Agenda Item D.2.a
Trawl Rationalization Status Report
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Annual Catch Report for the Pacific Coast Groundfish, Shorebased IFQ Program in 2012

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1. Summary

The Shorebased Individual Fishing Quota (IFQ) Program has been in place more than two years, and there have been some notable changes during the second year of the rationalized fishery.

Non-whiting attainment increased by five percent, from 24 percent in 2011, to 29 percent in 2012. Overall attainment in the fishery decreased by two percent, accompanying a three percent decline in Pacific whiting attainment. Catch of whiting dominates the overall aggregate fishery attainment estimate; this species alone made up 78.5 percent of total catch by weight in the shorebased IFQ fishery during 2012. The reduction in attainment may be tied to reapportionment of whiting late in the season (mid-October). There was no such reapportionment in 2011.

Preliminary data indicate the use of fixed gear increased for sablefish (the most valuable species in the fishery), due to hook-and-line gear landings increasing from 13 to 19 percent of IFQ sablefish landings; the resulting revenue (hook-and-line sablefish) increased from 18 to 28 percent of all IFQ sablefish revenue. As a result, 58 percent of sablefish revenue in the IFQ program was from fixed gear in 2012, up ten percent from 2011.

Commerce-related quota pound transfers (transfers between vessel accounts for cash, barter or a combination of both) were much more evenly distributed throughout 2012 than 2011; transfers started immediately in January of 2012, and activity remained more regular throughout the rest of the year than during 2011. This suggests a greater knowledge of the IFQ management system and earlier planning on the part of participants.

Revenue distribution among species also became more even, coinciding with much lower ex-vessel prices and lower attainment of sablefish during 2012, especially south of 36° North latitude, accompanied by increases in attainment and revenue of other species (perhaps compensatory) such as petrale sole, Pacific cod, lingcod and slope rockfish.

Aggregate measures of landings, revenue, effort and catch per unit effort were very similar between 2011 and 2012. Retention rates remain high, and have changed little; aggregate estimates are up a fraction of a percent, and show relatively small fluctuations among species.

Catch of rebuilding species remains lower two years after trawl rationalization, compared with the two previous years under trip limit management. Data are preliminary and subject to change.

2. Data used in this report

The purpose of this report is to summarize and illustrate current catch data and trends for the shorebased component of the Pacific Coast Groundfish IFQ Program in 2012, and compare them with the 2011 fishery. This is an examination of current data, which divides catch estimates among strata of interest to many stakeholders. Data for 2012 are preliminary and subject to change.

Data used in this report originated from four sources, and only pertain to the shorebased non-whiting and shorebased whiting fleets, of the Pacific Coast Groundfish IFQ Program. Data from the at-sea whiting fisheries (catcher-processor and mothership) are not included. Landings and revenue data, along with the surrounding gear, area, port, and species information, were combined from electronic and paper landing receipts (fish tickets). Electronic fish ticket data were provided by the Pacific States Marine Fisheries Commission (PSMFC), for the most recent IFQ landings not yet represented in the Pacific Fisheries Information Network (PacFIN) database, which houses data from traditional, paper fish tickets. Only landings and revenue from groundfish (management group = GRND) are considered from fish ticket data in this report. Information regarding total catch of IFQ species categories, discarded catch, retention rates, participation, effort and transfers of quota pounds (QP) originated from the National Marine Fisheries Service's (NMFS) IFQ Vessel Accounts (VA) database. Only species/area groups that are managed using quotas (IFQ species/area categories) are included in NMFS vessel account data. Some historical catch data were provided from groundfish mortality reports by the West Coast Groundfish Observer Program (WCGOP) of the Northwest Fishery Science Center, within the National Marine Fisheries Service (NMFS). Only catch within the Pacific Fishery Management Council (PFMC) jurisdiction is considered in this report. Data from electronic and paper landing receipts were queried on January 18, 2013; data from the NMFS Vessel Accounts System were queried on January 8, 2013. Data from 2012 are preliminary, and may be subject to change.

Landed catch from electronic and paper fish tickets is reported as landed weight. In aggregate, across all species, where both landed and round weights were available, landed weight was equal to 99.84% of round weight. Revenue is reported as ex-vessel revenue, and is not adjusted for inflation or other factors. Discarded catch was discarded at sea, and dockside discard is not included in this report. Total catch refers simply to the sum of landed and discarded catch. Bycatch refers to fish that were caught along with the intended target species, whether they were landed or discarded. One trip was defined as a unique vessel-landing-day; this was done to avoid overestimation of counts of trips due to single landings which were reported on two separate receipts ("split tickets"). Non-whiting and shorebased directed whiting fleets were separated by the proportion of total landed trip weight that was made up by whiting in each trip. If a trip contained 50 percent Pacific whiting or greater, and was landed by trawl gear, it was considered a directed whiting trip, and those landings and revenue are presented under the shoreside whiting fleet in this report (as within PacFIN). Vessel counts shown in this report were taken from the NMFS, IFQ Vessel Accounts database. Current discarded catch estimates may in some cases be slight underestimates, due to potential lag behind landings, and are expected to be finalized during spring of 2013.

3. Landings and revenue

3.1. Landings and revenue by fleet

3.1.1. Non-whiting

Landings in the shorebased non-whiting fleet were up slightly in 2012, at 101 percent of 2011 levels (40,892,262 pounds versus 40,610,190 pounds, respectively, Table 1). Revenue in 2012 maintained 92

percent of 2011 levels (30,452,763 dollars in 2012 versus 32,935,934 dollars in 2011), despite a 56 cent per pound drop in sablefish prices, a six percent decrease in sablefish landings and a 24 percent decrease in revenue from sablefish, or 4.2 million dollars (17,614,666 dollars in 2011 versus 13,356,592 dollars in 2012).

Monthly trajectories of landings and revenue, by both the non-whiting and shorebased whiting fleets for 2012 are also very similar to the previous year, although non-whiting landings and revenue in December of 2012 returned to levels similar to pre-IFQ. Landings and revenue during December 2011 spiked much higher than typical December levels (Figure 1, Table 1).

Considering the non-whiting fleet for the two years before and the two years after trawl rationalization (Figure 2, Table 2), revenues have been 12.5 percent higher, although annual landings have on average been 24.8 percent lower. Total monthly landings and revenue have been somewhat more variable throughout the year, in the first two years following trawl rationalization, than before it.

3.1.2. Shorebased whiting

Landings within the directed shorebased whiting fleet were down in 2012, at 72 percent of 2011 levels (146,355,341 pounds, versus 203,243,752 pounds, respectively, Table 1). Revenue remained at 92 percent of 2011 levels in 2012 (20,958,679 dollars versus 22,810,819 dollars respectively), due to higher ex-vessel prices. The price of whiting increased from 11 cents per pound in 2011 to 14 cents in 2012, partially mitigating the 28 percent lower landings, along with a 26 percent lower allocation (and lower U.S. TAC). The whiting TAC is highly variable among years due to stock dynamics.

3.2. Landings and revenue by port

Distributions of landings and revenue by port group for 2011 and 2012 are shown in Figure 3 and Table 3, both for non-whiting and whiting trips.

3.2.1. Non-whiting

Non-whiting landings in Astoria were slightly lower than 2011 (down three percent), although revenue was slightly higher (up nine percent). Changes in landings and revenue were different across species; increases in revenue were apparent for many species, including petrale sole, Pacific cod, yellowtail rockfish, shelf rockfish, several flatfish species, and lingcod in Astoria, compared to 2011.

There was a considerable increase in non-whiting landings (three-fold) and revenue (up 51 percent) in Westport during 2012 versus 2011 (increases were seen for arrowtooth flounder, Dover sole and sablefish), and there were some substantial differences in a few other port groups. The Newport, Tillamook and Garibaldi group saw both higher landings and revenue than the same time last year (up 30 percent and nine percent, respectively). Sablefish, Dover sole, petrale sole and other species were important for increased revenue in the Newport group over the same time last year. The Bellingham (and northward) port group, as well as the Brookings/Crescent City/Port Orford group both showed increased revenue compared with 2011 (up 20 percent and eight percent, respectively). Revenue for the Charleston port group was unchanged, while Ilwaco/Chinook and the San Francisco/San Mateo/Princeton/Bodega Bay groups dropped sharply (56 percent and 54 percent of 2011 levels,

respectively). The Eureka, Fort Bragg, and Moss Landing groups showed more modest decreases in revenue (82, 75, and 69 percent of 2011 levels, respectively).

3.2.2. Shorebased whiting

Looking at the shorebased whiting fleet, although total annual revenue was down eight percent from 2011, revenue for the Newport, Tillamook, Garibaldi, Charleston and Winchester Bay group was up 11 percent from 2011; in the Westport, Ilwaco, Chinook group, it was up three percent. Revenue from shorebased whiting trips in 2012 for Astoria was down, at 74 percent of 2011 levels.

3.3. Landings and revenue by gear

According to preliminary data, the proportion of sablefish landed with fixed gear has increased in the shorebased IFQ program by four percent, compared with 2011 (Figure 4, Table 4). As a result, 58 percent of the revenue from sablefish in this fishery is estimated to come from fixed gear (up ten percent from 2011), due to increases in landings using hook-and-line gear. These changes in gear use for sablefish translated in small overall changes to the distribution of aggregate landings of all groundfish species, and associated revenue among gear types for the entire non-whiting fleet (Table 5). Much lower prices were seen in 2012 for sablefish for hook-and-line, pot, and trawl gear, than during 2011 (Figure 5). Fixed gear accounts for one fourth of the non-whiting revenue in the fishery, although it currently makes up only seven percent of landings.

3.4. Landings and revenue by species

3.4.1. Non-whiting

Annual ex-vessel revenue by species/market category (those with annual revenue of more than $10,000 in 2012), for non-whiting trips during 2011 and 2012 are shown in Table 6; they are sorted from species with the highest revenue in 2012, to lowest. Sablefish generated the most non-whiting revenue in 2012, followed by Dover sole, petrale sole and shortspine thornyheads, respectively. Yellowtail rockfish was ranked fifth in revenue in 2012 with 2.8 percent of the non-whiting revenue (Figures 6 and 7, Table 6), up five places from 2011 when it was ranked tenth, with 1.1 percent. The annual ex-vessel price (Table 6) of sablefish was down 56 cents per pound, up slightly for Dover sole (up one cent), petrale sole (up four cents), and shortspine thornyheads (up six cents), and down slightly for yellowtail rockfish (down two cents).

Figures 6 and 7, and Table 6 show relative proportions of non-whiting revenue by species/market category, and changes from 2011 to 2012. The proportion of non-whiting revenue made up by sablefish dropped by 9.6 percent from 2011 to 2012, as a result of its drop in ex-vessel price, and a six percent drop in landings. A few other species increased notably in their proportion of non-whiting revenue, including petrale sole (up 3.3 percent), yellowtail rockfish (up 1.7 percent), longnose skate (up 0.8 percent), and Pacific cod (up 0.8 percent).

The distribution of revenue among non-whiting species/market categories became somewhat more even in 2012 than 2011, shown by Gini coefficient values of 0.82 versus 0.86 respectively (Table 7). This is related to the drop in sablefish prices, as well as sablefish landings, since this species is by far the most valuable species in the groundfish fishery, and thus large fluctuations in price have a pronounced effect

on the relative distribution of revenue among species landed. Changes in ex-vessel prices and landings of other species are also important, such as those few mentioned earlier in this section (e.g. petrale sole, shortspine thornyheads, and yellowtail rockfish).

The total count of groundfish market categories landed in 2012 also increased by six, from 64 to 70; however the number of categories which generated any reported revenue increased by only two, from 62 to 64; many of those generated less than $10,000 annually, and are thus not shown here.

