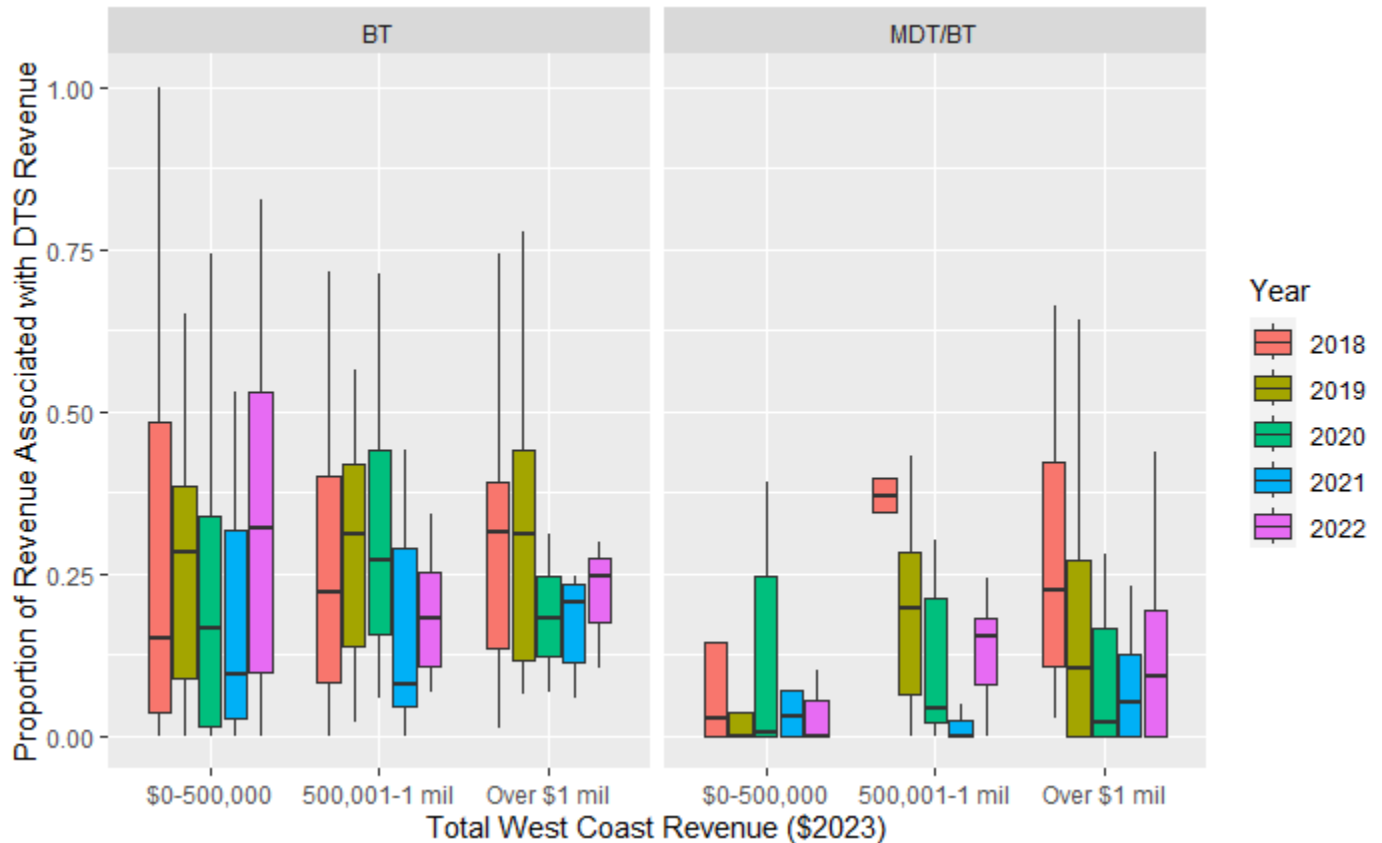


Figure 42. Boxplot showing the distribution of the proportion of total west coast revenue associated with DTS landings (y-axis) by vessel category (bottom trawl only- left panel, midwater trawl and bottom trawl- right panel) and by total west coast revenue (x-axis) for 2018-2022. Outliers removed to protect confidentiality.

Table 69. Number of vessels by vessel category (bottom trawl only, midwater trawl and bottom trawl) by total west coast revenue bin (2018-2022).

Year	Bottom Trawl			Midwater/Bottom Trawl		
	\$0-500,000	\$500,001-\$1 million	Over \$ 1 million	\$0-500,000	\$500,001-\$1 million	Over \$ 1 million
2018	8	16	12	4	5	12
2019	8	12	8	4	10	18
2020	10	14	3	6	11	9
2021	7	14	7	5	5	14
2022	16	8	3	7	9	14

Operational size could also be looked at in terms of vessel capacity- which can be inferred by vessel length. Each vessel participating in the trawl IFQ program must be registered to a trawl endorsed permit with an endorsement length sufficient for the size of their vessel. These endorsement lengths were established during Amendment 6 with the implementation of the limited entry program as one of the primary objectives was to limit or reduce harvest capacity in the groundfish fishery. Length endorsements place an upper bound on the amount of capacity that can be used with a particular vessel.

Using the same vessel categories (bottom trawl only, midwater/bottom trawl) and revenue groupings as shown in Figure 42, Figure 43 shows the distribution of vessel lengths from 2018-2022. There does not appear to be a strong pattern present across the bottom trawl only category across the revenue bins; however, there does appear to be a relatively larger vessel size factor associated with higher revenue for vessels that do both midwater and bottom trawl which may be due to the larger capacity to harvest.

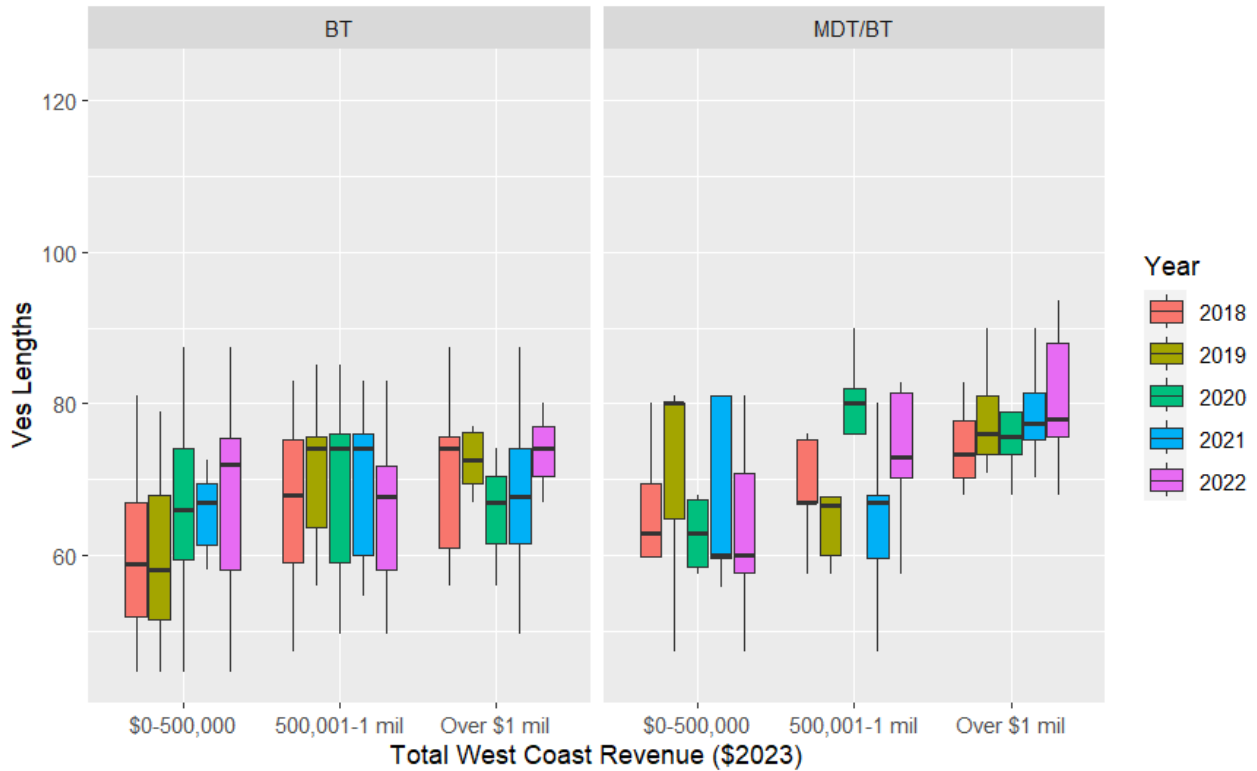


Figure 43. Boxplot showing the distribution of the vessel lengths (y-axis) by vessel category (bottom trawl only- left panel, midwater trawl and bottom trawl- right panel) and by total west coast revenue (x-axis) for 2018-2022. Outliers removed to protect confidentiality.

For gear switching vessels, the proportion of their total West Coast revenue varies annually- but smaller and medium sized operations tend to have a higher proportion of their revenue coming from gear switching (Figure 44). Note that this does not include any associated revenue from Alaska fisheries, of which some gear switching vessels participate in (see Section 2.5.4). The number of vessels by revenue category is provided in Table 70.

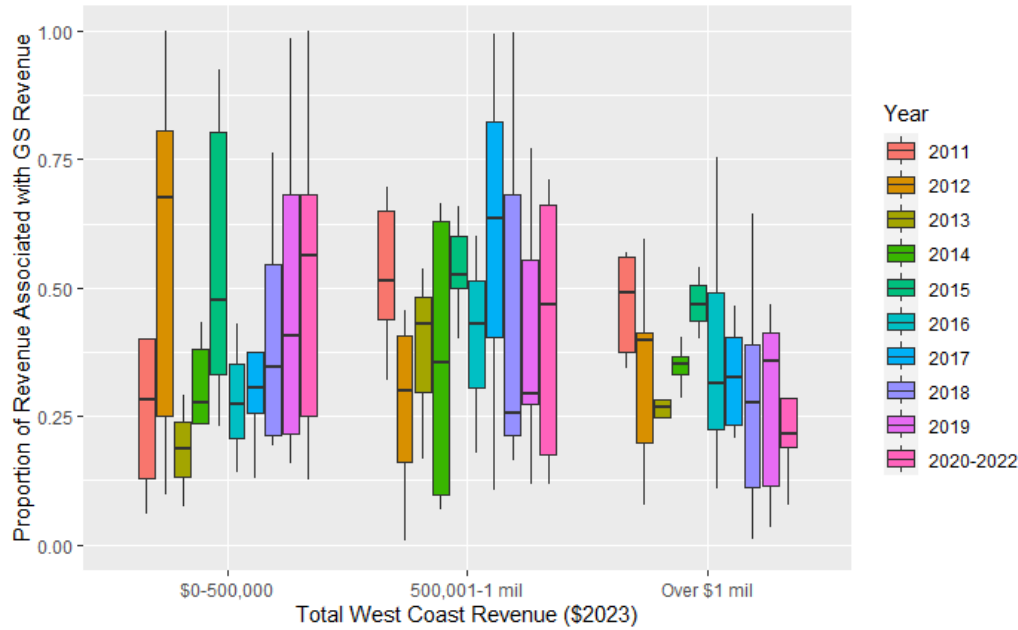


Figure 44. Boxplot showing the distribution of the proportion of total west coast revenue associated with gear switched landings (y-axis) by total west coast revenue (x-axis) for 2011-2022. Outliers removed to protect confidentiality.

Table 70. Number of gear switching vessels by total west coast revenue (\$2022). 2020-2022 combined for confidentiality.

Year	Total West Coast Revenue (\$2022)		
	\$0-500,000	\$500,000-\$1 million	Over \$ 1 million
2011	5	5	7
2012	8	7	5
2013	3	3	5
2014	5	6	4
2015	6	5	3
2016	3	3	10
2017	4	4	8
2018	4	5	6
2019	4	5	6
2020-2022	7	4	4

10.2 DTS Haul Characteristics

At the January 2020 SaMTAAC meeting, staff presented an analysis on the characteristics of bottom trawl hauls that caught Dover sole and sablefish north ([SaMTAAC Agenda Item B.2, Attachment 1 \(Revised\), January 2020](#)). In particular, there was interest by the Committee in understanding how the ratio of Dover sole to sablefish can vary by location, season, and depth. The following is an update of that analysis.

