

## GEAR SWITCHING AND TRAWL SABLEFISH AREA MANAGEMENT—PRELIMINARY DATA

This document provides some of the preliminary data developed on gear switching and trawl sablefish area management. Additional preliminary data and analysis can be found in [Agenda Item F.2.a, Attachment 6](#) at the November 2017 Council meeting.

### Sablefish Quota Utilization and Gear Switching

In general, the northern sablefish allocation has been fully attained and the southern sablefish allocation underattained, perhaps with the exception of the first year of the program (Table 1). Over the last four years of the program (2013-2017), the southern sablefish trawl allocation has generally been underharvested by an average of over 75 percent (under 25 percent attainment). The amount left unharvested is the equivalent of about 25 percent of the northern allocation and at an exvessel price of \$2.00 per pound would yield about \$2.4 million in exvessel value.

Table 1. Total sablefish allocations and quota pound (QP) used by management area (includes QP used for discards).

	2011	2012	2013	2014	2015	2016	2017
<b>Allocation</b>	Millions of Pounds						
Sablefish North of 36° N.	5.61	5.44	4.03	4.38	4.85	5.32	5.33
Sablefish South of 36° N.	1.17	1.13	1.33	1.44	1.59	1.74	1.72
<b>Harvest</b>	Millions of Pounds						
Sablefish North of 36° N.	5.29	4.93	4.08	4.15	4.86	5.07	5.58
Sablefish South of 36° N.	1.01	0.50	0.20	0.45	0.37	0.45	0.25
<b>Attainment</b>	Percent						
Sablefish North of 36° N.	94%	91%	101%	95%	100%	95%	105%
Sablefish South of 36° N.	86%	44%	15%	32%	24%	26%	14%
<b>Unused/Deficit QP</b>	Millions of Pounds						
Sablefish North of 36° N.	0.33	0.51	-0.05	0.23	-0.01	0.25	-0.25
Sablefish South of 36° N.	0.16	0.63	1.13	0.99	1.21	1.29	1.47
<b>Unused/Deficit QP as Percent Coastwide</b>	Percent						
Sablefish North of 36° N.	5%	8%	-1%	4%	0%	3%	-4%
Sablefish South of 36° N.	2%	10%	21%	17%	19%	18%	21%
<b>Unused QP for Sablefish South of 36° N.</b>	Percent						
As a Percent of Northern	3%	12%	28%	22%	25%	24%	28%
	Millions of Dollars						
Exvessel Value (@\$2.00/lb)	\$0.32	\$1.26	\$2.26	\$1.97	\$2.43	\$2.58	\$2.94

Data source: Vessel QP accounts. Internal Source Reference: VA\_Balances\_2011-2017\_2017\_dec\_07.xlsx: Sablefish GS Issue

## Amount of Gear Switching

Coastwide, on average from 2011 to 2017, 37 percent of sablefish landings and 30 percent of the trawl sector sablefish allocation were caught by gear-switched vessels. North of 36° N. lat. 32 percent of sablefish landings and 30 percent of the trawl sector sablefish allocation were caught by gear-switched vessels. On a coastwide basis, there is no clear trend in the proportion of the allocation taken by gear-switched vessels. However, in the area north of 36° N. lat., both the percent of landings and percent of allocation caught by gear-switched vessels appears to have been on an upward trend since 2013—although with respect to the percent of landings, the 36 percent taken in 2016 and 2017 was only slightly more than the 34 percent level taken in 2012.

Table 2. Sablefish landings by gear type as a percent of all landings and a percent of the allocations (discards not included<sup>a/</sup>).

	2011	2012	2013	2014	2015	2016	2017	Average
Sablefish North of 36° N.	Percent of Landings							
Trawl	71%	66%	76%	69%	67%	64%	64%	68%
Gear Switched	29%	34%	24%	31%	33%	36%	36%	32%
Sablefish South of 36° N.								
Trawl	4%	10%	7%	3%	4%	2%	1%	4%
Gear Switched	96%	90%	93%	97%	96%	98%	99%	96%
Coastwide								
Trawl	60%	61%	73%	63%	63%	59%	61%	63%
Gear Switched	40%	39%	27%	37%	37%	41%	39%	37%
Sablefish North of 36° N.	Percent of Allocations							
Trawl	65%	57%	76%	64%	66%	60%	63%	64%
Gear Switched	27%	30%	24%	29%	33%	34%	36%	30%
Sablefish South of 36° N.								
Trawl	3%	4%	1%	1%	1%	1%	0%	2%
Gear Switched	81%	39%	13%	29%	19%	22%	12%	31%
Coastwide								
Trawl	54%	48%	57%	48%	50%	45%	48%	50%
Gear Switched	36%	31%	21%	29%	29%	31%	30%	30%

a/ Since discards are not included, the percent of allocations attained in this table are slightly lower than the percent of allocations attained showing in Table 1.