The Gini coefficient is an index of inequality for continuous data (usually economic data), with higher values indicating more inequality. Lower values indicate less inequality, or more evenness of distribution among categories. Values can range from zero (complete uniformity) to one (complete inequality). The Shannon Index of diversity was used in the mid-year IFQ report in 2012 for a similar discussion (*Agenda Item F.3.b., Supplemental NMFS Report, March 2012*); the Shannon Index combines evenness of distribution, together with richness (number of categories represented). The Gini coefficient is more comprehensible and specific for the purposes of this discussion about a constrained number of categories; it only quantifies evenness, where richness can be discussed separately.

3.4.2. Shorebased whiting

Table 8 shows landings and revenue by species, for whiting trips; Table 9 shows the relative distribution of those landings and revenue among species/market categories for 2011 and 2012. Revenue distribution among species changed little, except for a 0.9 percent decrease in the proportion of whiting fleet revenue from yellowtail rockfish, accompanying a 51 percent decrease in landings, and no change in annual yellowtail ex-vessel price, from 2011 to 2012.

4. Participation, coarse effort and catch per unit effort

Overall fishery participation, in terms of vessel counts, decreased by three vessels, from 108 in 2011 to 105 in 2012 (Table 10). Among those, the number of vessels making non-whiting trips dropped from 94 in 2011 to 88 in 2012, and vessels making whiting trips dropped from 26 to 24. The number of vessels making both whiting and non-whiting trips also dropped from 12 in 2011 to six in 2012. The monthly distribution of vessel participation is shown in Figure 8; 2011 and 2012 monthly distributions are similar, except for a conspicuous spike in whiting vessel participation in November 2012, following whiting reapportionment on October 17. There was also a dip in 2012 non-whiting participation during June and July of 2012, compared to 2011; this corresponds with a three-month lull in monthly sablefish landings, from May through July of 2012.

There has been little change in trip-level measures of non-whiting effort, and catch per unit effort between 2011 and 2012; the aggregate number of trips, total catch, and catch per trip for mid-year 2012 were all within three percent of 2011 levels (Figure 9, Table 11). Data from the NMFS Vessel Accounts Database were used for effort and participation, and cover IFQ species/area categories only.

5. Commerce-related quota pound transfer activity

5.1. Accounts

Some of the most interesting recent changes in the IFQ fishery involve transfers of quota pounds among vessel accounts. These data suggest that fishers knew better what to expect in the second year of trawl rationalization, and as a result they were utilizing tools of the program to manage their quotas earlier in the year, and more efficiently, to plan their fishing year.

Figure 10 and Table 12 show metrics used to describe monthly commerce-related transfers of quota pounds during 2011 and 2012. These include transfers that were made from vessel account to vessel account, and for cash, barter, or a combination of the two.

Commerce-related transfers began immediately in January of 2012, with 115 transfers for more than 1.3 million pounds, program-wide; in January of 2011, there were no commerce-related transfers. In 2011, transfer activity ramped up slowly. Monthly activity during 2012 was in sharp contrast with 2011 (Figure 10, Table 12); the differences can be seen in transfers per month, number of vessels transferring, and pounds transferred.

Transfer activity was much more evenly distributed through 2012 than 2011 (Figure 10). This is also shown by annual values of the Gini coefficient (Table 10), where 2011 Gini values are higher for each metric than 2012 values. Lower values indicate more even distribution among categories (less inequality). Values can range from zero (complete uniformity) to one (complete inequality). Numbers of transfers per month in 2011 yielded a Gini coefficient value of 0.42, and in 2012 the corresponding value was only 0.24. The total number of commerce-related transfers for 2012 was 18 percent lower than during 2011 (1,012 versus 1,236 respectively). For the number of vessel accounts involved in transfers per month during 2011, the Gini value was 0.42, while for 2012 it was 0.20, again showing more even temporal distribution within 2012. Monthly pounds transferred, whether including or excluding hake, was much more evenly distributed in 2012 than 2011. The Gini coefficient value for pounds transferred including hake was 0.62 in 2011 versus 0.40 in 2012; without hake, the Gini value for 2011 was 0.55, versus 0.28 in 2012. Total pounds transferred (commerce-related) was lower in 2012 than 2011, whether hake was included or not.

Together, more evenly distributed commerce-related transfer activity throughout the year (considering several metrics), lower total numbers of such transfers, and lower total pounds transferred (with and without hake) suggest that participants carried out their activities in 2012 with more knowledge, planning and familiarity with the program than in its initial year of 2011. This report does not contain data on risk pools, as that information is not currently available in conjunction with these detailed transfer data.

5.2. Species

Figure 11 and Table 13 show commerce-related trading activity of quota pounds by species/area IFQ category. During 2012, the five most frequently traded species/area IFQ category were Pacific whiting, followed by sablefish north of 36° N. lat., petrale sole, widow rockfish, and canary rockfish.

Rankings by frequency of transfer changed somewhat from 2011 to 2012, especially for a handful of species. Three of the most striking changes in rank occurred for canary rockfish, yellowtail rockfish, and sablefish south of 36° S. lat. Canary rockfish, which was the fifth most transferred species in 2012, increased by 15 ranks from 2011, when it was twentieth. Yellowtail rockfish was the seventh most transferred (commerce-related) category in 2012, up nine places from 2011, when it was eighteenth. Sablefish south of 36° S. lat. was the fourth most transferred species in 2011, but was ranked 41 in 2012. Sablefish north of 36° N. lat. was by far the most frequently transferred species during 2011; however, in 2012 it ranked second, behind Pacific whiting. Differences in the annual number of commerce-related transfers for each species between 2011 and 2012 are highlighted in Figure 11, which is sorted descending, based on numbers of transfers per species in 2012.

6. Total catch, attainment and retention rates

6.1. Total catch and attainment

Aggregate attainment of all species categories other than whiting increased by five percent in 2012, to 29 percent, from 24 percent in 2011. Although total IFQ fishery catch is lower than last year (by 56.6 million pounds), this difference is almost entirely attributable to Pacific whiting, whose catch dropped by 56.3 million pounds from 2011 to 2012. The whiting allocation was 26 percent lower in 2012 than 2011 (53.2 million pounds), due to the lower U.S. Total Allowable Catch of whiting, which fluctuates widely from year to year, according to this stock's population dynamics. Although total attainment of whiting itself was three percent lower in 2012, the reapportionment which was made late in 2012 (October 17) is important to note in making comparisons with 2011, considering there was no reapportionment in 2011. The original 2012 allocation of Pacific whiting was 125.4 million pounds, all of which was caught, as part of the 144.7 million pounds of total catch during 2012. When reapportioned pounds were added to vessel accounts on October 17, the sector allocation increased to its final amount of 151.4 million pounds. Large directed whiting trips concluded in November (>1 M pounds), and several smaller trips were made through mid-December.

There have been several notable changes in attainment by species, between 2011 and 2012 (Table 14, Figure 12). The largest increases in attainment include the following: minor slope rockfish, south of 40°10' N. lat., up 19 percent; Pacific cod, up 13 percent; canary rockfish, up 13 percent; minor shelf rockfish, south of 40°10' N. lat., up 10 percent; and minor slope rockfish, north of 40°10' N. lat., up nine percent. The largest decreases in attainment include the following: sablefish south of 36° N. lat., down 42 percent, and shortspine thornyheads south of 34°27' N. lat., down 16 percent; yelloweye rockfish attainment was down four percent.

Although attainment of petrale sole currently shows as 100.3 percent on the NOAA Pacific Coast Groundfish Individual Fishing Quota tracking page as of March 21, 2013 (https://www.webapps.nwfsc.noaa.gov/ifq/), the catch includes surplus carryover pounds from 2011, and the 2012 allocation value does not. The 2012 annual allocation itself was not exceeded.

Figure 12 shows percent changes in IFQ species total fishery attainment of their respective allocations (including both non-whiting and whiting fleets), for 2011 and 2012 (top), as well as percent changes in retention rates for the non-whiting fleet only, during the same years (bottom).

6.2. Retention

Retention rates during 2012 were very similar to the high estimates from 2011. Table 15 shows percent changes in retention rates between 2011 and 2012, along with the raw amounts landed, discarded, and total catch (including only IFQ species). Overall, retention was up 0.2 percent, from 98.6% to 98.8%. There were relatively small changes in retention for each species; only two species showed changes of greater than 10 percent (chilipepper rockfish retention decreased by 10.3 percent, from 92 percent to 81.7 percent; splitnose rockfish retention increased by 12.8 percent, from 23.8 percent to 36.6 percent, Table 15, Figure 12).

Retention of rebuilding species was generally higher in 2012 than 2011, with the exception of darkblotched rockfish, which decreased by 0.9 percent (from 98.1 to 97.2 percent). Yelloweye rockfish retention increased by 8.6 percent (from 91.4 to 100.0 percent), canary rockfish retention increased by 3.3 percent (from 96.1 to 99.4 percent). Cowcod rockfish retention was up 8.1 percent (from 82.1 to 90.2 percent), and petrale sole was up by 0.9 percent (from 98.0 to 98.9 percent). Bocaccio rockfish retention remained unchanged, at 99.9 percent.

The aggregate retention rate estimated for non-whiting trips is 95.2 percent for 2012, up 0.8 percent from 2011. For directed whiting trips, the current 2012 estimate is 99.8 percent, up 0.4 percent from 2011. Retention rate estimates may be subject to change as observer discard data for 2012 are finalized.

7. Catch of rebuilding species

Catch of current rebuilding species has been much lower on average during the first two years of the IFQ program, compared with the previous two years. Figure 13 and Table 16 show annual catch of each rebuilding species from 2009 through 2012. In addition, Table 16 shows average catch for these species during 2009-10 (pre-IFQ), and 2011-12 (post-IFQ). For yelloweye rockfish, catch under the IFQ program has been 39.3 percent of previous, while cowcod rockfish has been just 10.4 percent of pre-IFQ; canary rockfish, 62.2 percent; bococcio, 43.3 percent; darkblotched, 31.9 percent; petrale sole, 67.2 percent (Figure 14). Petrale sole is managed as a target species under its rebuilding plan.

8. Acknowledgements

I would like to thank Dave Colpo of the Pacific States Marine Fisheries Commission (PSMFC); Brad Stenberg of the Pacific Fisheries Information Network (also PSMFC); Jeff Cowen of the Northwest Fisheries Science Center (NWFSC), National Marine Fisheries Service (NMFS); Sarah Towne, Kevin Ford and Dr. Stephen Freese of the Northwest Region, NMFS; Jon McVeigh, Janell Majewski, Marlene Bellman and Melissa Mandrup of the West Coast Groundfish Observer Program, NWFSC, NMFS for their support, in supplying data for this and past reports.

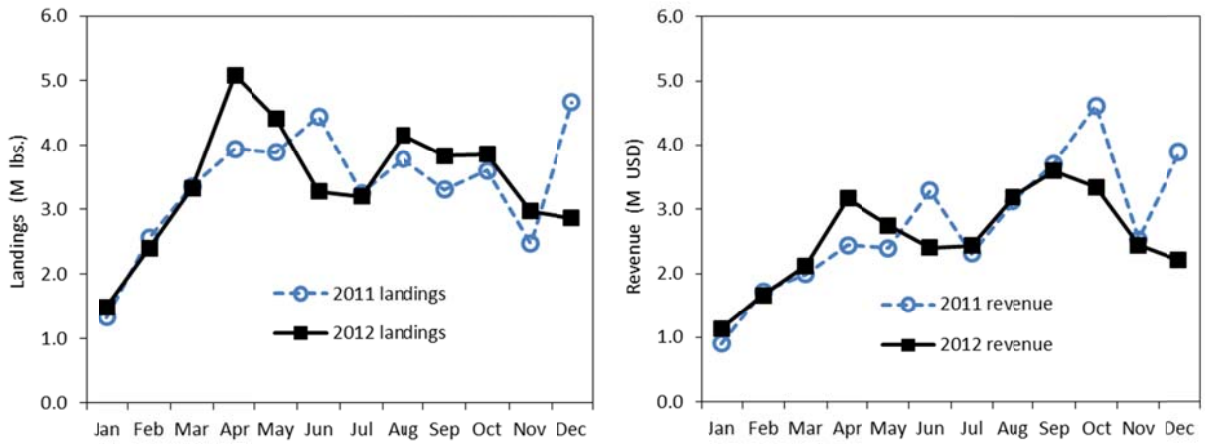

Figure 1. Monthly landings (left) and revenue (right) during 2011 and 2012, for non-whiting trips in the Shorebased IFQ Program. Source = paper and electronic landing receipt data (PacFIN and PSMFC, respectively).