Figure 45 below shows a gradient map of the average ratio of Dover sole to sablefish north seen in each 0.5 x 0.5-degree grid cell from 2002-2022. Cells without hauls from at least three vessels were removed for confidentiality. The left panel depicts a continuous gradient of the average ratio while the right panel has discrete categories of average ratios, making it easier to see differences for lower ratios. As shown, of those bottom trawl trips where sablefish north was caught, there is overall a higher ratio of Dover sole to sablefish north off the Washington/Oregon coasts as compared to California, with a significant peak in the ratio (shown by the brighter blue in the left panel) between approximately 46° N. lat. and 47° N. lat. The average ratio tends to decrease the further south the grid cell is located, so that catching the same amount of Dover sole requires more sablefish in the south. These data indicate that a shortage of sablefish QP could push more of the trawling for Dover to the north (assuming that sablefish QP is a limiting factor). Additionally, as depth increases, the ratio of Dover to sablefish generally decreases.

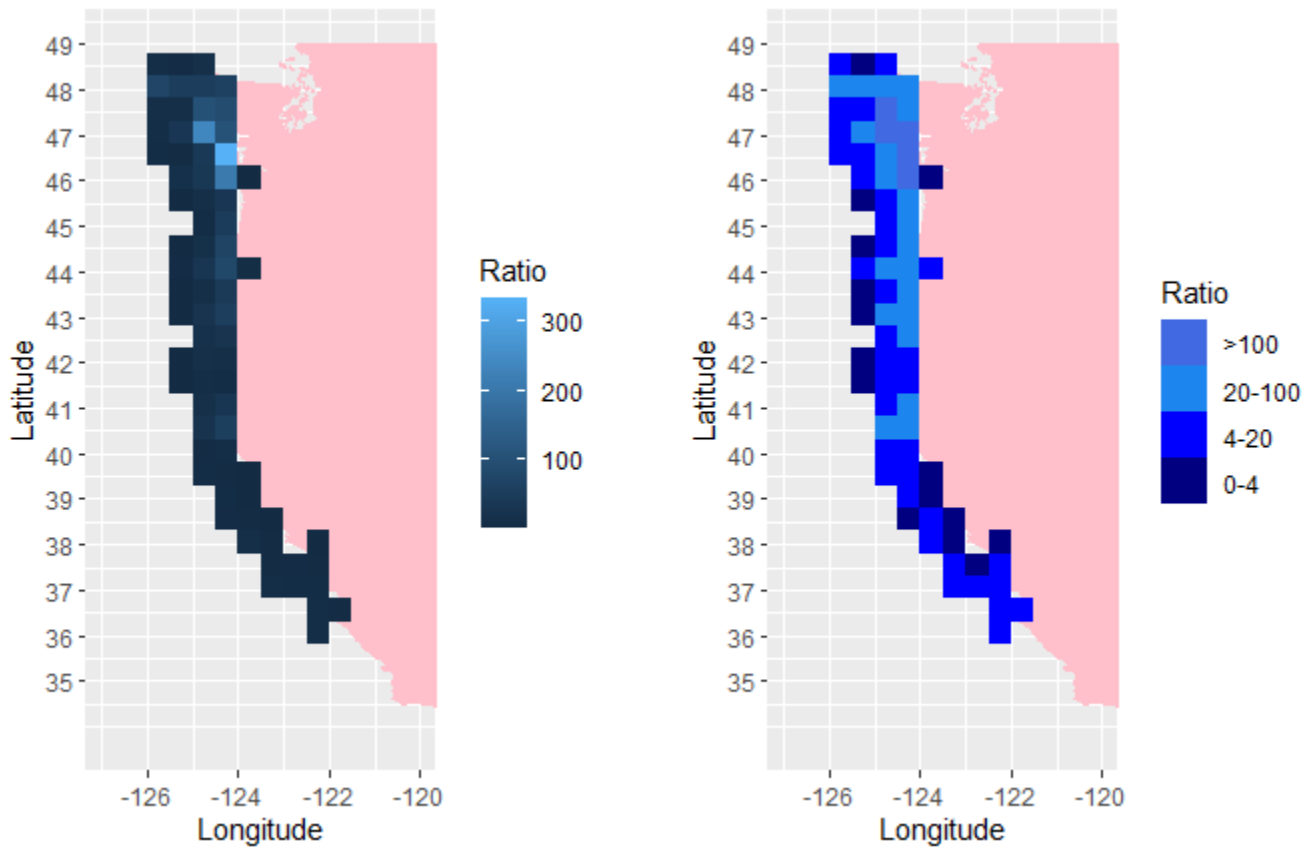


Figure 45. Left panel shows continuous gradient of the average ratio of Dover sole to sablefish north on positive bottom trawl hauls from 2002-2022 in 0.5x0.5-degree cells; right panel shows binned average ratio of Dover sole to sablefish north on positive bottom trawl hauls in 0.5x0.5-degree cells (Source: WCGOP; WGS84 Coordinate System)

With regards to seasonality, Figure 46 below shows the average ratio of Dover sole to sablefish north by month on those positive sablefish hauls. Not only does the range of average ratio vary by year, but the months at which the peaks occur vary. In general, the ratio of sablefish in the catch is lower in the summer and fall during the IFQ program years (2011-2022). There is also a similar trend in the landings of Dover sole and sablefish north across all years in that the peaks of landings tend to co-occur. In general, peak Dover/sablefish ratios occur when Dover sole

landings are low but low Dover sole landings are not always related to a peak ratio. The high ratios might occur only when there are smaller production levels because only a few vessels are fishing and they are intentionally avoiding sablefish or simply because the number of trips is small and so there is more variability in the averages. The existence of high ratios only at low Dover sole landing levels likely indicates that there is little opportunity for consistently achieving them at production levels that would be significant enough to substantially expand attainment of the Dover allocations (and hence reduce the need for sablefish to cover bycatch). At the same time, other more moderate levels of Dover to sablefish ratios might be more achievable at higher production levels (above the average but lower than the peak levels).

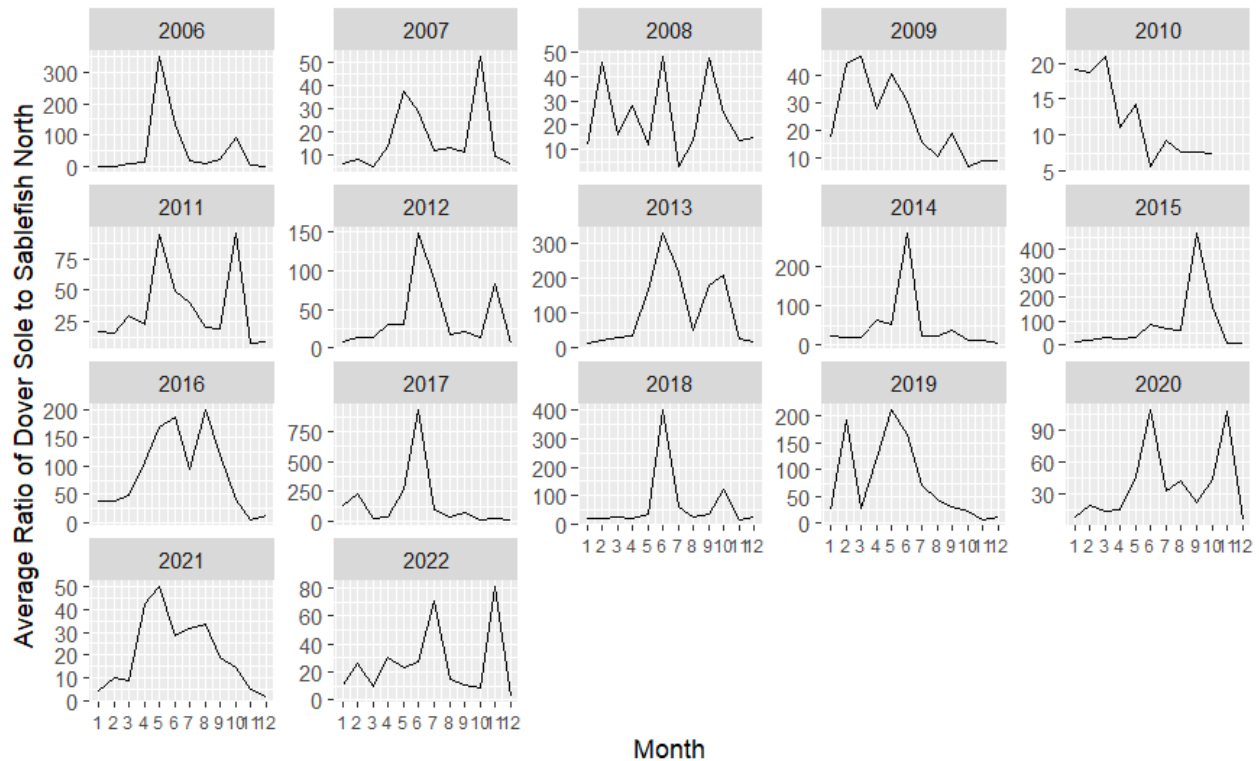


Figure 46. Average ratio of Dover sole to sablefish north on positive bottom trawl hauls, 2006-2022

10.3 Communities

Coastal communities along the West Coast are dependent on a portfolio of fisheries, including groundfish, Dungeness Crab, and salmon. A port’s involvement and dependence on a particular fishery is indicated by several factors including landings made to the port, the degree to which the landings are processed in the port, whether the vessels making the landings are homeported there, and whether the owners and crew reside in the community or elsewhere. Dependence is affected by the activities associated with a particular fishery in comparison to other fisheries and the port economy as a whole, and whether the reduction of one activity is likely to result in an increase in some other activity. The most [recent CCIEA report](#) noted that of the fishing communities analyzed on the West Coast, Tokeland and Westport, Washington were the two communities most socially vulnerable to downturns in commercial fishing given their relatively

high social vulnerability (y-axis) and high reliance (x-axis) on commercial fisheries as shown in Figure 47 below.