Source: Landings data from PacFIN fish ticket data; allocation amounts based on amounts of QP issued. Internal Source  
Reference: Sablefish\_04&20\_N&S\_Totals and Counts.xlsx: Pivot

### Vessels from the North Fishing in the South and Landing of the Southern Quota

Over the first six years of the catch share program, landings by a cumulative total of 11 trawl sector vessels that also participated in the north accounted for between about 50 and 60 percent of the trawl southern sablefish landings (690 mt out of a total of 1,291 mt caught and 3,808 mt allocated in the south; based on landing data summarized from PacFIN fish tickets). In any one year, no more than four vessels with northern landings also landed southern sablefish QP. A more careful consideration of the likelihood that sablefish currently caught and landed in the

south will be caught and landed in the north would include identifying not only whether a vessel is active in the north but whether its main area of activity is in the north (in which case it may be less likely that it would travel south to harvest its quota, if the 36° line is eliminated for the trawl fishery).

While vessels from the north participate in the south, almost all the landings by these vessels are into the port of Morro Bay. On average, over 92 percent of the southern sablefish is landed in Morro Bay and none of the harvest from this area is landed further north than Monterey. Landings in ports other than Morro Bay are sporadic with no port showing landings in more than 3 of 6 years (from 2011 through 2016).

### **North-South Price Differentials**

While exvessel prices between the north and south are comparable (north slightly higher) northern sablefish QP prices are substantially higher than in the south. There may be a number of reasons for this price differential, however, regardless of the reason it seems likely that if southern sablefish QP could be used in the north, a large portion of that quota would likely be acquired by individuals interested in harvesting north of 36° N. lat.

On average, from 2011 through 2017, the price of sablefish is only 4 to 13 percent higher in the north as compared to the south, depending on the gear type (Table 3). However, since 2014 the average price per pound of sablefish QP sales tends to be at least six times higher in the north, rising to over 17 times higher in 2017 (though there were only three trades of southern sablefish QP in 2017, Table 4). The annual average based on the NMFS vessel IFQ data system (2.81, Table 4) is comparable to that reported on the Jefferson State Trading Company site (3.30, Table 5). Data on QS sales is extremely limited, but the Jefferson State Trading Company site 2016 trades shows north to south price ratio (5.16, Table 5) similar to the QP ratio for that year (6.01, Table 4; 6.47, Table 5).

The demand for harvest opportunities north of 36° N. lat. would also be expected to increase the price of the quota that was previously restricted to southern areas. At the same time, there may be some diminishment in the northern prices given an increase in supply of QP from the south. Overall, the pool of QP potentially available in the north would expand by 32 percent (based on the 2017 north/south allocations). At the same time, some of the harvesting currently occurring in the south would likely shift northward. In 2017, the southern harvest was the equivalent of 4 percent of the northern harvest. Therefore, the proportion of additional quota available would be far greater than the proportion of additional harvest, even if all the southern harvest migrated northward.

Table 3. Weighted average 2011-2017 exvessel prices for IFQ sablefish caught with trawl gear and gear switched.

	<b>North</b>	<b>South</b>	<b>Difference</b>	<b>North Relative to South</b>
IFQ Trawl	\$2.05	\$1.81	\$0.24	13%
IFQ - Gear Switched	\$3.20	\$3.08	\$0.12	4%

Source: PacFIN fish ticket data. Internal Source Reference: Sablefish Prices - PacFIN - Dahl 03 04 20.xlsx: Counts and Prices

Table 4. Average annual QP prices for sablefish north and south.