Table 1. Monthly landings (left) and revenue (right) during 2011 and 2012, for non-whiting trips in the Shorebased IFQ Program. The "land % 2011" column expresses 2012 landings as a percentage of 2011 landings; the "rev % 2011" column expresses 2012 revenue in the same way. Source = paper and electronic landing receipt data (PacFIN and PSMFC, respectively).

Non-whiting trips

Month	2011 landings	2012 landings	2011 revenue	2012 revenue	Land. % 2011	Rev. % 2011
Jan	1,324,638	1,490,200	902,457	1,142,266	112%	127%
Feb	2,564,693	2,404,286	1,719,893	1,658,043	94%	96%
Mar	3,360,889	3,332,948	1,991,797	2,120,942	99%	106%
Apr	3,942,465	5,080,809	2,443,745	3,165,779	129%	130%
May	3,884,997	4,415,608	2,395,262	2,744,210	114%	115%
Jun	4,446,585	3,280,997	3,293,042	2,402,746	74%	73%
Jul	3,258,118	3,204,170	2,312,914	2,433,846	98%	105%
Aug	3,785,242	4,150,441	3,122,361	3,194,306	110%	102%
Sep	3,310,686	3,832,257	3,715,231	3,598,502	116%	97%
Oct	3,601,682	3,857,524	4,618,719	3,348,731	107%	73%
Nov	2,467,760	2,976,381	2,531,797	2,438,940	121%	96%
Dec	4,662,435	2,866,641	3,888,717	2,204,455	61%	57%
Total	40,610,190	40,892,262	32,935,934	30,452,763	101%	92%

Whiting trips

Month	2011 landings	2012 landings	2011 revenue	2012 revenue	Land. % 2011	Rev. % 2011
Jun	24,045,023	11,122,661	2,731,383	1,505,812	46%	55%
Jul	55,485,521	24,085,094	6,421,443	3,938,424	43%	61%
Aug	64,940,939	32,982,861	7,152,118	5,056,511	51%	71%
Sep	33,806,896	23,034,089	3,732,197	2,992,457	68%	80%
Oct	20,332,039	31,562,091	2,221,077	4,056,045	155%	183%
Nov	4,633,334	22,359,007	552,601	3,294,073	483%	596%
Dec	NA	1,209,538	NA	115,357	NA	NA
Sum	203,243,752	146,355,341	22,810,819	20,958,679	72%	92%

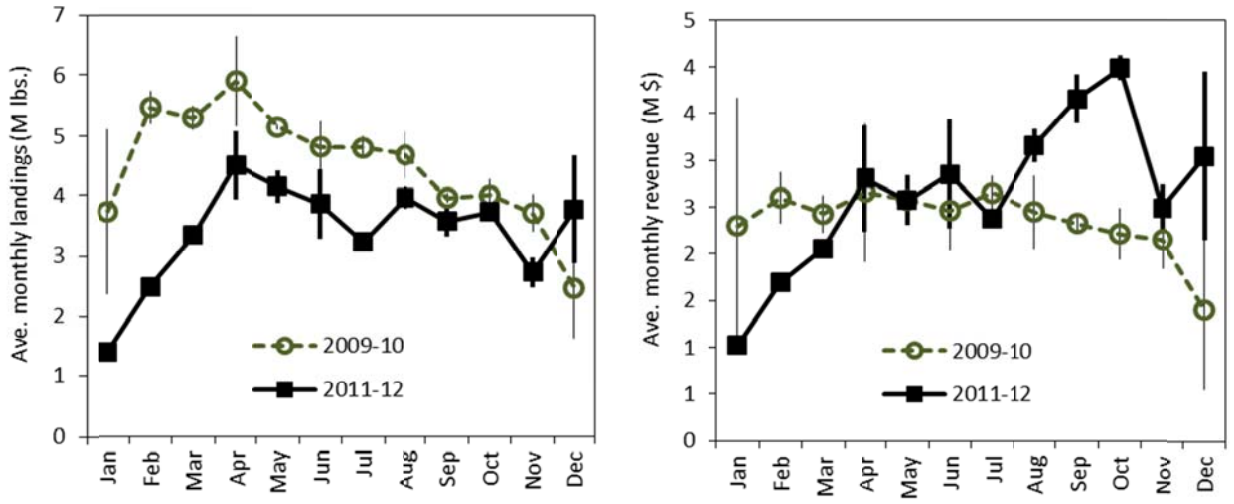

Figure 2. Average monthly landings (left) and revenue (right) during 2009-2010 (green open circles, dashed lines), versus 2011-2012 (black squares, solid lines), for non-whiting trips in the Shorebased IFQ Program (limited entry non-whiting trawl fishery during 2009-10). Source = paper and electronic landing receipt data (PacFIN and PSMFC, respectively).

Table 2. Average monthly landings (left) and revenue (right) during 2009-2010 (green open circles, dashed lines), versus 2011-2012 (black squares, solid lines), for non-whiting trips in the Shorebased IFQ Program (limited entry non-whiting trawl fishery during 2009-10). Source = paper and electronic landing receipt data (PacFIN and PSMFC, respectively).

Month	**Ave. landings**				**Ave. revenue**			
	2009-10	**2011-12**	**S.E. 09-10**	**S.E.11-12**	**2009-10**	**2011-12**	**S.E. 09-10**	**S.E. 11-12**
Jan	3,733,887	1,407,419	1,364,374	82,781	2,294,354	1,022,362	828,414	119,905
Feb	5,465,840	2,484,490	271,688	80,204	2,594,130	1,688,968	45,615	30,925
Mar	5,292,810	3,346,919	197,724	13,971	2,425,697	2,056,370	98,008	64,573
Apr	5,910,014	4,511,637	740,500	569,172	2,655,967	2,804,762	307,524	361,017
May	5,145,447	4,150,302	43,541	265,306	2,574,902	2,569,736	6,390	174,474
Jun	4,810,159	3,863,791	423,942	582,794	2,459,182	2,847,894	305,222	445,148
Jul	4,797,831	3,231,144	186,138	26,974	2,652,528	2,373,380	98,298	60,466
Aug	4,680,382	3,967,842	391,565	182,599	2,446,505	3,158,333	360,699	35,972
Sep	3,962,316	3,571,471	82,693	260,786	2,320,270	3,656,866	132,905	58,365
Oct	4,005,163	3,729,603	270,234	127,921	2,211,774	3,983,725	85,991	634,994
Nov	3,710,737	2,722,071	309,909	254,311	2,150,959	2,485,368	189,229	46,428
Dec	2,465,411	3,764,538	840,322	897,897	1,391,174	3,046,586	442,372	842,131
Annual	54,161,633	40,751,226	3,872,352	141,036	28,177,442	31,694,349	2,509,429	1,241,585

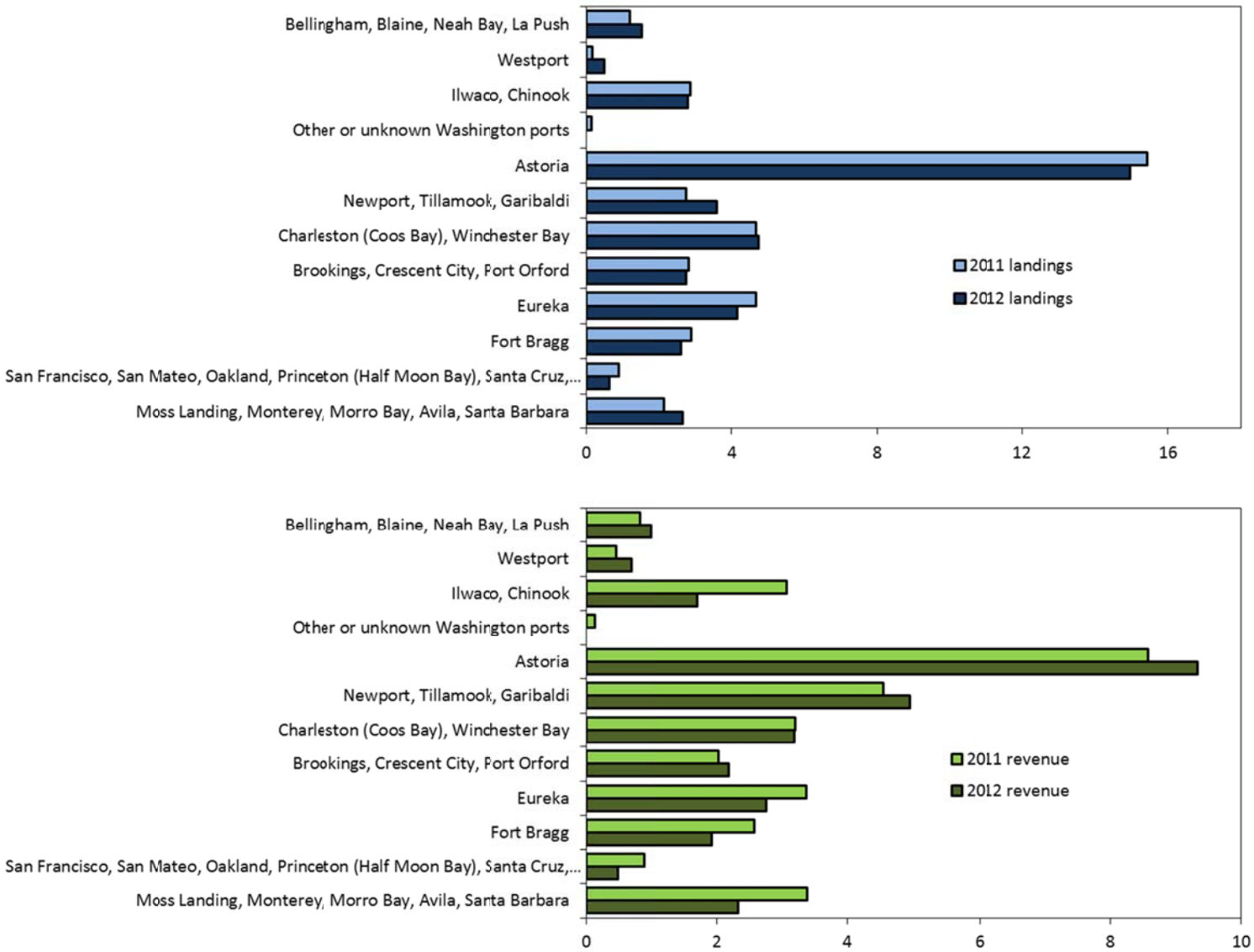

Figure 3. Landings and revenue by port group, for non-whiting trips, in the Shorebased IFQ Program. Port groups are arranged by latitude. Source = paper and electronic landing receipt data (PacFIN and PSMFC, respectively).

Table 3. Annual landings and revenue, distributed by port group, for non-whiting trips (top) and directed whiting trips (bottom), in the Shorebased IFQ Program, for 2011 and 2012. Port groups are arranged by latitude. Columns labeled "percent" express either 2012 landings or revenue (corresponding to the column appearing to left) as a percent of 2011 values. Columns labeled "dist." show the distribution of annual landings or revenue among port groups (%).