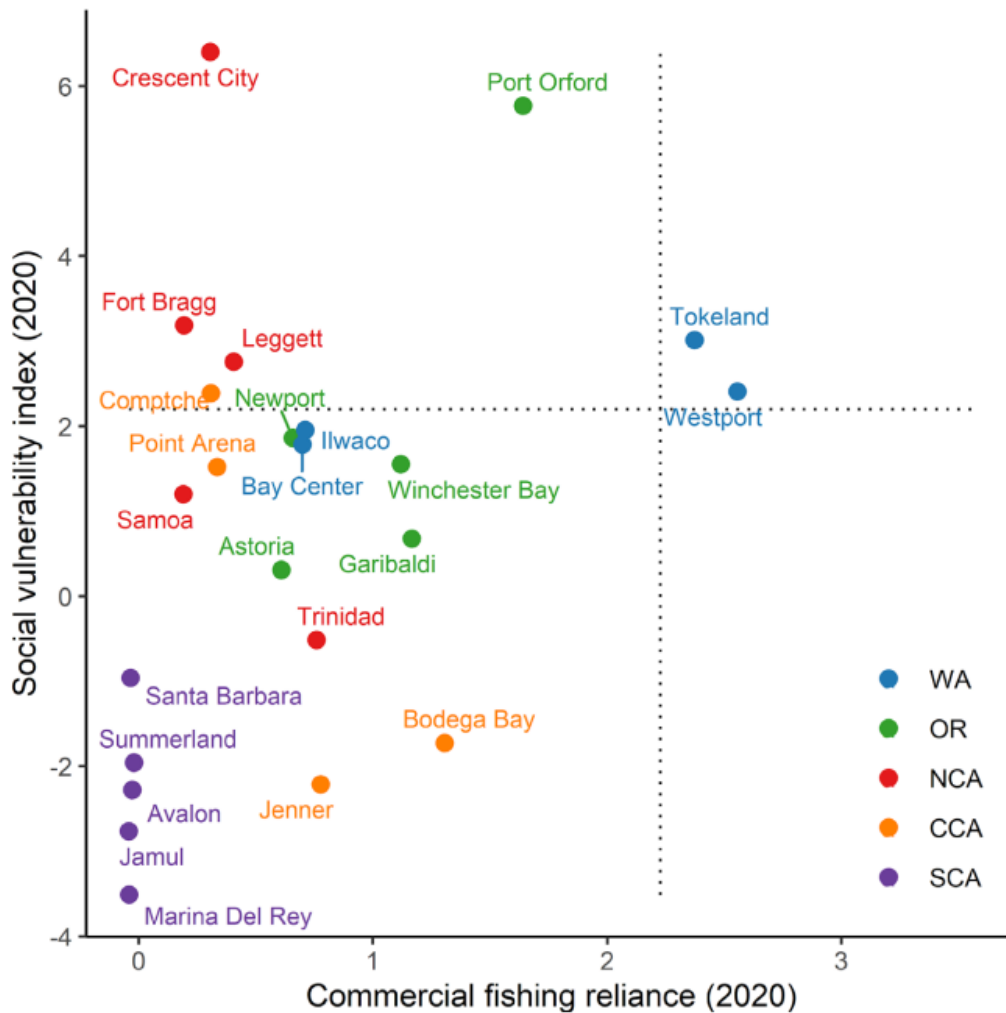


Figure 47. Commercial fishery reliance and social vulnerability scores in 2020 for communities in Washington, Oregon, and norther, central, and southern California. The five highest scoring communities for fishing reliance in each region are shown. Dotted lines equal 1 s.d. above the means for all communities. ([2022-2023 California Current Ecosystem Status Report, p. 27](#))

Previous analyses have looked at the impact of IFQ fisheries on port communities ([Agenda Item F.4., Attachment 1, April 2021](#)). Looking at IFQ exvessel revenue relative to all other exvessel revenue, as an indicator of dependence, on average, most ports received less than 15 percent of the average ex-vessel revenue from IFQ fishery deliveries from 2016-2019 with the exception of Fort Bragg (20.2 percent), Newport (25.5 percent) and Astoria-Tillamook (47.3 percent). As you travel south, IFQ landings as a percent of total exvessel revenue have recently been much lower than in the north (with the possible exception of Morro Bay).

Looking at the level of exvessel revenue, while the Washington coast is one of the lower port areas with respect to percentage of port ex-vessel revenues from IFQ fisheries, it has the third highest amount of revenue from IFQ fisheries (behind Astoria-Tillamook and Newport). In other

words- Washington coastal ports are relatively not dependent on IFQ fisheries but are relatively important within the IFQ fishery itself. In contrast, the ports from San Francisco south have average IFQ landings in total less than any single port to the north. Similar trends are seen across the coastwide income impacts and jobs in that when revenue for non-IFQ fisheries are greater than IFQ fisheries, the same trend tends to hold for income impacts and jobs. The one exception to this is Astoria-Tillamook, where there is close to a 50/50 split between non-IFQ and IFQ revenue but income impacts are higher for IFQ fisheries even though revenue impacts are lower. Due to confidentiality restrictions, IFQ fishery data must be aggregated to large port areas, which loses information about smaller ports.

Changes in opportunity in one fishery, such as IFQ, may impact operations in other fisheries- particularly other groundfish fisheries that utilize the same infrastructure or markets. Given that IFQ fishery data must be aggregated to large port areas to maintain confidentiality, it is difficult to display the involvement or dependence on smaller port areas in the IFQ fisheries. Table 71 provides an assessment about the presence or absence of activity in various groundfish sectors and the overall importance of groundfish in the port, as indicated by total fishing ex-vessel revenues in comparison to total groundfish ex-vessel revenues. The indication of whether vessels in a particular sector make deliveries to those small ports provides some indication of how the activities quantified for the aggregated port areas might be distributed among the ports within.

Table 71. Coastwide Ports by IOPAC Port Group with Groundfish Landings by Sector. (Whiting= Shoreside whiting, DTS= Dover sole-thornyhead-sablefish, Non-DTS=Non-whiting trawl other than DTS, IFQ-GS= gear switching, LEFG= Limited Entry Fixed Gear, OA= Open Access groundfish) Average Revenue from all species (millions) and average revenue from groundfish (millions), 2018-2022. “X” denotes a groundfish landing in that sector from 2018-2022. “c” represents strata with fewer than three vessels or dealers.

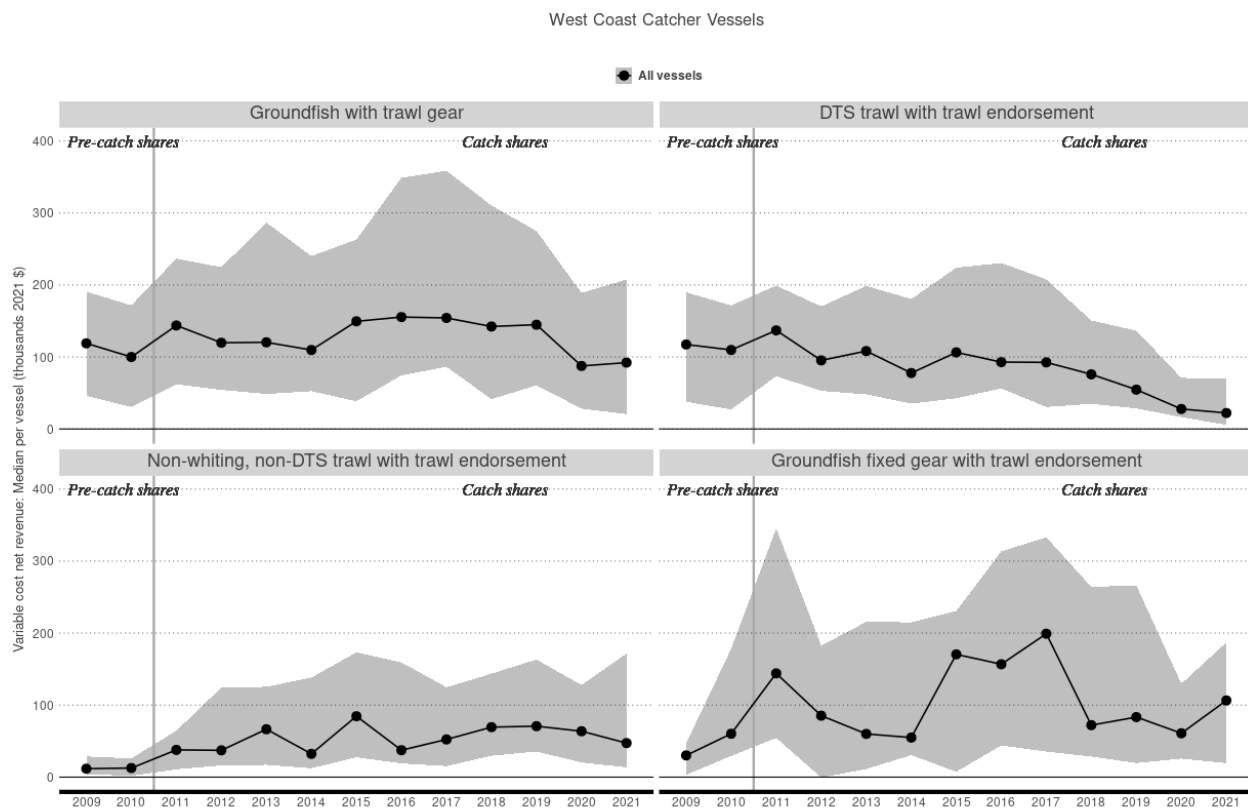
IOPAC Port Group	PacFIN Port Name	Presence of Landing in Groundfish Sector						Avg. Rev (millions)	Avg. GF Rev (millions)
		Whiting	DTS	Non-DTS	GS	LEFG	OA		
PUGET SOUND	BELLINGHAM		X	X	X	X	X	\$ 3.39	\$ 2.24
WA COAST	ILWCO/CHNK	X	X	X	X	X	X	\$14.83	\$0.80
	LA PUSH					X	X	\$0.74	\$0.23
	NEAH BAY		X			X	X	\$0.43	\$0.09
	O WA COAST						X	\$0.02	c
	PT ANGELES					X	X	\$0.09	c
	UNKN WASH					X	X	\$0.00	\$0.00
	WESTPORT	X	X	X		X	X	\$56.36	\$6.85
ASTORIA-TILLAMOOK	ASTORIA	X	X	X	X	X	X	\$44.35	\$22.68
	CANNON BCH						X	c	c
	GEARHART						X	\$0.38	c
	NETARTS						X	\$0.03	c
	PACIFIC						X	\$0.15	\$0.08
	TLMK/GRBLD						X	\$ 6.56	\$0.11
NEWPORT	DEPOE BAY					X	X	\$ 0.12	\$0.08
	NEWPORT	X	X	X	X	X	X	\$ 60.53	\$15.74
	SAMN RIVER						X	\$ 0.01	\$0.01
BROOKINGS-COOS_BAY	BANDON						X	\$ 0.09	\$0.05
	BROOKINGS		X	X		X	X	\$ 10.63	\$1.11
	COOS BAY		X	X	X	X	X	\$ 26.37	\$1.95
	FLORENCE						X	\$ 0.06	c
	GOLD BEACH					X	X	\$ 0.83	\$0.19
	ORFORD					X	X	\$ 4.50	\$1.51
	WINCHESTER					X	X	\$ 5.66	\$0.65

CRESCENT CITY-EUREKA	CRESCENT		X			X	X	\$ 17.38	\$0.53
	EUREKA		X	X	X	X	X	\$ 11.13	\$4.09
	FIELDS LDG						X	\$ 1.28	c
	O D NORTE						X	\$ 0.03	c
	O HUMBOLDT						X	\$ 0.63	\$0.12
	TRINIDAD						X	\$ 1.99	\$0.00
FORT BRAGG	ALBION						X	\$ 0.05	\$0.01
	FORT BRAGG		X	X		X	X	\$ 7.16	\$2.97
	O MENDOCNO						X	\$ 0.00	\$0.00
	PNT ARENA					X	X	\$ 0.56	\$0.15
SAN FRANCISCO-BODEGA BAY	ALAMEDA						X	\$ 0.09	c
	BERKELEY					X	X	\$ 0.31	\$0.03
	BODEGA BAY					X	X	\$ 9.16	\$0.24
	BOLINAS					X	X	\$ 0.22	c
	O SF/SMTEO		X	X			X	\$ 0.76	\$0.03
	O SNMA/MRN						X	\$ 0.04	\$0.00
	OAKLAND						X	\$ 0.02	c
	PRINCETON			X	X	X	X	\$ 10.64	\$0.66
	PT. REYES						X	c	c
	RICHMOND						X	\$0.06	\$0.00
	SAUSALITO						X	\$0.09	\$0.01
	SF			X	X	X	X	\$9.66	\$0.42
	TOMALES						X	\$0.01	\$0.00
MONTEREY	MONTEREY			X	X	X	X	\$8.66	\$0.21
	MOSS LNDG		X	X		X	X	\$8.06	\$1.25
	SANTA CRUZ					X	X	\$2.51	\$0.11
MORRO	AVILA					X	X	\$1.57	\$0.57
	MORRO BAY			X	X	X	X	\$2.61	\$1.38
SANTA BARBARA	O SB/VEN						X	\$0.05	\$0.01
	OXNARD					X	X	\$4.82	\$0.47
	S. BARBARA					X	X	\$11.96	\$1.98

	VENTURA					X	X	\$16.92	\$0.08
LOS ANGELES	DANA POINT					X	X	\$1.85	\$0.06
	LONG BEACH					X	X	\$0.50	\$0.00
	NEWPORT B.					X	X	\$1.03	\$0.26
	O LA/ORG					X	X	\$2.13	\$0.08
	SAN PEDRO					X	X	\$3.46	\$0.01
	TERMINAL I					X	X	\$12.48	\$0.03
	WILLMNGTN					X	X	\$0.02	c
SAN DIEGO	O S DIEGO					X	X	\$3.07	\$0.06
	OCEANSIDE					X	X	\$1.82	\$0.33
	SAN DIEGO					X	X	\$4.08	\$0.11
Coastwide								\$403.08	\$70.66

10.4 VCNR for Trawl DTS and Other Strategies in Comparison to Fixed Gear

On an annual vessel basis, the median gear switching vessel (dots connected by lines) had greater annual profits than the median DTS trawl vessel in 2011 and 2015-2020 (right hand graphs in Figure 48). And a similar evaluation shows that gear-switching vessels were even more profitable in comparison to non-whiting/non-DTS vessel (lower left hand graph in Figure 48). Further, in all years of the IFQ Program, the more efficient gear-switching vessels (75th percentile, top of shaded area in each graph) had substantially greater annual vessel profits than vessels using trawl gear (Figure 48). At the same time, the median DTS trawl vessels were more profitable than many of the lower profit gear switching vessels (the profitability of the lower 25 percentile of which starts at the lower edge of the shaded area in each graph).