	2011	2012	2013	2014	2015	2016	2017	Total
<b>Sablefish North of 36° N.</b>								
Price/Lb	1.07	1.04	0.88	1.00	1.11	1.10	1.21	1.06
Total Trades	54	47	66	62	57	83	86	455
<b>Sablefish South of 36° N.</b>								
Price/Lb	0.75	1.05	0.26	0.16	0.18	0.17	0.07	0.38
Total Trades	58	31	8	22	51	3	3	176
<b>Ratio of North to South</b>	1.43	0.99	3.38	6.25	6.17	6.47	17.29	2.81

Source: PacFIN fish ticket data. Internal Source Reference: QP\_Prices\_2011\_2017\_dec\_07.xlsx: Pivot

Table 5. QP and QS price per pound from Jefferson Street Trading.

	2011-2017 (unweighted average)		Recent Year	
	Price (\$/lb)	Number of sales	Price (\$/lb)	Number of sales
<b>QP Sales</b>				
<b>2016</b>				
Sablefish North	\$1.193	205	1.225	43
Sablefish South	\$0.361	62	.204	3
Ratio of north to south	3.30		6.01	
<b>2017</b>				
Sablefish North			\$1.321	33
Sablefish South			\$0.044	1
Ratio of north to south			30.03	
<b>QS Sales</b>				
<b>2016</b>				
Sablefish North	Only two trades available.		\$17.92	1
Sablefish South			\$3.47	1
Ratio of north to south			5.16	

Source: <https://jeffersonstatetradingco.com/priceperpound.php> (December 7, 2017)

Internal Source Reference: Jeff\_AuctionResults\_Feb 13, 2018.xlsx: Simple Averages

### Annual Vessel QP Limits

At the November 2017 Council meeting, Council members expressed interest in the possibility that a reduced northern sablefish annual vessel QP limit might be used to limit the amount of gear switching. The following information is provided to inform further discussion of this possibility. The current annual limit is 4.5 percent in the north and 15 percent in the south (Table 6). While there is a great divergence in these percentages, because the northern allocation is much greater than the southern allocation, the total QP harvestable under the northern and southern limits are somewhat comparable (240,000 QP in the north and 258,000 QP in the south, based on 2017 allocations). The annual vessel QP limits are set at 50 percent above the QS control limits.

Table 6. Annual vessel QP limit alternatives.

Species Category	Annual Vessel QP Limit		QS Control Limit	
	Percent	QP Equivalent in 2017	Percent	QP Equivalent in 2017
Sablefish N. of 36° (Monterey north)	4.50%	239,726	3.00%	159,818
Sablefish S. of 36° (Conception area)	15.00%	258,198	10.00%	172,132

Source: Regulations and 2017 QP allocations.

Most vessels harvest well below the vessel limits. Assessing vessels using vessel accounts as a proxy, for 2011 to 2017, the median vessel average annual attainment of the vessel QP limits was 15.9 percent for northern sablefish and 17.4 percent for southern sablefish (Table 7). Average per vessel attainment was somewhat greater (22.9 percent of the annual QP limit in the north and 23.6 percent in the south) because of the influence of highliner catches on the distribution statistic. Few vessels reached more than 90 percent of the limit and most of those were vessels with at least some gear switching during the year. In the north, an average of 2.7 vessels per year reached 90 percent of the 4.5 percent limit (i.e. caught more than 4.05 percent of the trawl allocation). Of these, an average of 2 of the vessels did some gear switching during the year and an average of 0.7 vessels fished only with trawl gear (i.e. from 2011 to 2017 there were five occurrences of a trawl-only vessel catching more than 90 percent of the annual vessel QP limit).

Table 7. Averaged annual (2011-2017) maximum, median, average vessel account attainment of annual QP control limits and number of accounts at the indicated attainment levels.

	Averages of Annual 2011-2017 (Percent of Annual QP Limit)			Average Number of Vessels Achieving Indicated Percent Attainment of QP Limit				Avg of Total Vessels Per Year
	Max	Median	Average	Less than 50%	50% to 75%	75% to 90%	More than 90%	
Sablefish North of 36° N.	98.3%	15.9%	22.9%	81.7	8.7	1.4	2.7	94.6
Vessels with Trawl Only	85.7%	12.7%	18.3%	69.0	5.0	0.6	0.7	75.3
Vessels with Some Gear Switching	95.2%	36.5%	41.4%	12.7	3.7	0.9	2.0	19.3
Sablefish South of 36° N.	66.4%	17.4%	23.6%	7.6	1.0	0.1	0.4	9.1
Vessels with Trawl Only	8.5%	8.3%	8.3%	1.1				1.1
Vessels with Some Gear Switching	66.4%	21.5%	26.3%	6.4	1.0	0.1	0.4	8.0

a/ The 90% level is approached only for lingcod north.