Port group (non-whiting trips)	**2011 landings**	**2012 landings**	**2011 dist.**	**2012 dist.**	**Land. difference**	**Land. percent**	**2011 revenue**	**2012 revenue**	**2011 dist.**	**2012 dist.**	**Rev. difference**	**Rev. percent**
Bellingham, Blaine, Neah Bay, La Push	1,185,687	1,500,658	3%	4%	314,971	127%	816,996	977,857	2%	3%	160,861	120%
Westport	162,774	494,278	0%	1%	331,504	304%	450,500	680,484	1%	2%	229,984	151%
Ilwaco, Chinook	2,882,683	2,809,640	7%	7%	-73,043	97%	3,051,630	1,700,006	9%	6%	-1,351,624	56%
Other or unknown Washington ports	130,220		0%	0%	-130,220	0%	127,621		0%	0%	-127,621	0%
Astoria	15,398,437	14,929,115	38%	37%	-469,322	97%	8,567,173	9,338,689	26%	31%	771,516	109%
Newport, Tillamook, Garibaldi	2,759,574	3,590,916	7%	9%	831,342	130%	4,538,783	4,935,313	14%	16%	396,530	109%
Charleston (Coos Bay), Winchester Bay	4,665,899	4,744,945	11%	12%	79,046	102%	3,187,748	3,171,837	10%	10%	-15,911	100%
Brookings, Crescent City, Port Orford	2,833,395	2,752,902	7%	7%	-80,493	97%	2,021,490	2,177,826	6%	7%	156,336	108%
Eureka	4,671,640	4,159,850	12%	10%	-511,790	89%	3,355,484	2,753,363	10%	9%	-602,120	82%
Fort Bragg	2,897,221	2,623,714	7%	6%	-273,507	91%	2,570,326	1,916,710	8%	6%	-653,616	75%
San Francisco, San Mateo, Oakland, Princeton (Half Moon Bay), Santa Cruz, Bodega Bay	869,663	621,684	2%	2%	-247,979	71%	878,513	476,211	3%	2%	-402,302	54%
Moss Landing, Monterey, Morro Bay, Avila, Santa Barbara	2,152,997	2,664,560	5%	7%	511,563	124%	3,369,670	2,324,466	10%	8%	-1,045,203	69%
Sum	40,610,190	40,892,262	100%	100%	282,072	101%	32,935,934	30,452,763	100%	100%	-2,483,170	92%

Port group (whiting trips)	**2011 landings**	**2012 landings**	**2011 dist.**	**2012 dist.**	**Land. difference**	**Land. percent**	**2011 revenue**	**2012 revenue**	**2011 dist.**	**2012 dist.**	**Rev. difference**	**Rev. percent**
Westport, Ilwaco, Chinook	50,597,855	37,654,325	25%	26%	-12,943,530	74%	5,700,215	5,848,889	25%	28%	148,674	103%
Astoria	94,478,623	52,460,824	46%	36%	-42,017,799	56%	10,537,842	7,786,722	46%	37%	-2,751,120	74%
Newport, Tillamook, Garibaldi, Charleston (Coos Bay), Winchester Bay	58,167,274	56,240,192	29%	38%	-1,927,082	97%	6,572,762	7,323,068	29%	35%	750,306	111%
Sum	203,243,752	146,355,341	100%	100%	-56,888,411	72%	22,810,819	20,958,679	100%	100%	-1,852,140	92%

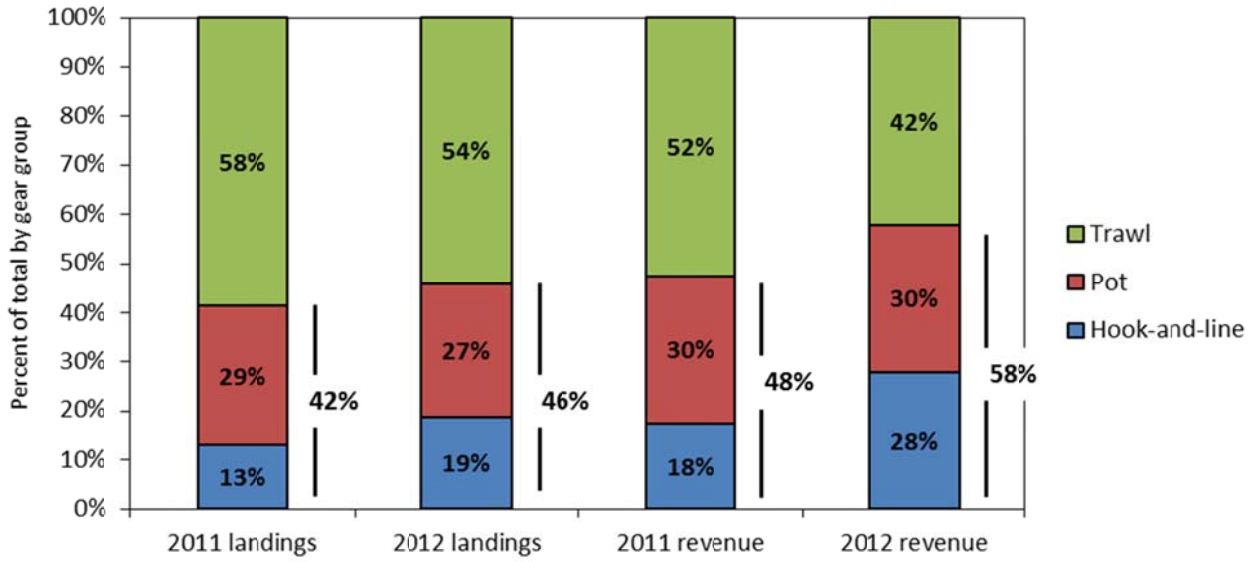

Figure 4. Landings and revenue composition of sablefish catch, by gear group, for non-whiting trips in the Shorebased IFQ Program, during 2011 and 2012. Whiskers to the right of each bar indicate the percent of annual sablefish landings or revenue from non-trawl gear. Source = combination of paper and electronic landing receipt data (PacFIN and PSMFC, respectively).

Table 4. Landings and revenue statistics of sablefish catch, by gear group, non-whiting trips in the Shorebased IFQ Program, during 2011 and 2012. Source = combination of paper and electronic landing receipt data (PacFIN and PSMFC, respectively).

Gear group	2011 landings	Land. % total	2011 revenue	Rev. % total	2011 price lb.
Hook-and-line	790,169	13%	3,091,808	18%	3.91
Pot	1,739,676	29%	5,284,804	30%	3.04
Trawl	3,562,521	58%	9,238,054	52%	2.59
Total	6,092,366	100%	17,614,666	100%	2.89

Gear group	2012 landings	Land. % total	2012 revenue	Rev. % total	2012 price lb.
Hook-and-line	1,083,978	19%	3,726,074	28%	3.44
Pot	1,553,421	27%	4,012,640	30%	2.58
Trawl	3,101,102	54%	5,617,878	42%	1.81
Total	5,738,501	100%	13,356,592	100%	2.33

Gear group	Landing % 2011	Rev. % 2011	Price % 2011	Δ land. dist.	Δ rev. dist.
Hook-and-line	137%	121%	88%	6%	10%
Pot	89%	76%	85%	-1%	0%
Trawl	87%	61%	70%	-4%	-10%
Total	94%	76%	81%	0%	0%

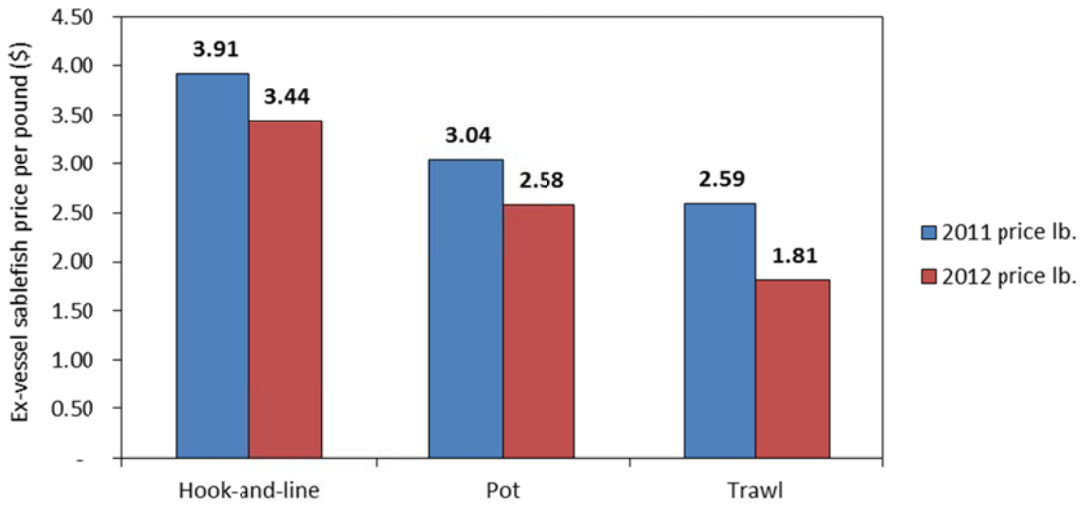

Figure 5. Annual, ex-vessel sablefish price, by gear group, for non-whiting trips in the Shorebased IFQ Program, during 2011 and 2012. Source = paper and electronic landing receipt data (PacFIN and PSMFC, respectively).

Table 5. Landings and revenue statistics of non-whiting groundfish catch, by gear group, for non-whiting trips in the Shorebased IFQ Program, during 2011 and 2012. Source = paper and electronic landing receipt data (PacFIN and PSMFC, respectively).

Gear group	2011 landings	Land. % total	2011 revenue	Rev. % total	2011 price lb.
Hook-and-line	855,569	2%	3,240,645	10%	3.79
Pot	1,763,990	4%	5,308,157	16%	3.01
Trawl	37,990,631	94%	24,387,131	74%	0.64
Total	40,610,190	100%	32,935,934	100%	0.81

Gear group	2012 landings	Land. % total	2012 revenue	Rev. % total	2012 price lb.
Hook-and-line	1,204,817	3%	3,800,194	12%	3.15
Pot	1,578,145	4%	4,043,669	13%	2.56
Trawl	38,109,206	93%	22,608,851	74%	0.59
Total	40,892,262	100%	30,452,763	100%	0.74

Gear group	Landings % 2011	Rev. % 2011	Price % 2011	Δ land. dist.	Δ rev. dist.
Hook-and-line	141%	117%	83%	1%	3%
Pot	89%	76%	85%	0%	-3%
Trawl	100%	93%	92%	1%	0%
Total	101%	92%	92%	NA	0%

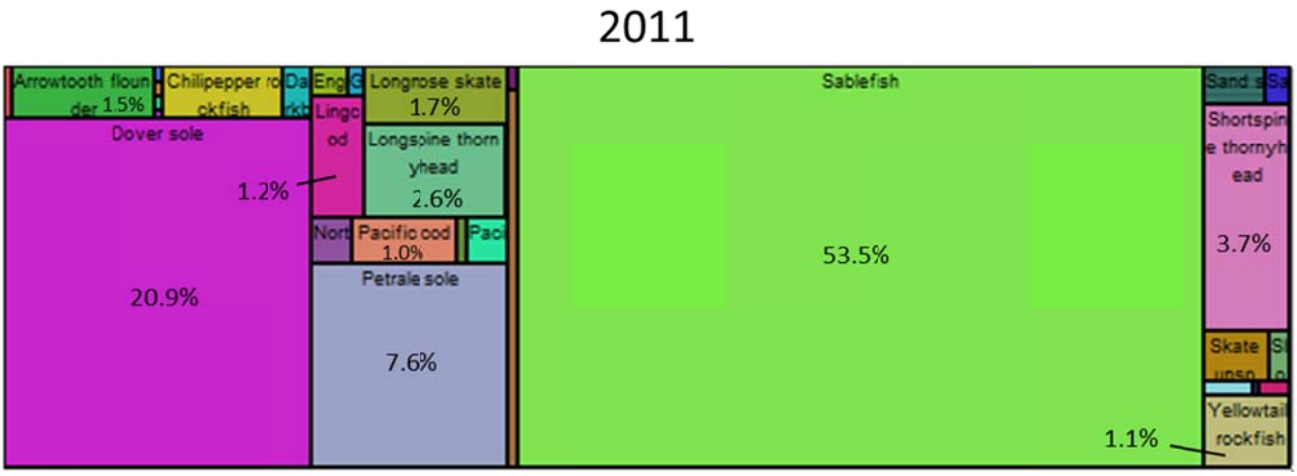

Figure 6. Treemap showing distribution of revenue among species/market categories, from non-whiting IFQ trips in the Shorebased IFQ Program, during 2011. Source = paper and electronic landing receipt data (PacFIN and PSMFC, respectively).