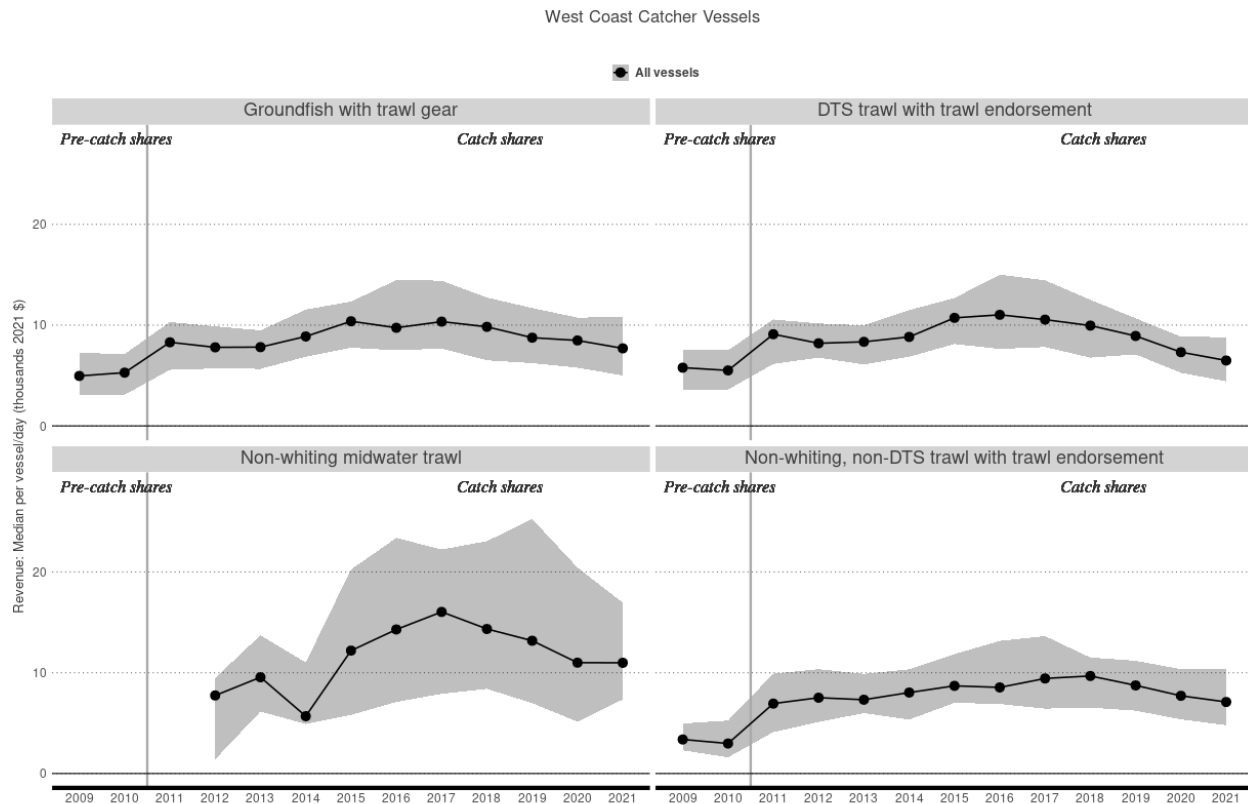


Note: Median vessel shown by the line, top of the gray area denotes the 75th percentile vessel, and the bottom the 25th percentile vessel.

Figure 48. Annual VCNR for vessels while fishing in non-whiting strategies or using non-trawl gear to gear switch, 2009 through 2021. Source: The FISHEyE application maintained by NOAA Fisheries, NWFSC on September 29, 2023.

VCNR per day indicates more about the choices vessels have each day and differences in opportunity between the strategy. However, on any particular day, there are a large number of factors that play into the choice of strategies for a trip including: what the vessel is already geared up for, what the crew has been fishing in previous days (which includes knowledge of current best locations and fishing tactics), opportunities in other fisheries, market limits, current and expected sea and weather conditions, and a variety of other circumstantial conditions that shape the strategy selected and tactics used on a particular

fishing day. As with the annual catches, there are overlapping distributions on a per fishing day basis (Figure 49).

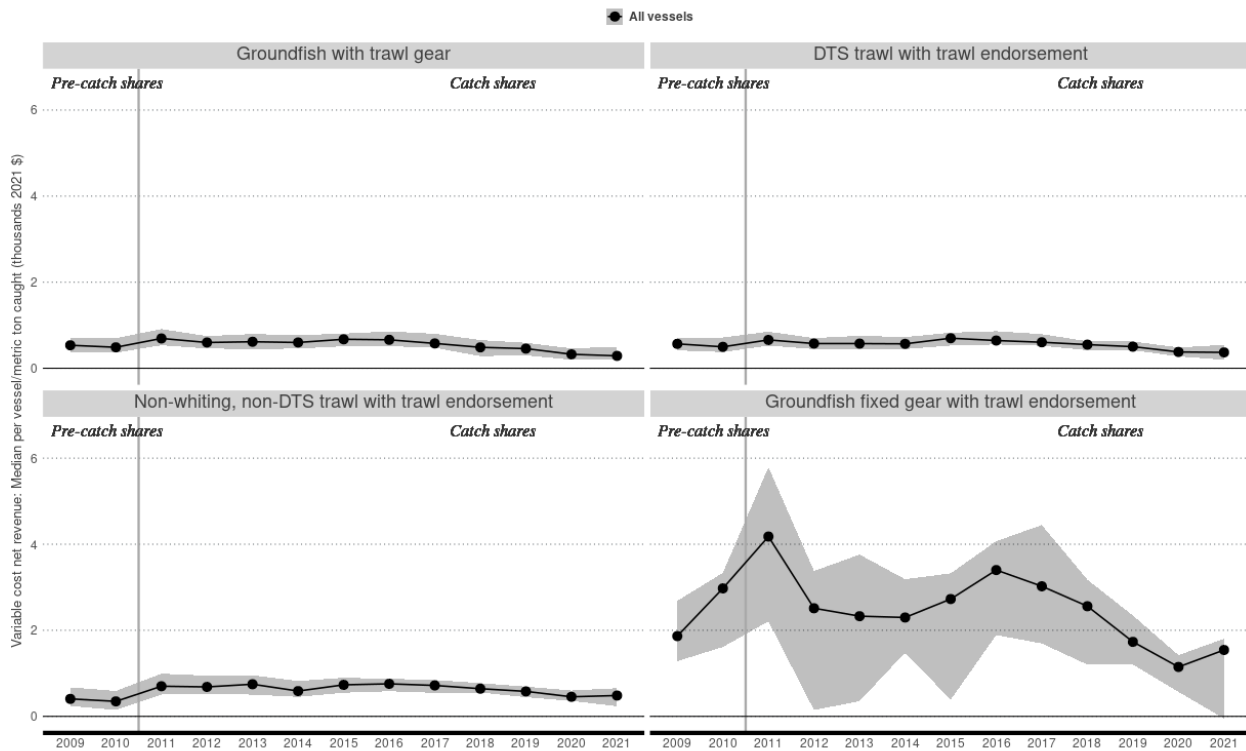


Note: Median vessel shown by the line with markers, top of the gray area denotes the 75th percentile vessel, and the bottom the 25th percentile vessel.

Figure 49. VCNR **per day** for vessels while fishing in non-whiting strategies or using non-trawl gear to gear switch, 2009 through 2021. Source: The FISHEyE application maintained by NOAA Fisheries, NWFSC on September 29, 2023.

In contrast to the annual vessel and daily trip data, VCNR per mt of catch for gear-switching vessels is much higher than for trawl vessels (Figure 50). A mt of trawl catch includes species other than sablefish, most of which have a substantially lower exvessel prices than sablefish (one notable exception would be Petrale sole). In contrast, for gear switching vessels, most of the catch composition is the much higher valued sablefish (on average 97.1 percent of the weight and 99.3 percent of the value is from sablefish). Thus, when VCNR per mt of catch is evaluated the values for gear-switching vessels are much higher than for trawl vessels Figure 50. There are, however, some exceptions that can be seen for gear switching in particular years. For example, in 2012, 2013, 2015 and 2021 the 25th percentile gear switchers were lower than or in the area of the median for trawl vessels, again, indicating how the relative economic advantages/disadvantages for gear switching change by year. Comparison of the annual vessel data (Figure 48) to the per metric ton data indicates that volume of landings is important for the profitability of trawl vessels.

West Coast Catcher Vessels



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 50. Annual VCNR for **vessels per mt of catch** while fishing in non-whiting strategies or using non-trawl gear to gear switch, 2009 through 2021. Source: The FISHEyE application maintained by NOAA Fisheries, NWFSC on September 29, 2023.

10.4.1 Additional Information on Sablefish Price Effects on Relative Profitability

As discussed in Section 2.5.3, compared to the 2017-2021 average, in 2017 exvessel prices were higher and the difference between trawl and fixed gear exvessel prices were higher. The percentage of the trawl allocation and total pounds gear-switched in 2017 was second only to 2019 (Table 3). Because of confidentiality limitations, annual data for 2018-2021 cannot be displayed for decile intervals. Here comparison information is aggregated for quartiles and displayed for each year (except 2020 and 2021). In more recent years, when sablefish prices have been lower and the difference between trawl and gear-switched prices less, smaller proportions of the gear switched trips would have VCNR per pound of sablefish greater than the bottom 20 percent of the DTS trips (as reflected by the increasing values for the gear-switching percentiles in the middle column of Table 72).

Table 72. VCNR per pound of sablefish for 20th percentile DTS vessels and corresponding percentile for gear-switching vessels.

Year	VCNR per pound of sablefish for 20 th Percentile DTS Vessel	Gear Switching Percentiles which Include the DTS 20 th Percentile VCNR level	Corresponding VCNR per Pound of Sablefish
2017	1.78	≥40 and < 50	≥ 1.62 and < 1.86
2018	1.57	≥50 and < 60	≥ 1.56 and < 1.67
2019	1.15	≥60 and < 70	≥ 1.09 and < 1.17
2020-2021	0.93	≥80 and < 90	≥ 0.79 and < 0.95

10.4.2 Nature of DTS Trips Most Likely Constrained by Gear-Switching

DTS trips that have very high VCNR per pound of sablefish are unlikely to be limited by competition with gear switching for sablefish QP. One reason some of these trips have such high VCNR is that they often include Petrale sole. Table 73 uses the DTS trip groupings from Table 9 but shows the amount of Petrale taken for each cell in the DTS row. For DTS, the higher VNCR cells have more Petrale sole (6.15 percent of all Petrale for the DTS cell with the highest VCNR). Other fishery conditions may result in lower DTS VCNR per trip level that make them more subject to competition with gear-switchers for sablefish QP. DTS VCNR may vary widely due to geographic and seasonal differences in dover/sablefish ratios (see Section 10.2), vessel operator knowledge and techniques, and sablefish encounter rates that are different than expected when the trip and tactics decisions were made.