Data source: WCR IFQ database from January 8 2018. [Internal Source Reference: VA\_Balances\_2011-2017\_2017\_dec\_07: Summary of Species Results]

A retrospective analysis applying hypothetical reductions to the annual QP limit can be used to indicate the degree of impact of such a reduction. Depending on the degree of change, reducing the sablefish annual vessel QP limit for the area north of 36° N. lat. might have only affected a relatively small portion of the total fleet, and the amount of landings that would have been over that limit is relatively small. Larger reductions result in greater impact. For example, a reduction of the limit to 3 percent would have impacted 9 vessels per year on average, at most 8 vessels in any one year, and a total of 24 vessels across all years, out of a total fleet represented by 157 vessels during the seven year period (Table 8). The total QP over the limit that would likely have been made available for other vessels was 5.1 percent on average and 6.1 percent in the year that would have been most impacted. Those percentages equate to 246,818 and 341,696 pounds, respectively. Of those amounts, most would have been caught by vessels with at least

some gear switching (180,229 and 296,838 pounds, respectively). And, 15 out of the 24 vessel affected would have been vessels with at least some gear switching during the year (i.e. 25 percent of the 59 vessels with some gear switching during the year).

Table 8. Impacts of hypothetical reductions in the sablefish annual vessel QP limit applied retrospectively on 2011-2017 trawl sector vessel accounts and catch (current limit is 4.5%).

Hypoth Annual Vessel QP Limit	Vessel Counts (based on Vessel Accounts)			Catch		Catch Over the Reduced Limit as a Percent of Total Catch for the Vessel Group	
	Average/ Year	Max/ Year	Total (All Years) <sup>a/</sup>	Average/ Year	Max/ Year	Average/ Year	Max/ Year
<b>Vessels Using Only Trawl Gear During the Year</b>							
	75.3	80	120	3,078,400	3,580,930		
	Vessels Impacted			Catch Over the Reduced Limit			
4.0%	0.7	2	3	10,565	27,609	0.3%	0.8%
3.5%	1.0	3	5	30,272	88,975	1.0%	2.5%
3.0%	2.1	5	10	66,589	161,707	2.2%	4.5%
2.5%	4.9	9	20	152,229	295,621	4.9%	8.3%
2.0%	8.4	13	24	308,495	523,538	10.0%	14.6%
<b>Vessels With At Least Some Gear Switching During the Year<sup>b/</sup></b>							
	19.3	23	59	1,772,154	2,224,908		
	Vessels Impacted			Catch Over the Reduced Limit			
4.0%	2.0	3	6	39,166	69,300	2.2%	3.1%
3.5%	2.4	4	8	93,481	156,704	5.3%	7.0%
3.0%	4.7	6	15	180,229	296,838	10.2%	13.3%
2.5%	6.0	7	18	316,094	456,314	17.8%	20.5%
2.0%	7.9	12	24	483,533	657,882	27.3%	29.6%
<b>All Vessels<sup>c/</sup></b>							
	94.6	102	157	4,850,554	5,575,464		
	Vessels Affected			Catch Over the Reduced Limit			
4.0%	2.7	4	9	49,731	79,868	1.0%	1.4%
3.5%	3.4	6	13	123,754	167,523	2.6%	3.0%
3.0%	6.9	8	24	246,818	341,696	5.1%	6.1%
2.5%	10.9	15	37	468,323	616,464	9.7%	11.1%
2.0%	16.3	20	43	792,029	1,039,511	16.3%	18.6%

a/ Unique vessels participating from 2011 to 2017. Totals do not double count vessels participating in multiple years.

b/ Catch for this category of vessels includes both that caught with non-trawl and trawl gear by vessels using at least some nontrawl gear during the year.

c/ In some cases a vessel is in the “only trawl” category in one year and in the “some gear switching” category in another year. Totals for all vessels do not double count these vessels. Additionally, the maximum values for the two groups of vessels do not sum to the maximum for all vessels because the maximum for each group occurred in a different year.

Data source: WCR IFQ database from January 8 2018 for vessel account information and PacFIN fish ticket data for gear usage. [Internal Source Reference: VA\_Balances\_2011-2017\_2017\_dec\_07.xlsx: Sablefish GS Issue