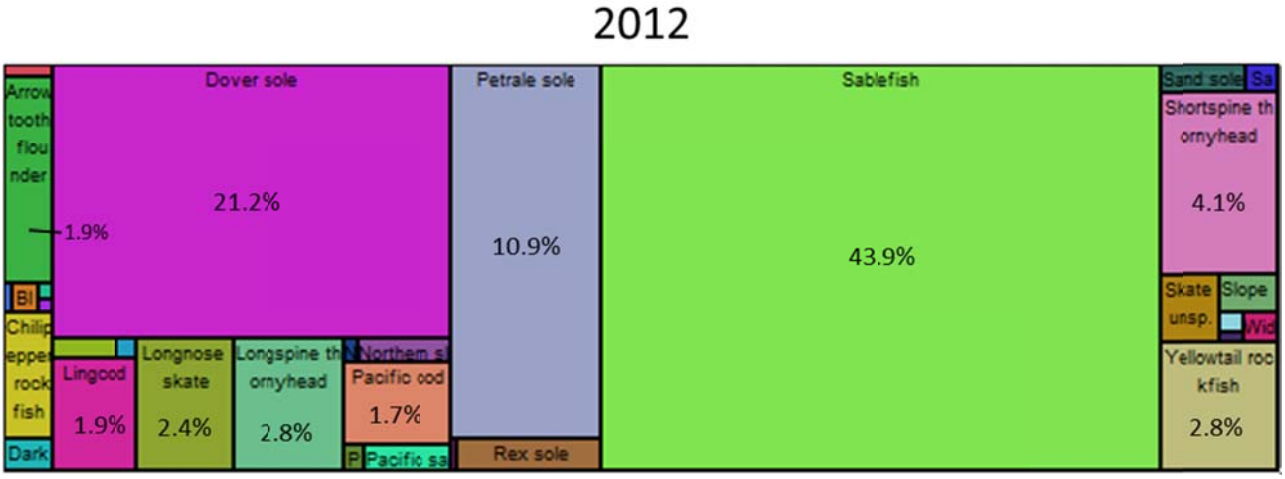

Figure 7. Treemap showing distribution of revenue among species/market categories, from non-whiting IFQ trips in the Shorebased IFQ Program, during 2012. Source = paper and electronic landing receipt data (PacFIN and PSMFC, respectively). Revenue distribution among these market categories became slightly more even in 2012 versus 2011 (Gini coefficient = 0.82 vs 0.86 respectively; lower value = less inequality), largely due to a 9.6% decrease in the representation of sablefish, and corresponding small increases in the representation of petrale sole, Dover sole, shortspine thornyheads, yellowtail rockfish, longnose skate, lingcod, etc.

Table 6. Aggregate revenue, landings, and price of groundfish market categories (categories with annual revenue > $10,000) for non-whiting trips in the Shorebased IFQ Program, during 2011 and 2012.

Species/market category	Landings 2011	Landings 2012	% of 2011	Revenue 2011	Revenue 2012	% of 2011	Price 2011	Price 2012	Δ price
Sablefish	6,092,366	5,738,501	94%	17,614,666	13,356,592	76%	2.89	2.33	-0.56
Dover sole	16,833,016	15,482,683	92%	6,880,589	6,456,137	94%	0.41	0.42	0.01
Petrale sole	1,746,901	2,254,657	129%	2,505,058	3,317,345	132%	1.43	1.47	0.04
Shortspine thornyhead	1,567,799	1,519,887	97%	1,203,433	1,254,320	104%	0.77	0.83	0.06
Yellowtail rockfish	692,841	1,667,700	241%	371,053	866,597	234%	0.54	0.52	-0.02
Longspine thornyhead	2,005,211	1,919,793	96%	844,622	849,890	101%	0.42	0.44	0.02
Longnose skate	1,680,592	1,839,038	109%	548,945	738,250	134%	0.33	0.40	0.07
Arrowtooth flounder	4,904,498	4,762,040	97%	480,174	589,725	123%	0.10	0.12	0.03
Lingcod	539,621	757,517	140%	405,065	565,473	140%	0.75	0.75	0.00
Pacific cod	554,113	871,274	157%	315,488	520,104	165%	0.57	0.60	0.03
Chilipepper rockfish	644,728	518,536	80%	411,062	356,406	87%	0.64	0.69	0.05
Rex sole	768,760	773,559	101%	261,082	270,878	104%	0.34	0.35	0.01
Skate unsp.	586,319	544,178	93%	202,326	239,188	118%	0.35	0.44	0.09
Sand sole	153,638	154,276	100%	144,397	147,890	102%	0.94	0.96	0.02
N. slope rockfish unsp.	253,748	287,133	113%	122,735	139,506	114%	0.48	0.49	0.00
Slope rockfish unsp.	101,559	202,153	199%	62,111	130,790	211%	0.61	0.65	0.04
Pacific sanddab	226,011	231,317	102%	115,984	119,286	103%	0.51	0.52	0.00
Darkblotched rockfish	194,164	176,858	91%	93,483	87,949	94%	0.48	0.50	0.02
English sole	239,084	253,600	106%	74,782	85,161	114%	0.31	0.34	0.02
Widow rockfish	57,907	111,391	192%	24,725	52,726	213%	0.43	0.47	0.05
Sanddabs unsp.	83,415	92,736	111%	56,504	52,079	92%	0.68	0.56	-0.12
Blackgill rockfish	5,225	48,399	926%	7,790	47,493	610%	1.49	0.98	-0.51
Spiny dogfish	154,052	114,107	74%	42,327	29,714	70%	0.27	0.26	-0.01
Pacific ocean perch	64,853	56,573	87%	31,742	29,482	93%	0.49	0.52	0.03
Grenadiers unsp.	198,705	186,784	94%	28,239	24,632	87%	0.14	0.13	-0.01
N. shelf rockfish unsp.	28,211	70,823	251%	10,002	22,488	225%	0.35	0.32	-0.04
Bank rockfish	11,172	20,290	182%	9,000	18,758	208%	0.81	0.92	0.12
Bocaccio rockfish	11,697	19,423	166%	7,759	13,505	174%	0.66	0.70	0.03
Splitnose rockfish	21,440	44,286	207%	7,012	12,125	173%	0.33	0.27	-0.05
POP group unsp.	34,892	22,625	65%	17,470	11,869	68%	0.50	0.52	0.02
Canary rockfish	5,914	19,718	333%	3,368	10,606	315%	0.57	0.54	-0.03
All others	147,739	130,407	88%	32,943	35,797	109%	0.22	0.27	0.05
Sum	40,610,190	40,892,262	101%	32,935,934	30,452,763	92%	0.81	0.74	-0.07
Total market category count	64	70	NA	62	64	NA	NA	NA	NA

Table 7. Distribution of revenue among species/market categories (categories with annual revenue > $10,000), from non-whiting IFQ trips in the Shorebased IFQ Program, during 2011 and 2012. Source = paper and electronic landing receipts (PacFIN and PSMFC, respectively).

Species/market category	Landings 2011	Land. dist. 2011	Landings 2012	Land. dist. 2012	Δ land. dist.	Revenue 2011	Rev. dist. 2011	Revenue 2012	Rev. dist. 2012	Δ rev. dist.
Sablefish	6,092,366	15.0%	5,738,501	14.0%	-1.0%	17,614,666	53.5%	13,356,592	43.9%	-9.6%
Dover sole	16,833,016	41.5%	15,482,683	37.9%	-3.6%	6,880,589	20.9%	6,456,137	21.2%	0.3%
Petrale sole	1,746,901	4.3%	2,254,657	5.5%	1.2%	2,505,058	7.6%	3,317,345	10.9%	3.3%
Shortspine thornyhead	1,567,799	3.9%	1,519,887	3.7%	-0.1%	1,203,433	3.7%	1,254,320	4.1%	0.5%
Yellowtail rockfish	692,841	1.7%	1,667,700	4.1%	2.4%	371,053	1.1%	866,597	2.8%	1.7%
Longspine thornyhead	2,005,211	4.9%	1,919,793	4.7%	-0.2%	844,622	2.6%	849,890	2.8%	0.2%
Longnose skate	1,680,592	4.1%	1,839,038	4.5%	0.4%	548,945	1.7%	738,250	2.4%	0.8%
Arrowtooth flounder	4,904,498	12.1%	4,762,040	11.6%	-0.4%	480,174	1.5%	589,725	1.9%	0.5%
Lingcod	539,621	1.3%	757,517	1.9%	0.5%	405,065	1.2%	565,473	1.9%	0.6%
Pacific cod	554,113	1.4%	871,274	2.1%	0.8%	315,488	1.0%	520,104	1.7%	0.8%
Chilipepper rockfish	644,728	1.6%	518,536	1.3%	-0.3%	411,062	1.2%	356,406	1.2%	-0.1%
Rex sole	768,760	1.9%	773,559	1.9%	0.0%	261,082	0.8%	270,878	0.9%	0.1%
Skate unsp.	586,319	1.4%	544,178	1.3%	-0.1%	202,326	0.6%	239,188	0.8%	0.2%
Sand sole	153,638	0.4%	154,276	0.4%	0.0%	144,397	0.4%	147,890	0.5%	0.0%
Northern slope rockfish unsp.	253,748	0.6%	287,133	0.7%	0.1%	122,735	0.4%	139,506	0.5%	0.1%
Slope rockfish unsp.	101,559	0.3%	202,153	0.5%	0.2%	62,111	0.2%	130,790	0.4%	0.2%
Pacific sanddab	226,011	0.6%	231,317	0.6%	0.0%	115,984	0.4%	119,286	0.4%	0.0%
Darkblotched rockfish	194,164	0.5%	176,858	0.4%	0.0%	93,483	0.3%	87,949	0.3%	0.0%
English sole	239,084	0.6%	253,600	0.6%	0.0%	74,782	0.2%	85,161	0.3%	0.1%
Widow rockfish	57,907	0.1%	111,391	0.3%	0.1%	24,725	0.1%	52,726	0.2%	0.1%
Sanddabs unsp.	83,415	0.2%	92,736	0.2%	0.0%	56,504	0.2%	52,079	0.2%	0.0%
Blackgill rockfish	5,225	0.0%	48,399	0.1%	0.1%	7,790	0.0%	47,493	0.2%	0.1%
Spiny dogfish	154,052	0.4%	114,107	0.3%	-0.1%	42,327	0.1%	29,714	0.1%	0.0%
Pacific ocean perch	64,853	0.2%	56,573	0.1%	0.0%	31,742	0.1%	29,482	0.1%	0.0%
Grenadiers unsp.	198,705	0.5%	186,784	0.5%	0.0%	28,239	0.1%	24,632	0.1%	0.0%
Northern shelf rockfish unsp.	28,211	0.1%	70,823	0.2%	0.1%	10,002	0.0%	22,488	0.1%	0.0%
Bank rockfish	11,172	0.0%	20,290	0.0%	0.0%	9,000	0.0%	18,758	0.1%	0.0%
Bocaccio rockfish	11,697	0.0%	19,423	0.0%	0.0%	7,759	0.0%	13,505	0.0%	0.0%
Splitnose rockfish	21,440	0.1%	44,286	0.1%	0.1%	7,012	0.0%	12,125	0.0%	0.0%
POP group unsp.	34,892	0.1%	22,625	0.1%	0.0%	17,470	0.1%	11,869	0.0%	0.0%
Canary rockfish	5,914	0.0%	19,718	0.0%	0.0%	3,368	0.0%	10,606	0.0%	0.0%
All others	147,739	0.4%	130,407	0.3%	0.0%	32,943	0.1%	35,797	0.1%	0.0%
Sum	40,610,190	100.0%	40,892,262	100.0%	0.0%	32,935,934	100.0%	30,452,763	100.0%	0.0%
Gini coefficient		0.79		0.76	NA		0.86		0.82	NA

Table 8. Aggregate revenue, landings, and price of groundfish species/market categories (categories with annual revenue > $10,000) from directed whiting trips in the Shorebased IFQ Program, during 2011 and 2012. Source = paper and electronic landing receipts (PacFIN and PSMFC, respectively).