Table 73. Percent of **petrale** landings by weight by decile defined by variable cost net revenue per pound of sablefish (2017-2021).

Target	[10-20%)	[20-30%)	[30-40%)	[40-50%)	[50-60%)	[60-70%)	[70-80%)	[80-90%)	[90-100%)	Total
DTS	1.74%	2.40%	3.13%	3.59%	4.17%	4.43%	5.36%	5.90%	6.15%	36.87%

The range of results for DTS vessel VCNRs may also be impacted by DTS vessel efforts to modify the proportion of sablefish in their catch. Some of these efforts may be in response to vessels finding themselves with “surpluses” of sablefish QP. There are a variety of reasons unrelated to processor limits on catch of a complex that DTS vessels may find themselves with surplus sablefish. Increasing ACLs (for those who own their own QS), the development of more lucrative opportunities in other fisheries (such that they spend less effort on DTS), lower incidental sablefish catch rates than expected when fishing for a complex, an unanticipated need to take part of the year off for maintenance are a few examples. On the one hand, when situations like this arise and the availability of additional vessel time on the water is limited, vessels may choose to try to increase their sablefish encounter rate rather than sell their QP, because of the administrative tasks and uncertainties about engaging in the QP markets. Uncertainties may be greater later in the year when vessels using other strategies might be dumping their sablefish QP (e.g. whiting). Also, there are usually a few percent of sablefish each year that go unused creating some uncertainty about whether QP could be sold late in the season. While there may be reasons not to engage in the market, there is also the incentive to sablefish QP to other trawlers or gear-switchers to generate more revenue for the year.

10.5 Additional Information on Markets for DTS Species

10.5.1 DTS Prices

Among DTS species, non-sablefish prices have been much more stable than sablefish prices (Figure 51).

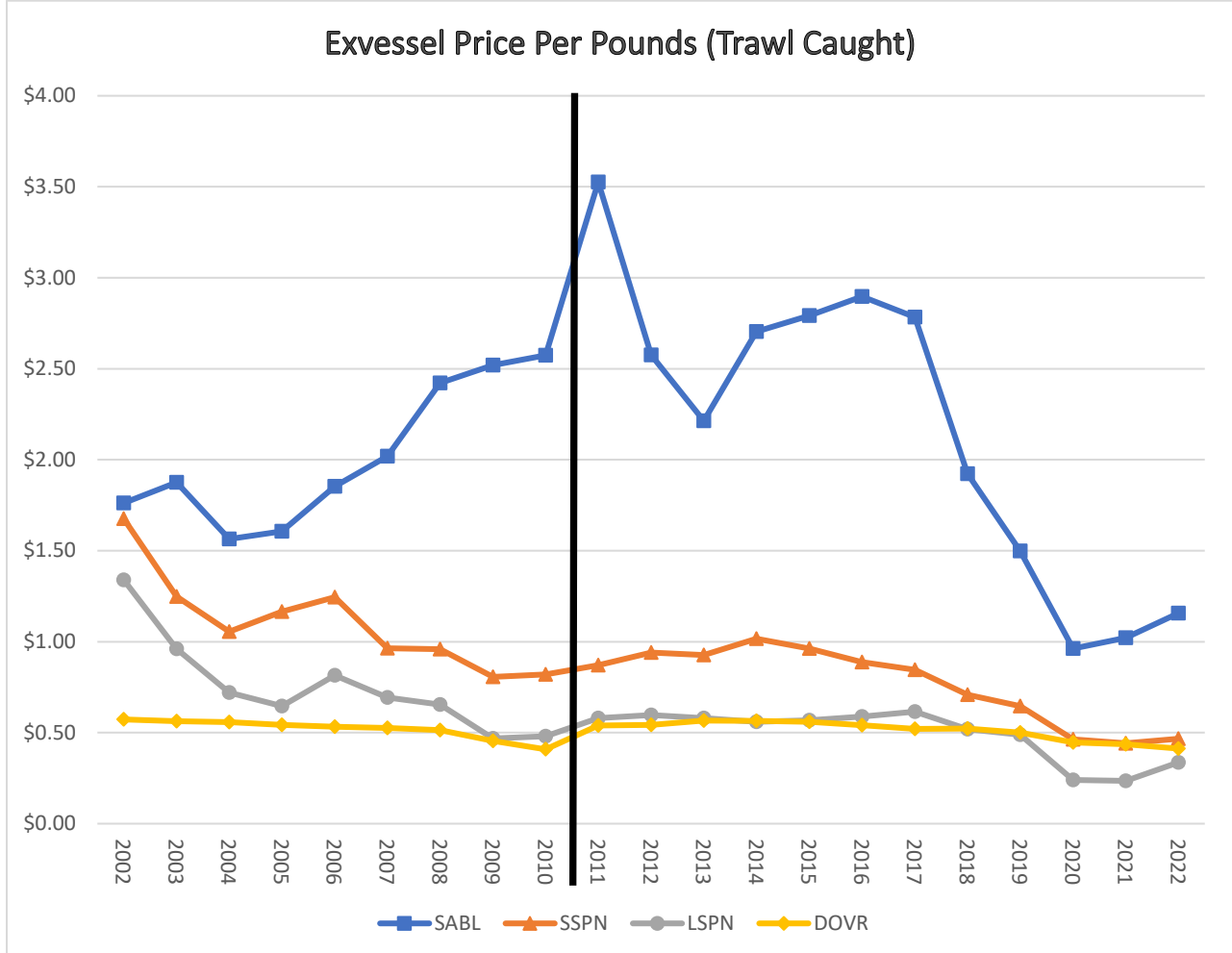


Figure 51. Inflation adjusted exvessel prices for DTS species, 2002-2022, vertical line marks start of trawl catch share program (PacFIN Data). Internal Reference General GF Prices - Annual-InclNominal (hidden filters)-NominalGrpd_SppGrps.xlsx

10.5.2 Sablefish Prices by Grade

The following tables provide historic prices by gear group and illustrate the importance of size of fish landed with respect to prices received.

Table 74. Evessel prices per pound of sablefish north by sector and grade, 2009-2022, PacFIN ^{a/} (internal reference: Dahl_All_Prices(SABL_N)_GearGroupComb_Grades_RndDr.xlsx)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Non-Whiting Trawl	2.51	2.56	3.24	2.26	1.98	2.44	2.46	2.47	2.42	1.56	1.18	0.70	0.80	0.92
Extra Small	1.98	1.93	2.16	1.43	1.26	1.74	1.73	1.73	1.72	0.85	0.57	0.38	0.42	0.58
Small	2.46	2.56	3.44	2.37	2.02	2.45	2.71	2.74	2.70	1.49	1.28	0.87	0.89	0.97
Medium	2.66	2.92	3.44	2.47	2.14	2.64	2.90	2.84	2.95	2.32	1.84	1.31	1.28	1.34
Large	3.09	3.39	4.60	3.62	2.95	3.10	3.27	3.63	3.64	3.60	3.18	2.23	2.01	2.15
Extra Large	3.01	0.60	-	-	-	-	-	-	-	-	3.97	-	2.16	3.55
Unspecified	2.68	2.49	3.34	2.32	2.08	2.42	2.26	2.31	2.27	1.47	1.12	0.67	0.92	0.99
Unknown	2.08	1.81	3.26	1.88	1.70	2.32	2.24	2.20	2.27	1.66	1.33	0.66	0.66	0.82
Fixed Gear Limited Entry	3.46	3.87	5.16	3.71	3.02	3.55	3.56	3.74	3.98	3.12	2.60	1.83	2.00	2.26
Extra Small	3.00	3.06	3.78	1.86	1.92	5.90	3.00	4.18	2.80	1.57	0.80	0.61	0.89	1.01
Small	3.23	3.67	4.91	3.25	2.89	3.63	3.80	3.57	4.09	3.08	2.50	1.50	1.86	2.07
Medium	3.49	3.74	5.04	3.69	3.11	3.48	3.67	3.64	3.53	3.66	2.95	1.78	2.04	2.29
Large	3.89	4.45	5.90	5.31	3.64	4.49	4.61	4.87	4.63	4.61	3.60	2.25	2.87	3.54
Extra Large	-	-	5.63	4.88	5.31	5.07	5.41	4.81	3.87	-	3.87	-	-	3.20
Unspecified	3.69	4.31	5.82	3.97	2.90	3.33	3.57	4.05	4.26	3.26	2.66	1.81	2.17	2.71
Unknown	3.10	3.83	4.47	3.21	3.13	2.85	2.09	2.39	3.16	2.26	2.19	2.09	1.87	1.67
Gear Switched	-	-	4.58	3.17	2.89	3.22	3.32	3.71	3.66	2.63	2.13	1.30	1.48	1.74
Extra Small	-	-	4.38	1.78	1.82	2.21	2.14	2.43	2.43	1.39	1.91			
Small	-	-		2.55	2.70	2.53	2.41	3.32	4.03	2.52				
Medium	-	-	4.64	2.46	2.65	2.02	2.54	3.93	2.81	3.20	1.94	1.45	1.66	2.08
Large	-	-	5.79	4.52	3.51		3.56	4.29	4.73	4.35	4.19	3.17		
Extra Large	-	-	-	-	-					-	-	-		
Unspecified	-	-	4.48	3.37	2.94	3.41	3.56	3.72	3.90	2.91	2.31	1.71	2.05	1.77
Unknown	-	-	3.89	1.78	2.11	3.09	1.27	2.51	0.94	0.45	0.53	0.42	0.28	0.31

a/ Some cells combined to preserve confidentiality.

Table 75. Millions of dollars of sablefish north by sector and grade, 2009-2022, PacFIN^{a/} (internal reference: Dahl_All_Prices(SABL_N)_GearGroupComb_Grades_RndDr.xlsx).

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Non-Whiting Trawl	16.5	14.2	11.8	7.1	6.1	6.8	7.9	7.9	8.1	4.7	3.6	1.6	2.5	3.6
Extra Small	1.7	1.9	1.2	0.6	0.5	0.5	0.9	0.9	1.1	0.5	0.5	0.2	0.2	0.3
Small	5.0	4.0	2.1	0.8	0.7	0.9	1.2	1.4	1.6	0.9	0.6	0.3	0.5	0.7
Medium	4.7	4.4	2.8	1.8	1.5	1.9	2.3	2.3	1.8	0.7	0.3	0.1	0.1	0.2
Large	2.0	1.5	0.6	0.5	0.5	0.5	0.7	0.6	0.5	0.5	0.4	0.1	0.1	0.2
Extra Large	0.0	0.0	-	-	-	-	-	-	-	-	0.0	-	0.0	0.0
Unspecified	2.2	1.9	3.9	2.8	2.3	2.1	2.0	2.0	2.2	1.4	0.9	0.4	1.0	1.3
Unknown	1.0	0.5	1.2	0.5	0.6	0.8	0.9	0.7	0.9	0.8	0.9	0.5	0.5	0.9
Fixed Gear Limited Entry	17.1	19.3	21.4	12.2	7.8	9.3	11.5	12.9	14.4	11.1	8.7	5.6	6.9	9.0
Extra Small	0.3	0.4	0.7	0.2	0.1	0.5	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0
Small	6.2	7.5	6.9	3.4	2.2	2.6	3.3	3.1	4.2	3.1	2.2	1.4	1.7	1.9
Medium	4.1	4.2	4.3	2.4	1.6	1.7	2.3	2.8	2.9	1.2	0.7	0.5	0.5	0.7
Large	4.5	3.5	4.2	2.4	1.0	1.0	1.8	2.2	2.4	1.6	1.3	0.8	0.6	1.1
Extra Large	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	-	-	0.0
Unspecified	1.0	2.3	3.6	2.5	1.8	2.2	2.9	3.5	3.7	3.2	2.6	1.3	1.9	3.2
Unknown	0.9	1.3	1.7	1.3	0.9	1.3	1.0	1.1	1.2	2.0	2.0	1.7	2.2	2.1
Gear Switched	-	-	6.9	5.1	2.8	3.6	5.2	6.6	6.7	4.7	4.2	1.8	1.9	2.6
Extra Small	-	-		0.1	0.1	0.0	0.1	0.1	0.1	0.1				
Small	-	-	1.5	0.3	0.3	0.1	0.4	0.7	1.4	1.0	1.1			
Medium	-	-	1.1	0.5	0.4	0.2	0.6	0.4	0.8	0.4	0.3	1.1	1.4	1.6
Large	-	-	0.8	0.7	0.5		0.2	1.2	0.6	0.4	0.6	0.7		
Extra Large	-	-	-	-	-					-	-	-		
Unspecified	-	-	3.3	3.4	1.6	2.8	3.0	4.6	4.0	2.5	2.0	0.6	0.4	1.0
Unknown	-	-	0.3	0.1	0.0	0.3	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1

a/ Some cells combined to preserve confidentiality.