Species/market category	Landings 2011	Landings 2012	% of 2011	Revenue 2011	Revenue 2012	% of 2011	Price 2011	Price 2012	Δ price
Pacific whiting	201,492,815	144,904,688	72%	22,029,928	20,355,436	92%	0.11	0.14	0.03
Yellowtail rockfish	960,381	474,212	49%	436,998	217,161	50%	0.46	0.46	0.00
Sablefish	66,983	104,082	155%	185,218	193,704	105%	2.77	1.86	-0.90
Widow rockfish	222,425	224,497	101%	97,128	88,624	91%	0.44	0.39	-0.04
Northern slope rockfish unsp.	24,298	158,270	651%	3,221	60,663	1883%	0.13	0.38	0.25
Spiny dogfish	406,464	351,915	87%	44,692	12,660	28%	0.11	0.04	-0.07
All others	70,386	137,677	196%	13,634	30,431	223%	0.19	0.22	0.03
Sum	203,243,752	146,355,341	72%	22,810,819	20,958,679	92%	0.11	0.14	0.03
Total market category count	28	30	NA	21	22	NA	NA	NA	NA

Table 9. Distribution of revenue among species/market categories (categories with annual revenue > $10,000), from directed whiting trips in the Shorebased IFQ Program, during 2011 and 2012. Source = paper and electronic landing receipts (PacFIN and PSMFC, respectively).

Species/market category	Landings 2011	Land. dist. 2011	Landings 2012	Land. dist. 2012	Δ land. dist.	Revenue 2011	Rev. dist. 2011	Revenue 2012	Rev. dist. 2012	Δ rev. dist.
Pacific whiting	201,492,815	99.1%	144,904,688	99.0%	-0.1%	22,029,928	96.6%	20,355,436	97.1%	0.5%
Yellowtail rockfish	960,381	0.5%	474,212	0.3%	-0.1%	436,998	1.9%	217,161	1.0%	-0.9%
Sablefish	66,983	0.0%	104,082	0.1%	0.0%	185,218	0.8%	193,704	0.9%	0.1%
Widow rockfish	222,425	0.1%	224,497	0.2%	0.0%	97,128	0.4%	88,624	0.4%	0.0%
Northern slope rockfish unsp.	24,298	0.0%	158,270	0.1%	0.1%	3,221	0.0%	60,663	0.3%	0.3%
Spiny dogfish	406,464	0.2%	351,915	0.2%	0.0%	44,692	0.2%	12,660	0.1%	-0.1%
All others	70,386	0.0%	137,677	0.1%	0.1%	13,634	0.1%	30,431	0.1%	0.1%
Sum	203,243,752	100.0%	146,355,341	100.0%	0.0%	22,810,819	100.0%	20,958,679	100.0%	0.0%

Table 10. Monthly vessel counts for non-whiting, directed whiting, and total, during 2011 and 2012 in the Shorebased IFQ Program. Source = Shorebased IFQ Program, Vessel Accounts System.

Month	2011 non-whiting	2011 whiting	2012 non-whiting	2012 whiting
Jan	23	0	27	0
Feb	31	0	32	0
Mar	41	0	46	0
Apr	45	0	43	0
May	41	0	38	0
Jun	46	15	41	13
Jul	49	22	40	19
Aug	54	22	52	20
Sep	55	18	55	15
Oct	56	15	54	17
Nov	47	7	50	21
Dec	49	0	46	3
Fleet total	94	26	88	24
Fishery total	108	NA	105	NA

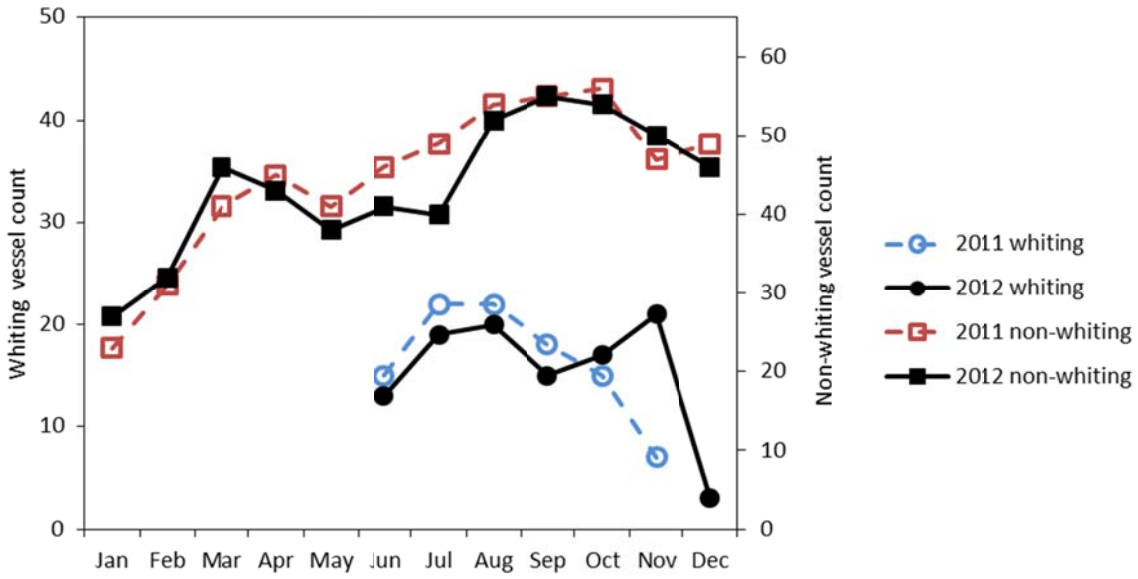

Figure 8. Monthly vessel counts for non-whiting, directed whiting, and total, during 2011 and 2012 in the Shorebased IFQ Program. Source = Shorebased IFQ Program, Vessel Accounts System.

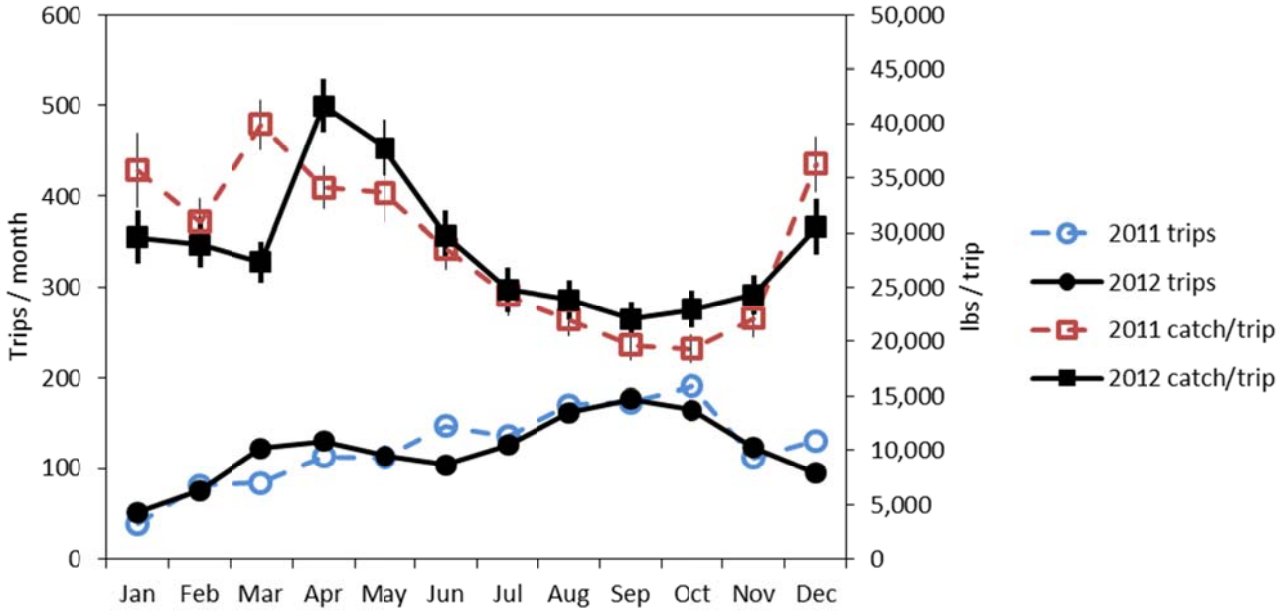

Figure 9. Monthly indicators of non-whiting fleet effort and catch per unit effort, as number of trips (bottom, circles) and catch per trip (top, squares), during 2011 and 2012. Source = Shorebased IFQ Program, Vessel Accounts System.

Table 11. Monthly total catch, and indicators of non-whiting fleet effort and catch per unit effort, as number of trips (bottom, circles) and catch per trip (top, squares), during 2011 and 2012. Source = Shorebased IFQ Program, Vessel Accounts System.

Month	2011 trips	2011 catch	2011 catch/trip	2011 SE	2012 trips	2012 catch	2012 catch/trip	2012 SE	Trips % of 2011	Catch % of 2011	Catch/ trip % of 2011
Jan	39	1,391,286	35,674	3,426	52	1,538,543	29,587	2,383	133%	111%	83%
Feb	81	2,507,351	30,955	2,174	76	2,198,809	28,932	2,148	94%	88%	93%
Mar	84	3,354,758	39,938	2,293	122	3,333,609	27,325	1,893	145%	99%	68%
Apr	113	3,853,779	34,104	1,957	130	5,415,141	41,655	2,478	115%	141%	122%
May	112	3,767,669	33,640	2,603	114	4,303,171	37,747	2,579	102%	114%	112%
Jun	147	4,201,535	28,582	1,958	104	3,091,065	29,722	2,332	71%	74%	104%
Jul	136	3,301,089	24,273	1,899	126	3,120,070	24,762	2,065	93%	95%	102%
Aug	170	3,744,512	22,027	1,559	162	3,858,876	23,820	1,791	95%	103%	108%
Sep	173	3,400,229	19,655	1,409	177	3,909,467	22,087	1,563	102%	115%	112%
Oct	191	3,692,915	19,335	1,301	165	3,792,556	22,985	1,691	86%	103%	119%
Nov	112	2,477,049	22,117	1,742	123	2,991,732	24,323	1,818	110%	121%	110%
Dec	131	4,753,226	36,284	2,534	95	2,895,984	30,484	2,533	73%	61%	84%
sum	1,488	40,445,398	27,181	591	1,444	40,449,023	28,012	621	97%	100%	103%