Table 76. Millions of pounds of sablefish north by sector and grade, 2009-2022, PacFIN ^{a/} (internal reference: Dahl_All_Prices(SABL_N)_GearGroupComb_Grades_RndDr.xlsx)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Non-Whiting Trawl	6.6	5.5	3.6	3.1	3.1	2.8	3.2	3.2	3.4	3.1	3.1	2.2	3.1	4.0
Extra Small	0.9	1.0	0.5	0.4	0.4	0.3	0.5	0.5	0.7	0.6	0.8	0.5	0.5	0.6
Small	2.0	1.5	0.6	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.5	0.3	0.5	0.7
Medium	1.8	1.5	0.8	0.7	0.7	0.7	0.8	0.8	0.6	0.3	0.2	0.1	0.1	0.2
Large	0.6	0.4	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Extra Large	0.0	0.0	-	-	-	-	-	-	-	-	0.0	-	0.0	0.0
Unspecified	0.8	0.7	1.2	1.2	1.1	0.9	0.9	0.9	1.0	0.9	0.8	0.5	1.1	1.3
Unknown	0.5	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.5	0.7	0.8	0.8	1.0
Fixed Gear Limited Entry	4.9	5.0	4.1	3.3	2.6	2.6	3.2	3.4	3.6	3.6	3.4	3.1	3.5	4.0
Extra Small	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Small	1.9	2.0	1.4	1.0	0.8	0.7	0.9	0.9	1.0	1.0	0.9	0.9	0.9	0.9
Medium	1.2	1.1	0.9	0.6	0.5	0.5	0.6	0.8	0.8	0.3	0.2	0.3	0.2	0.3
Large	1.2	0.8	0.7	0.4	0.3	0.2	0.4	0.4	0.5	0.4	0.4	0.3	0.2	0.3
Extra Large	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	-	-	0.0
Unspecified	0.3	0.5	0.6	0.6	0.6	0.6	0.8	0.9	0.9	1.0	1.0	0.7	0.9	1.2
Unknown	0.3	0.3	0.4	0.4	0.3	0.4	0.5	0.4	0.4	0.9	0.9	0.8	1.2	1.3
Gear Switched	-	-	1.5	1.6	1.0	1.1	1.6	1.8	1.8	1.8	2.0	1.4	1.3	1.5
Extra Small	-	-	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6			
Small	-	-		0.1	0.1	0.1	0.2	0.2	0.4	0.4				
Medium	-	-	0.2	0.2	0.1	0.1	0.2	0.1	0.3	0.1	0.2	0.77	0.86	0.76
Large	-	-	0.1	0.2	0.1	0.04	0.27	0.14	0.1	0.1	0.2			
Extra Large	-	-	-	-	-				-	-	-			
Unspecified	-	-	0.7	1.0	0.5	0.8	0.8	1.2	1.0	0.9	0.9	0.4	0.2	0.6
Unknown	-	-	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.3	0.2	0.2

a/ Some cells combined to preserve confidentiality.

10.5.3 2007-2010 Dover Market Expansion

As discussed in Section 2.4.2, price information indicates that the Dover market may have been deteriorating in 2010, though there were also other market dynamics in play at that time. Evidence that the volume of deliveries may have been exceeding market capacity includes decline in the predominant exvessel prices (the price at which the most poundage was delivered) and a substantial increase in the amount of fish being delivered at \$0.20 and \$0.30 per pound (prices that indicate the fish will be frozen or are otherwise in excess of processor determined limits). Starting in 2000 and continuing through 2006, the typical price for Dover settled into the >\$0.36 to \$0.38 per pound range (unadjusted for inflation, see the Section 2.4.2 for more detailed information related to this summary). In 2007, as ACLs and landings increased so did the typical price (from the >\$0.36 to \$0.38 range to the >\$0.38 to \$0.39 range). In 2008, landings continued to increase, and the typical price remained the same as in 2007 (Figure 52). In 2009, the peak of Dover landings, there were two changes of note to the price structure. First was a substantial increase in amounts delivered at the \$0.20 and \$0.30 price points (over 4 million pounds total, representing 17 percent of the production). Second was a deterioration of the tendency for most of the fish to be delivered at a relatively few discrete prices. For prices at which more than 10,000 pounds were delivered for the entire year, the number of different price points paid increased from ten in 2006 to 13 in 2007 to 60 in 2008 and 140 in 2009 (Figure 53). Most of the additional categories were at levels below the predominate price and could be a real change in price structures or an artifact. For example, price dispersion would increase if an average price paid is listed on fish tickets but there was an increase in the occurrence of deliveries for which a frozen price was paid for a portion of the delivery.

In 2010, harvest declined and there were at least two indicators of possible market stress. First, there was a substantial reduction in the highest prices predominantly paid (from the \$0.38 to \$0.39 category to the \$0.33 to \$0.35 category; noted in Figure 52). Second, there was a significant increase in the amounts delivered at a \$0.30 per pound price (i.e. the frozen product or over process limit price point, such that the volume delivered in this category slightly edges out the amounts delivered at the highest prices). The total amounts delivered at the lower \$0.20 and \$0.30 price points increased from 17 percent combined in 2009 to 43 percent in 2010. Another potential indicator of market stress in 2010 is a continuation of the above normal number of different prices paid (Figure 53), which could be another indicator related to deliveries of fish destined for the frozen market along with fish destined for fresh markets.

Finally, in 2011, the highest and predominant prices paid rebounded and exceeded those paid before and during the 2007-2010 landings bubble, with \$0.41-\$0.42 being the predominant price paid (Figure 9). An examination of the total amounts delivered at prices higher than \$0.30 per pound (fish more likely to be going to a fresh market) shows that those deliveries peaked in 2008; declined in 2009 and more substantially in 2010; and recovered in 2011 (to a level below but comparable to the amounts delivered in the 2009 peak Dover year). Additionally, the amount of deliveries made at the \$0.20 and \$0.30 per pound price declined to near pre-bubble levels (Figure 54). This price level and structure held in 2012 and subsequent years through 2019, though from 2016 through 2019 the amounts delivered at the \$0.20 and \$0.30 price points began a small upward trend.

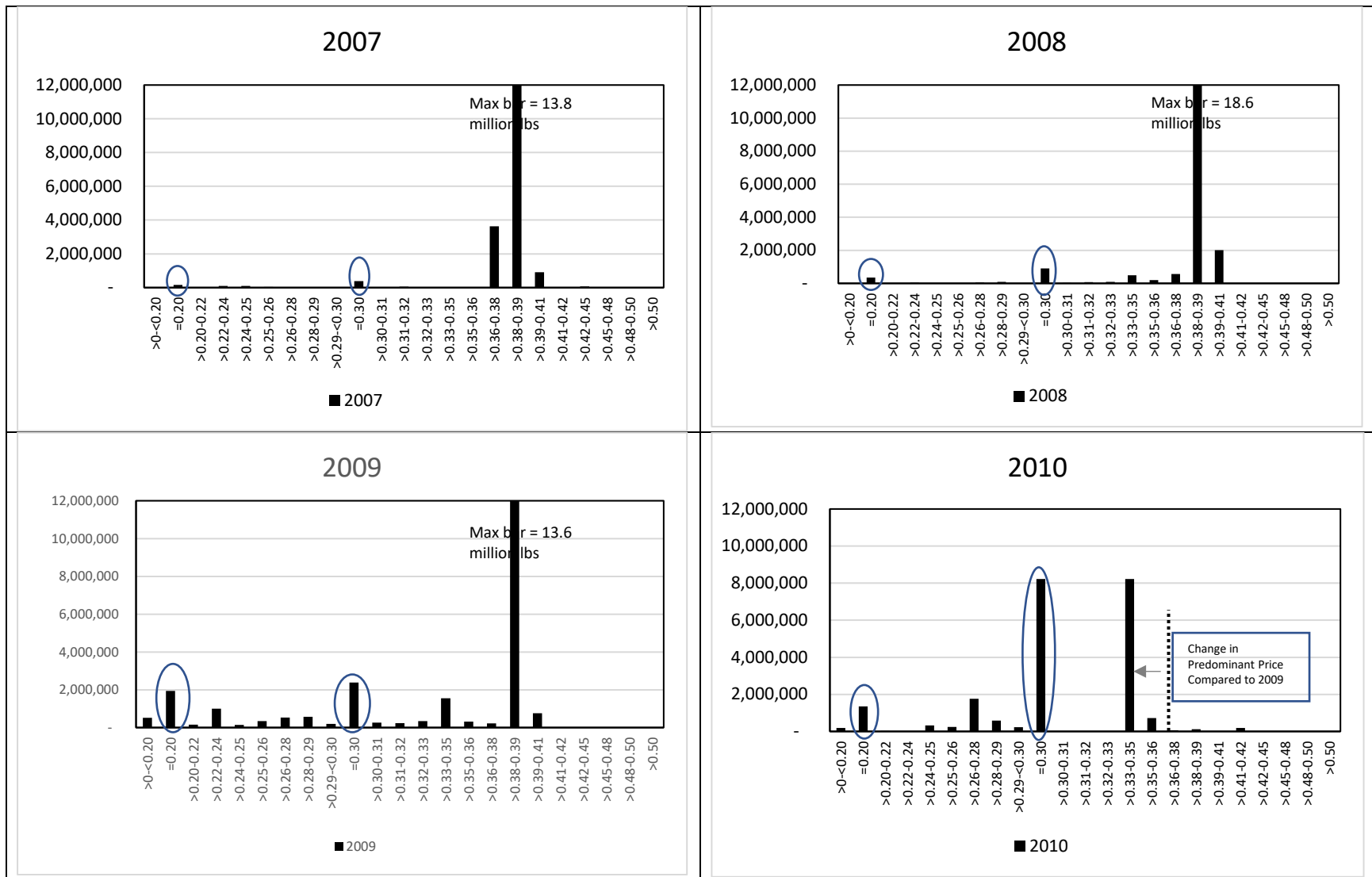


Figure 52. Pounds of Dover sole landed by price category (2007, 2008, 2009, 2010). (Source: PacFIN Comprehensive Fish Ticket Database).
 Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx; Dover_Prices (non-confid).

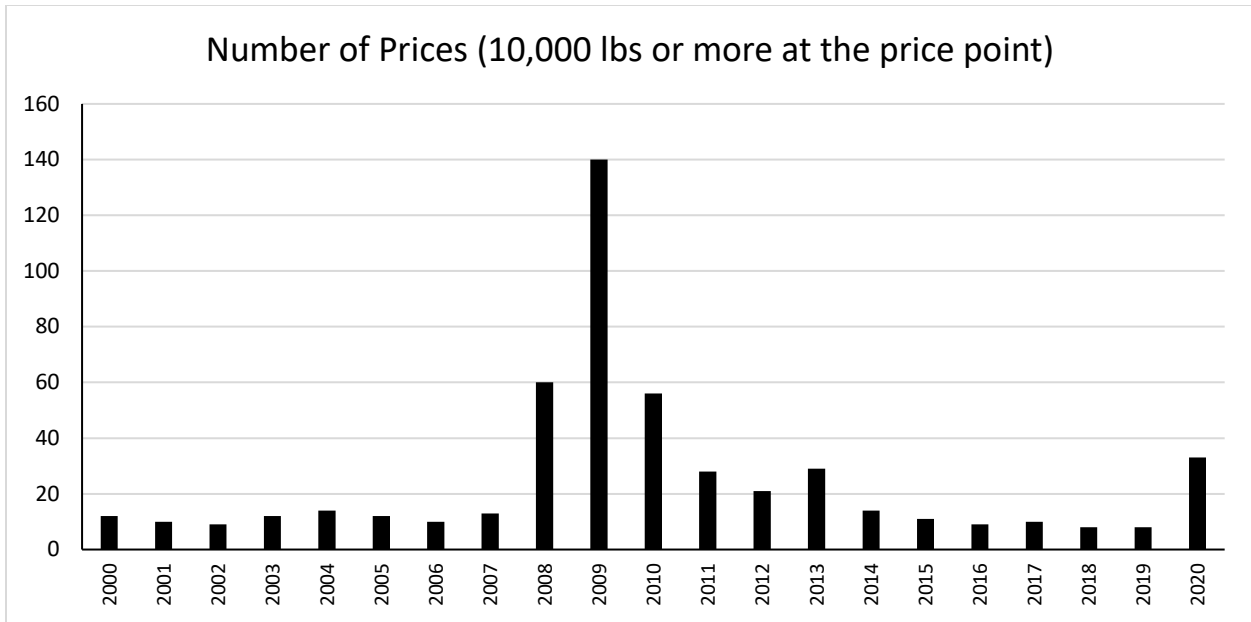


Figure 53. Number of different prices paid for Dover sole (as reported on fish tickets), where more than 10,000 pounds was delivered at the price point (counts are for distinct prices rather than price categories). (Source: PacFIN Comprehensive Fish Ticket Database). Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx;Dover_Prices (non-confid).

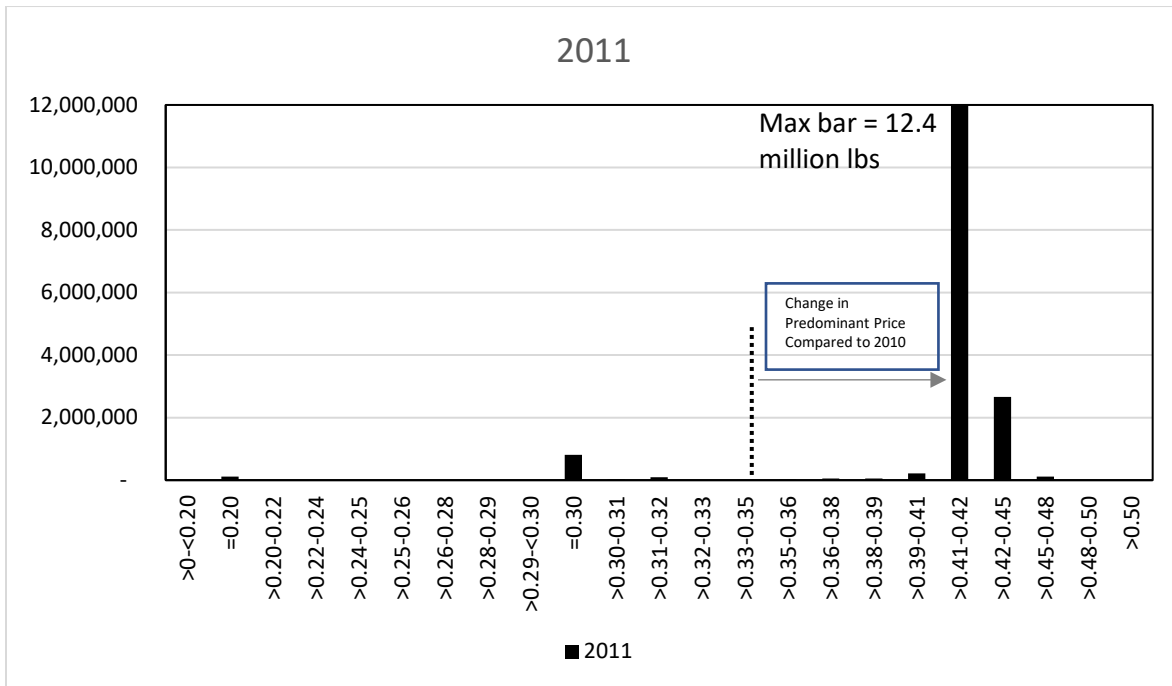


Figure 54. Pounds of Dover sole landed by price category (2011). (Source: PacFIN Comprehensive Fish Ticket Database). Internal reference: LE TW SF&DVR-PriceStudy_1994-2020_Jan 3 2021.xlsx; Dover_Prices (non-confid).

10.6 Petrale and Pink Shrimp Interaction With DTS

Petrале is one of the highest value species to the trawl fishery and a decline in allocation in 2009 coincided with the peak of the Dover sole harvest bubble which then started to decline the following year (see Figure 8)—potentially due to reduced profitability of groundfish trawl trips declining. When the 2009 Petrale sole assessment was produced, it showed that if the 2009-2010 OYs were harvested, the stock would be overfished in 2011 under any scenario. Therefore, the Council took action to implement management measures in 2009 to reduce catch ([74 FR 57117](#)) and implemented a phase down OY in 2010- which cut the previously adopted OY by half (2393 mt to 1200 mt; [74 FR 65480](#)). Even with the sablefish peak in 2009/10 (Figure 4) that could have provided opportunity to harvest Dover at the peak levels, it is possible that this decline in Dover harvest was due to regulatory constraints on Petrale, trawlers choosing to not fish DTS because of the reduce opportunity to also earn income from Petrale, or choosing to fish in another fishery--such as pink shrimp. Starting in 2009, pink shrimp CPUE began to increase--offering a viable opportunity for vessels (Figure 56). This increase in CPUE was followed by an increase in harvests and pink shrimp revenue began to increase rapidly starting in 2010 (the same year as the decline in Dover and Petrale; Figure 57).

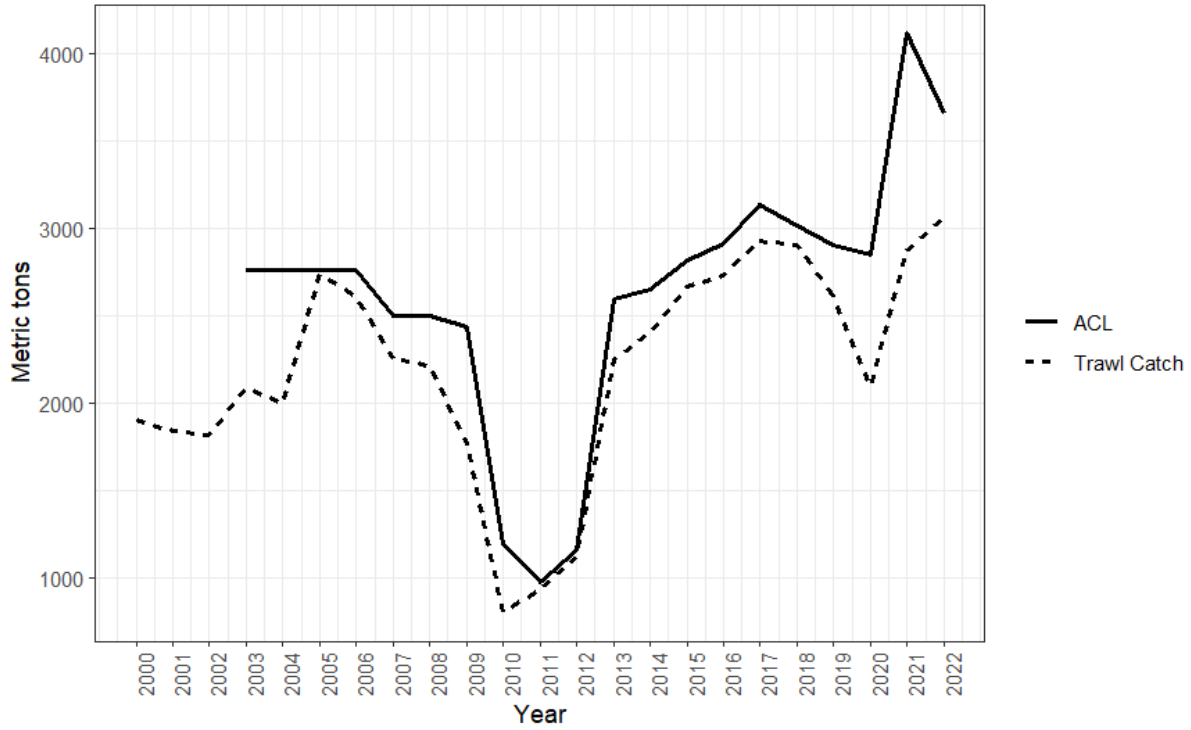


Figure 55. Petrale sole ACL (solid line;mt) and trawl catch (dashed line; mt) from 2000-2022.

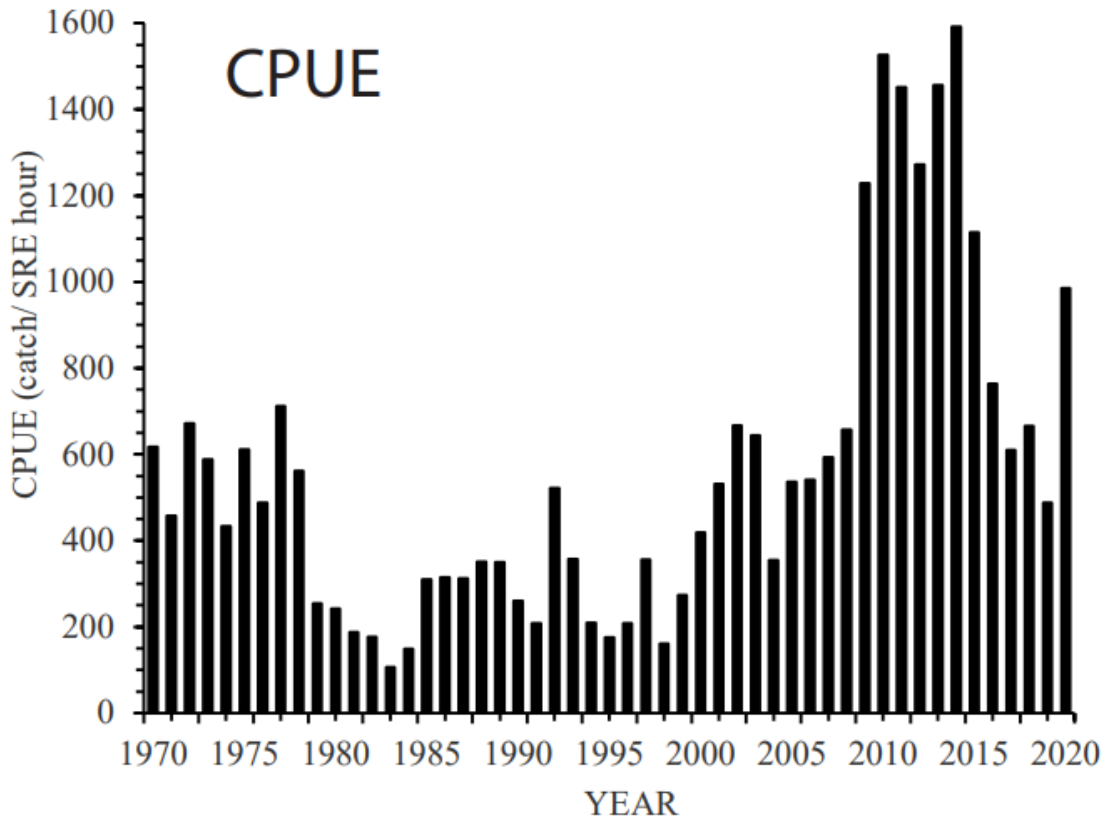


Figure 56. Oregon data on shrimp fishery CPUE from ODFWs [32nd Annual Pink Shrimp Review](#).