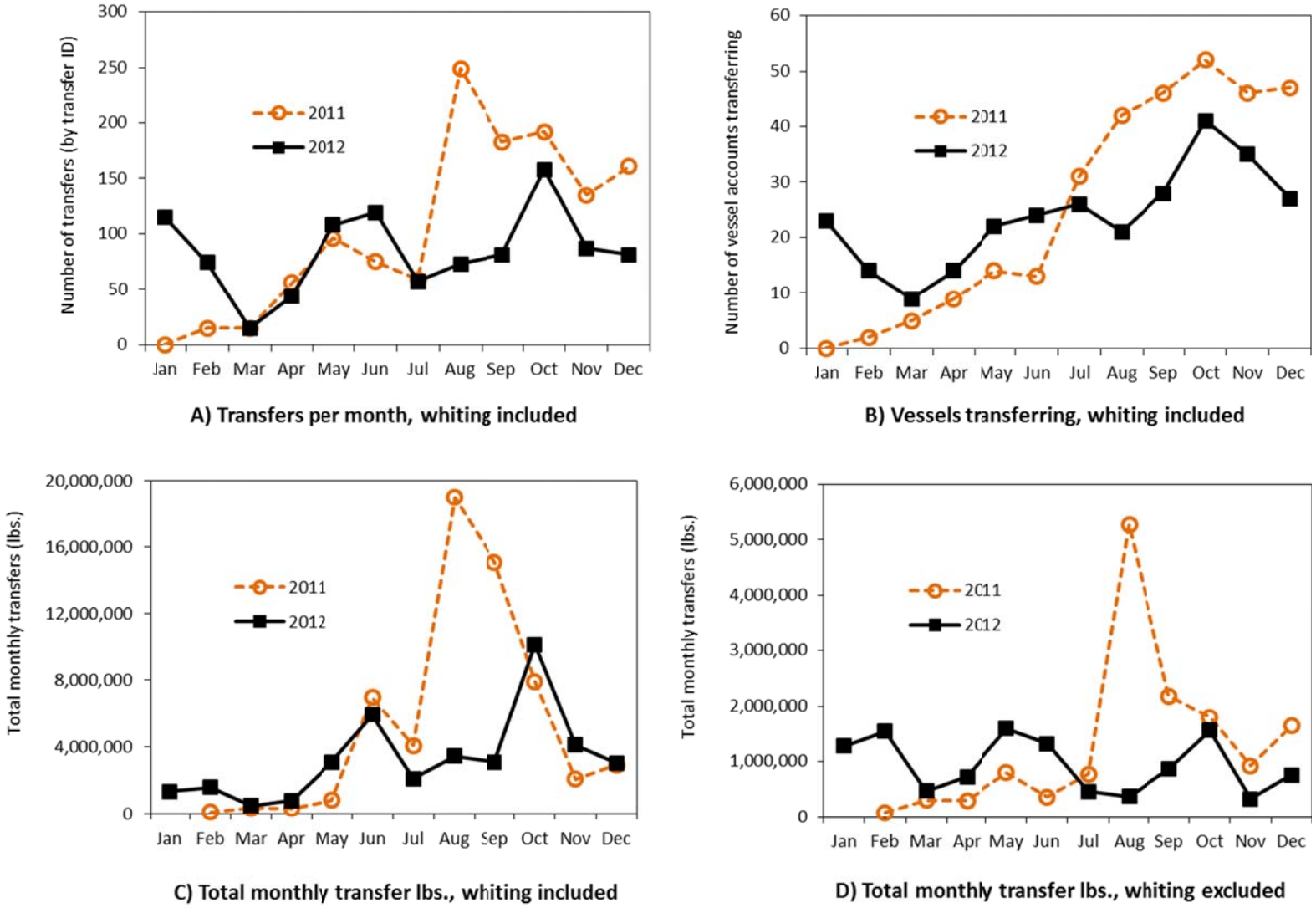

Figure 10. Metrics used to describe monthly commerce-related quota pound transfers during 2011 and 2012, including and excluding Pacific whiting. Source = Shorebased IFQ Program, Vessel Accounts System.

Table 12. Metrics used to describe monthly commerce-related quota pound transfers during 2011 and 2012 (vessel account to vessel account; cash, barter, or cash & barter only). "VA" stands for vessel account, those columns show numbers of vessel accounts from which commerce-related transfers were made. "Gini" refers to the Gini coefficient, an index of inequality of distribution, ranging from 0 to 1. Lower values mean a more uniform distribution of transfer counts or pounds transferred among months of the year, higher values mean a more unequal distribution among months. Source = Shorebased IFQ Program, Vessel Accounts System.

Month	Transfer count 2011	Transfer count 2012	VA count 2011	VA count 2012	Pounds transferred w/hake 2011	Pounds transferred w/hake 2012	Pounds transferred w/o hake 2011	Pounds transferred w/o hake 2012
Jan	0	115	0	23	0	1,304,412	0	1,281,226
Feb	15	74	2	14	78,929	1,557,237	78,929	1,541,477
Mar	15	15	5	9	304,431	469,309	304,431	469,309
Apr	56	44	9	14	293,586	756,617	293,586	722,562
May	96	108	14	22	799,756	3,080,546	799,726	1,593,759
Jun	75	119	13	24	6,956,577	5,924,327	361,664	1,318,723
Jul	59	57	31	26	4,061,293	2,078,019	775,530	455,035
Aug	249	73	42	21	18,967,104	3,434,205	5,269,413	370,086
Sep	183	81	46	28	15,091,285	3,064,483	2,179,244	867,518
Oct	192	158	52	41	7,933,128	10,114,533	1,796,003	1,559,811
Nov	135	87	46	35	2,043,484	4,085,361	918,130	328,169
Dec	161	81	47	27	2,895,998	3,016,776	1,643,813	753,431
Sum	1,236	1,012	NA	NA	59,425,571	38,885,825	14,420,469	11,261,106
Gini	0.42	0.24	0.42	0.20	0.62	0.40	0.55	0.28

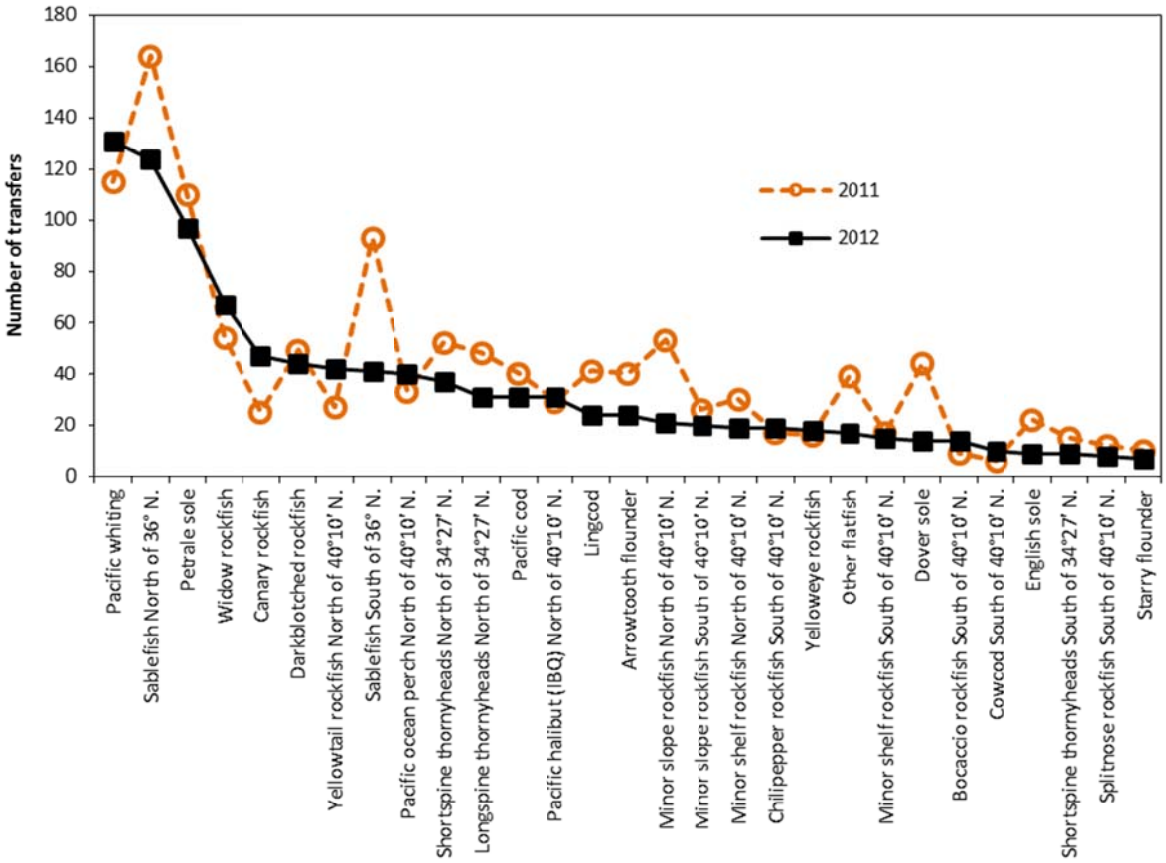

Figure 11. Numbers of commerce-related IFQ quota pound transfers by species/area category, 2011 and 2012 (vessel account to vessel account; cash, barter, or cash & barter only), including Pacific whiting. The figure is sorted by the count of transfers per species during 2012. This is not a series, markers are only connected to make the figure easier to read, and to highlight differences between years. Source = Shorebased IFQ Program, Vessel Accounts System.

Table 13. Counts, rankings, and total pounds of commerce-related IFQ quota pound (QP) transfers by species, during January through June of 2011 and 2012 (vessel account to vessel account; cash, barter, or cash & barter only), including Pacific whiting. The table is sorted descending, by the count of QP transfers during 2012. Source = Shorebased IFQ Program, Vessel Accounts System.

	2011		2012		2011	2012
Species	**Transfers**	**Rank**	**Transfers**	**Rank**	**Pounds**	**Pounds**
Pacific whiting	115	2	131	1	45,005,102	27,624,719
Sablefish North of 36° N.	164	1	124	2	1,955,920	1,562,937
Petrale sole	110	3	97	3	736,468	722,255
Widow rockfish	54	5	67	4	162,874	146,230
Canary rockfish	25	20	47	5	6,095	11,289
Darkblotched rockfish	49	8	44	6	84,962	73,287
Yellowtail rockfish North of 40°10' N.	27	18	42	7	801,814	931,811
Sablefish South of 36° N.	93	4	41	8	687,053	274,815
Pacific ocean perch North of 40°10' N.	33	15	40	9	29,969	36,111
Shortspine thornyheads North of 34°27' N.	52	7	37	10	323,735	434,168
Longspine thornyheads North of 34°27' N.	48	9	31	11	526,485	701,601
Pacific cod	40	12	31	12	714,220	605,540
Pacific halibut (IBQ) North of 40°10' N.	29	17	31	13	31,842	31,373
Lingcod	41	11	24	15	301,527	269,719
Arrowtooth flounder	40	13	24	14	2,306,575	1,283,596
Minor slope rockfish North of 40°10' N.	53	6	21	16	176,307	122,184
Minor slope rockfish South of 40°10' N.	26	19	20	17	117,443	106,388
Minor shelf rockfish North of 40°10' N.	30	16	19	19	78,608	45,495
Chilipepper rockfish South of 40°10' N.	17	22	19	18	239,349	313,739
Yelloweye rockfish	16	24	18	20	147	126
Other flatfish	39	14	17	21	530,501	516,463
Minor shelf rockfish South of 40°10' N.	17	23	15	22	6,493	25,845
Dover sole	44	10	14	24	3,215,218	2,461,662
Bocaccio rockfish South of 40°10' N.	9	28	14	23	6,010	6,884
Cowcod South of 40°10' N.	6	29	10	25	84	48
English sole	22	21	9	26	1,285,339	480,343
Shortspine thornyheads South of 34°27' N.	15	25	9	27	13,236	1,583
Splitnose rockfish South of 40°10' N.	12	26	8	28	46,435	41,640
Starry flounder	10	27	7	29	35,760	53,974
Sum	1,236	NA	1,011	NA	59,425,571	38,885,825

Table 14. Total catch and attainment by species category, in 2011 and 2012. Aggregate attainment of all species categories other than whiting was 29% in 2012, compared with 24% in 2011 (up 5%). Pacific whiting reapportionment late in the year is an important factor when considering the aggregate sector attainment rate, as well as the 2012 attainment rate of whiting, because of the large mass of the annual whiting allocation and harvest, compared with those of all other species in the shorebased IFQ sector. Source = Shorebased IFQ Program, Vessel Accounts System.