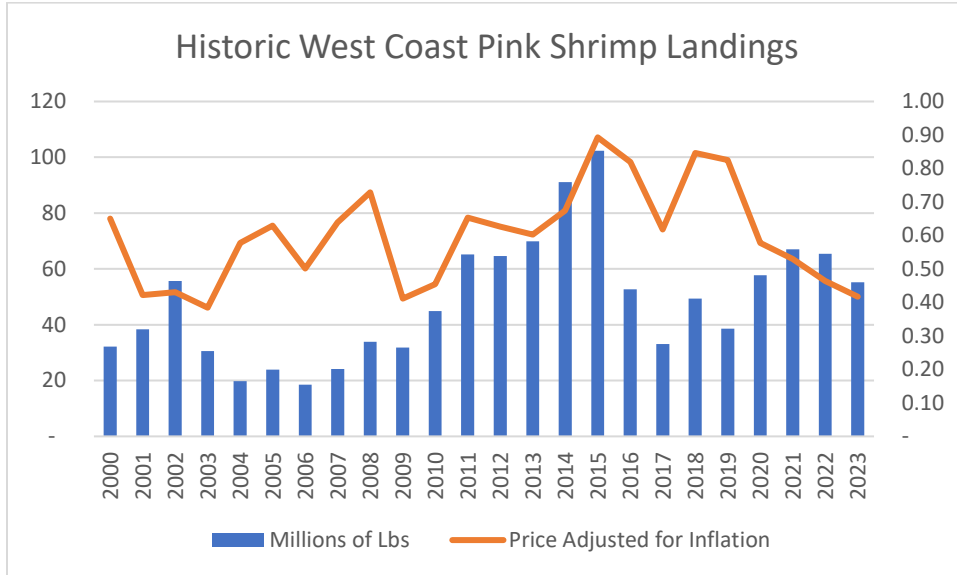


Figure 57. Pink shrimp landings in millions of lbs, 2000-2023

11.0 APPENDIX: GEAR-SWITCHING ENDORSEMENT ALTERNATIVE

At its April 2023 meeting, Council directed that analytical work on this alternative stop, but did not remove the alternative from the ROA. (Motion language was: “Suspend further analytical work on Alternative 3 and remove Alternative 2 from the range of alternatives”.) At its November 2023 meeting the Council removed from the range of alternatives a similar alternative that would have allocated based on vessel history rather than permit history.

Overview. North of 36° N. lat., no retention of sablefish will be allowed while gear switching, except by vessels registered to a gear-switching endorsed trawl permit. Vessels fishing under endorsed trawl LEPs will have gear switching sablefish limits individualized for each permit based on gear-switching history of the permit, QS ownership, or a mix of the two. Gear-switching endorsements will be attached to trawl LEPs. For all options, qualification for a gear-switching endorsement requires that permit owners own a qualifying permit and northern sablefish QS as of and since the control date, and for one option, possibly a gear switching vessel. A qualifying permit is one that has the required history of gear switching prior to September 15, 2017. The endorsement might or might not expire when the permit to which it is attached is transferred to a different owner. If endorsements expire with permit transfer, the higher gear-switching limits associated with endorsed permits would eventually phase out.

11.1.1 Full Description

11.1.1(a) Gear-Switching Endorsement and Qualification

A gear-switching endorsement will be required for a vessel to gear switch and retain northern sablefish. Gear-switching endorsements will be attached to trawl LEPs and will not be severable from the permit.

To qualify for a gear-switching endorsement, between January 1, 2011 and September 15, 2017 (the control date):⁴⁶

Endorsement Qualification Option 1: a permit must have landed northern sablefish QPs with non-trawl gear totaling at least 30,000 pounds per year in at least 3 years, and, as of and since the control date, the current permit owner must have owned the qualifying permit and must have had some ownership interest in northern sablefish quota shares (any amount).

Endorsement Qualification Option 2: same as Option 2 plus, as of and since the control date, the current permit owner also had some ownership interest in a trawl permitted vessel that had some history of gear switching prior to the control date.

11.1.1(b) Sablefish Gear-Switching Limits

Trawl permits with gear-switching endorsements. The gear switching limits apply to the QP used with the endorsed permit while gear switching.⁴⁷ The annual sablefish north gear-switching limit for a trawl LEP that receives a gear-switching endorsement is:

Endorsement Limit Option 1: the average percentage of the sablefish north trawl QP allocation caught by the qualifying permit with fixed gear for years fished through either December 31, 2016 or September 15, 2017 (the control date), whichever results in the larger average for the qualifier.

Endorsement Limit Option 2: a percentage equivalent to the share of QP issued⁴⁸ for the sablefish north QS owned by the qualifying permit owner as of and since the control date,⁴⁹ plus an additional amount which will be determined in two steps. First, calculate the difference between the aggregate gear switching limit that would be issued to all recipients based on QS ownership and 29 percent. Second, allocate that difference among all qualifying permits proportionally to each permit's limit under the Option 1 provisions.⁴⁶

Endorsement Limit Option 3: a percentage equivalent to the share of QP issued⁴⁸ for the sablefish north QS owned by the qualifying permit owner as of and since the control date.^{46,49}

⁴⁶ For situations where groups of individuals own a permit together, a collective approach will be used for assessing qualification and amounts of QS owned such that for qualification only a subset of the permit owners need to have owned QS (qualification Option 1 and 2) or a trawl permitted vessel with gear switching history (qualification Option 2) as of and since the control date.

⁴⁷ Sablefish gear-switching limits are evaluated after applying credits for discard survival. Therefore, they are limits on total QP used for gear switching (sablefish discard mortality and landings) rather than of gear switching catch.

⁴⁸ The share of QP issued would be equivalent to the percentage of QS owned plus a share of the AMP quota pounds which has been passed through to QS owners since the start of the program.

⁴⁹ For situations where groups of individuals own a permit together, a collective approach will be used for assessing amounts of QS owned such that all of the QS in any account jointly owned with the permit owner will count toward the endorsement limit (limit Options 2 and 3).

Under no circumstances will an endorsement limit be set above the annual vessel QP limit.

For Endorsement Limit Options 2 and 3, under no circumstances may the same QS be counted toward more than one limit. Under circumstances where QS owners own more than one qualifying permit, the QS owners may designate how credit for the QS owned should be divided among the gear switching endorsements to be issued for those qualifying permits.

QS Account Expiration Exception. Before program implementation, if a QS account that was owned as of the control date expires and the owners of the qualifying permit replace the QS account, then the common ownership linkage to the new QS account will be considered to meet the requirement for having been in place as of the control date (both the expiring and new QS account must have contained northern sablefish QS). Replacement is defined as the immediate acquisition of another QS account and transfer of sablefish QS to the new account, while maintaining ownership in the qualifying permit—or, for Qualification Option 2, while maintaining ownership of the qualifying permit and a gear switching vessel.⁵⁰

Vessel Replacement Exception (Applies to Endorsement Qualification Option 2). If before implementation, the owners of a qualifying permit replaced a vessel that they owned as of the control date, then the common ownership linkage to the new vessel will be considered to meet the requirement for having been in place as of and since the control date. Replacement is defined as the divestment or loss of the previous vessel, prior to or immediately following acquisition of a new vessel while maintaining ownership of the qualifying permit and QS account.

Trawl Permits Without a Gear-Switching Endorsement. When not fishing under a permit endorsed for gear switching any sablefish caught using non-trawl gear may not be retained.

Annual Vessel QP Limit. Regardless of these gear-switching limits, trawl permitted vessels are not allowed to catch amounts that cause it to exceed the northern sablefish vessel QP limit (taking into account both the vessel's trawl and gear switched QP usage).

11.1.1(c) Other Species Gear-Switching Limit

For all trawl permitted vessels, there will not be any gear-switching limits for other IFQ species.

11.1.1(d) Gear-Switching Limits and Permit Transfers.

For gear-switching endorsed trawl LEPs, the gear-switching limits are associated with the permit. A vessel may sequentially fish under multiple gear-switching endorsed permits,

⁵⁰ A vessel with at least one gear switched landing of northern sablefish prior to the control date.

catching all or a portion of the limit allowed under each permit (sequential registration).⁵¹ If a permit is transferred midyear, fish caught using the permit and prior to the transfer still count against the permit's limit for the year.

Gear-Switching Limit Overages

When a vessel reaches the gear-switching limit (as determined by the trawl LEP registered to the vessel), it may not deploy non-trawl gear on any trawl IFQ sector trips taken during the remainder of the year,

Discard/Retention Option 1: but may retain and sell any sablefish caught in excess of the limit on its final gear-switching trip.

Discard/Retention Option 2: and must discard any sablefish caught in excess of its permit gear switching limit (*added by staff for Council consideration—see discussion*).

For each of the following allowance options, vessels would still be required to cover any catch with QP (including discards).

Allowance Option 1: A vessel may exceed the gear switching limit on its permit by up to **500 pounds without incurring a violation** (the exceedance is measured as the amount of QP used to cover the overage).⁵²

Allowance Option 2: A vessel may exceed the gear-switching limit on its permit by up to **10 percent** of the amount of its gear switching limit remaining when it started the trip **without incurring a violation** (the exceedance is measured as the amount of QP used to cover the overage).

Allowance Option 3: There is no limit on the amount by which a vessel may exceed the gear switching limit on its permit **without incurring a violation** (*should probably be combined with Discard/Retention Option 2*).⁵³ (*added by staff for Council consideration—see discussion*).

If a permit's gear switching limit is exceeded in a given year, then

⁵¹ Permit Stacking and Joint Registration: As under status quo, this alternative does not allow trawl permit stacking (the registration of more than one trawl permit with a vessel at the same time). Similarly, as with status quo, joint registration of trawl and fixed gear permits continues to be permissible.

⁵² Vessels receive discard survival credits for sablefish. These credits reduce the amount of QP that must be used to cover a given amount of catch. The current discard survival credit for fixed gear is 50 percent. Thus, for example, if a vessel catches 1,000 pounds in excess of its limit but discards all of the excess it would receive a 500-pound discard survival credit for a total overage of 500 pounds (i.e., it would be able to catch and discard up to 1,000 pounds in excess of its limit without incurring a violation). Similarly, for the second allowance option, a vessel's catch could go over its limit by 20 percent if it discarded its entire overage.

⁵³ This could allow a vessel with an endorsed permit to gear-switch for non-sablefish in common with other trawl permitted vessels fishing without a gear-switching endorsed permit if the prohibition on further deployment of non-trawl gear is also removed.

Overage Payback Option 1: any QP a vessel uses for gear switching in excess of its gear-switching limit will reduce the permit's gear-switching limit in the following year by the amount of the excess QP used. This applies to the permit being used by the vessel at the time of the overage.

Overage Payback Option 2: any QP a vessel uses for gear switching in excess of its gear-switching limit will not reduce the permit's gear-switching limit in the following year.

11.1.1(e) Combination of Trawl Permits

Current management measures allow vessels to combine two permits to create a single permit with a larger vessel length endorsement. If trawl LEPs are combined and there is a gear-switching endorsement on either permit, the permit resulting from the combination will receive the gear-switching endorsement and associated limit. If both of the combined permits have a gear-switching endorsement, then the larger of the two limits will be applied for the gear-switching endorsement on the resulting permit.

11.1.1(f) Endorsement Expiration

Expiration Option 1: Gear-switching endorsements will expire⁵⁴ when the permit is transferred to a different owner or a new owner is added to the existing permit ownership^{55, 56} (ownership-based phase-down of gear switching).

Expiration Option 2: Gear-switching endorsements do not expire when the permit is transferred.

Limit on the Number of Gear-Switching Endorsed Permits Owned. *The Council will be considering a limit on the number of gear-switching endorsed permits any one individual may own. Options for those limits have yet to be developed. Some factors the Council might take into account in developing those options are described below in the Alternative 3 discussion section.*

⁵⁴ Expire means the endorsement will be removed from the permit.

⁵⁵ For purpose of this provision, a change in ownership will be considered to occur when a new entity is added to the permit ownership but not when an entity leaves the permit ownership, e.g. partners may leave but new partners may not be added (using rules similar to those which apply to expiration of the owner-on-board exemption for the fixed gear permit system).

⁵⁶ A change in the name or organizational structure (e.g. from partnership to LLC) of the permit will not be considered a change in ownership for the purposes of these provision unless the change also involves the addition of a new entity or individual to the underlying permit ownership.