Species Category	2011 NW	2011 W	2011 Total	2011 Allocation	2011 Attain.	2012 NW	2012 W	2012 Total	2012 Allocation	2012 Attain.	Annual dif.	Attain dif. %
Arrowtooth flounder	5,547,823	28,177	5,576,000	27,406,105	20%	5,393,814	54,616	5,448,430	20,861,131	26%	-127,570	6%
Bocaccio rockfish South of 40°10' N.	11,715		11,715	132,277	9%	19,461		19,461	132,277	15%	7,746	6%
Canary rockfish	6,239	1,886	8,125	57,100	14%	13,774	2,168	15,942	57,761	28%	7,817	13%
Chilipepper rockfish South of 40°10' N.	688,187		688,187	3,252,370	21%	643,174		643,174	2,934,904	22%	-45,013	1%
Cowcod South of 40°10' N.	39		39	3,968	1%	204		204	3,968	5%	165	4%
Darkblotched rockfish	197,577	2,687	200,264	552,997	36%	188,184	9,433	197,617	548,808	36%	-2,647	0%
Dover sole	17,269,250	161	17,269,411	49,018,682	35%	16,049,785	1,319	16,051,104	49,018,682	33%	-1,218,307	-2%
English sole	302,935	1	302,936	41,166,808	1%	323,438	52	323,490	21,037,611	2%	20,554	1%
Lingcod	629,175	10,069	639,244	4,107,873	16%	831,036	8,060	839,096	3,991,800	21%	199,852	5%
Longspine thornyheads North of 34°27' N.	2,119,803	1	2,119,804	4,334,839	49%	2,013,119	116	2,013,235	4,219,648	48%	-106,569	-1%
Minor shelf rockfish North of 40°10' N.	32,934	1,291	34,225	1,150,813	3%	85,802	1,726	87,528	1,150,813	8%	53,303	5%
Minor shelf rockfish South of 40°10' N.	6,633		6,633	189,598	3%	25,069		25,069	189,598	13%	18,436	10%
Minor slope rockfish North of 40°10' N.	295,561	24,377	319,938	1,828,779	17%	326,552	158,556	485,108	1,828,779	27%	165,170	9%
Minor slope rockfish South of 40°10' N.	113,337		113,337	831,958	14%	270,847		270,847	831,958	33%	157,510	19%
Other flatfish	1,525,875	1,892	1,527,767	9,253,683	17%	1,500,933	9,673	1,510,606	9,253,683	16%	-17,161	0%
Pacific cod	554,143	2,548	556,691	2,502,247	22%	873,580	94	873,674	2,502,247	35%	316,983	13%
Pacific halibut (IBQ) North of 40°10' N.	70,063	776	70,839	257,524	28%	70,213	1,373	71,586	232,856	31%	747	3%
Pacific ocean perch North of 40°10' N.	100,884	549	101,433	263,148	39%	90,680	27,462	118,142	263,441	45%	16,709	6%
Pacific whiting	521,814	200,508,547	201,030,361	204,628,442	98%	507,336	144,207,288	144,714,624	151,373,798	96%	-56,315,737	-3%
Petrale sole	1,789,626	1	1,789,627	1,920,226	93%	2,331,478	1	2,331,479	2,324,995	100%	541,852	7%
Sablefish North of 36° N.	5,220,841	66,961	5,287,802	5,613,719	94%	4,806,019	104,082	4,910,101	5,438,797	90%	-377,701	-4%
Sablefish South of 36° N.	1,009,286		1,009,286	1,170,390	86%	499,843		499,843	1,133,352	44%	-509,443	-42%
Shortspine thornyheads North of 34°27' N.	1,569,715	4,803	1,574,518	3,156,138	50%	1,551,370	18,364	1,569,734	3,120,533	50%	-4,784	0%
Shortspine thornyheads South of 34,°27' N.	18,653		18,653	110,231	17%	808		808	110,231	1%	-17,845	-16%
Splitnose rockfish South of 40°10' N.	88,523		88,523	3,045,245	3%	117,251		117,251	3,206,513	4%	28,728	1%
Starry flounder	25,936		25,936	1,471,586	2%	18,402		18,402	1,480,404	1%	-7,534	-1%
Widow rockfish	58,010	245,693	303,703	755,348	40%	115,736	224,474	340,210	755,352	45%	36,507	5%
Yelloweye rockfish	128		128	1,323	10%	76		76	1,323	6%	-52	-4%
Yellowtail rockfish North of 40°10' N.	692,858	936,326	1,629,184	6,821,455	24%	1,729,446	464,691	2,194,137	6,850,556	32%	564,953	8%
Total	40,467,563	201,836,746	242,304,309	375,004,872	65%	40,397,430	145,293,548	185,690,978	294,855,819	63%	-56,613,331	-2%

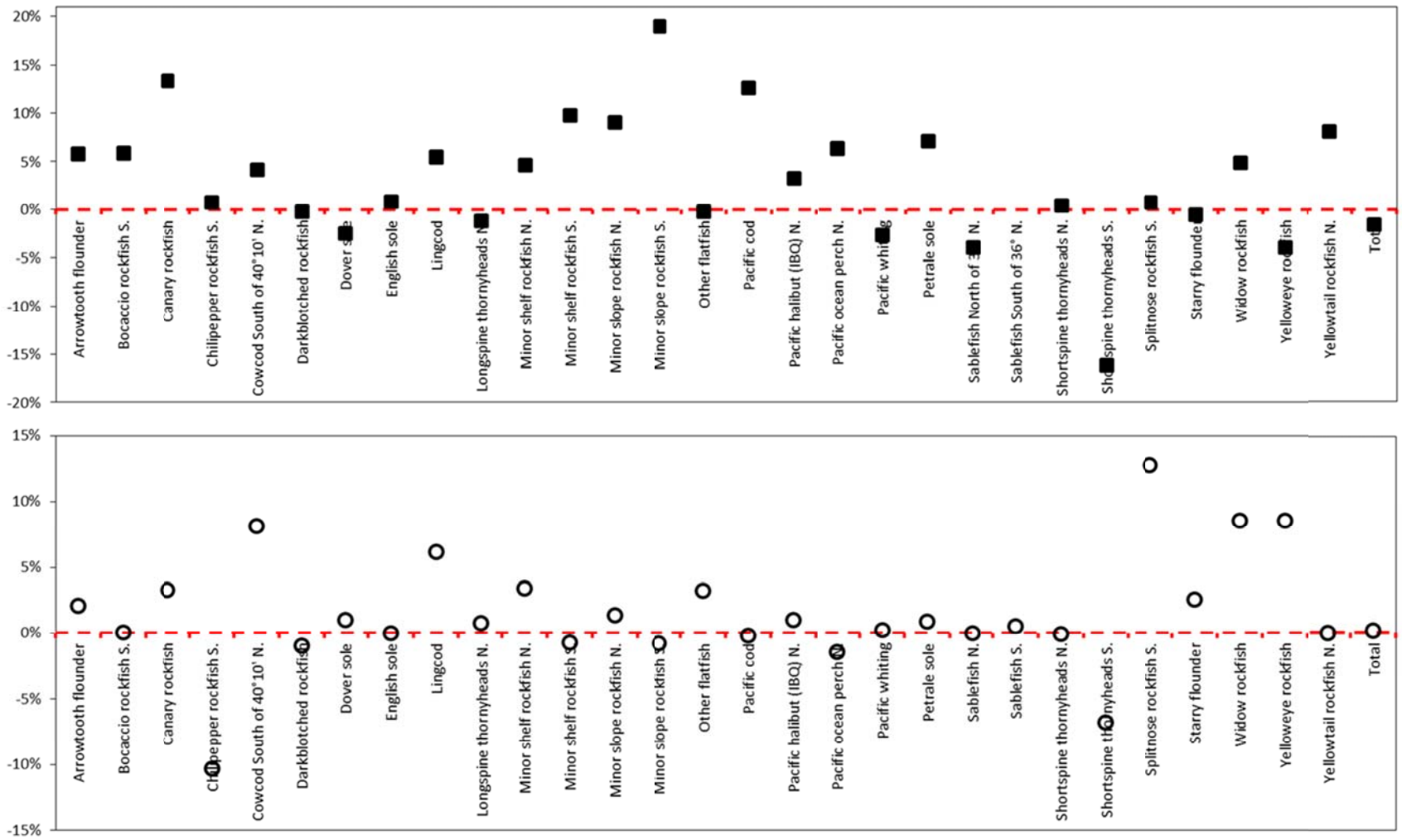

Figure 12. Percent change in attainment (top panel, filled squares), and percent change in retention rates (bottom panel, open circles) of Shorebased IFQ Program allocations, by species/area category, for 2011 and 2012. Aggregate attainment of all species categories other than whiting was 29% in 2012, compared with 24% in 2011 (up 5%). Pacific whiting reapportionment late in the year is an important factor when considering the aggregate sector attainment rate, and the 2012 attainment rate of whiting; this is due to the large mass of the annual whiting allocation and harvest, compared with those of all other species in the shorebased IFQ sector. Source = Shorebased IFQ Program, Vessel Accounts System.

Table 15. Total catch, landings, discards, and retention rates for non-whiting trips, in the Shorebased IFQ Program during 2011 and 2012. On non-whiting trips, aggregate retention increased slightly by 0.7% (from 94.5% to 95.2%), and on whiting trips it increased by 0.4% (from 99.4% to 99.8%). These rates are preliminary, as observer discard data are not final until spring. Source = Shorebased IFQ Program, Vessel Accounts System.

Species category	2011 Total catch	2011 Landed	2011 Discarded	2011 Retention	2012 Total catch	2012 Landed	2012 Discarded	2012 Retention	Retention difference
Arrowtooth flounder	5,576,000	5,028,511	547,489	90.2%	5,448,430	5,028,835	419,595	92.3%	2.1%
Bocaccio rockfish South of 40°10' N.	11,715	11,695	20	99.8%	19,461	19,433	28	99.9%	0.0%
Canary rockfish	8,125	7,809	316	96.1%	15,942	15,849	93	99.4%	3.3%
Chilipepper rockfish South of 40°10' N.	688,187	633,063	55,124	92.0%	643,174	525,422	117,752	81.7%	-10.3%
Cowcod South of 40°10' N.	39	32	7	82.1%	204	184	20	90.2%	8.1%
Darkblotched rockfish	200,264	196,530	3,734	98.1%	197,617	192,073	5,544	97.2%	-0.9%
Dover sole	17,269,411	16,921,445	347,966	98.0%	16,051,104	15,894,802	156,302	99.0%	1.0%
English sole	302,936	238,484	64,452	78.7%	323,490	254,653	68,837	78.7%	0.0%
Lingcod	639,244	549,482	89,762	86.0%	839,096	772,917	66,179	92.1%	6.2%
Longspine thornyheads North of 34°27' N.	2,119,804	2,007,704	112,100	94.7%	2,013,235	1,921,841	91,394	95.5%	0.7%
Minor shelf rockfish North of 40°10' N.	34,225	27,737	6,488	81.0%	87,528	73,908	13,620	84.4%	3.4%
Minor shelf rockfish South of 40°10' N.	6,633	361	6,272	5.4%	25,069	1,177	23,892	4.7%	-0.7%
Minor slope rockfish North of 40°10' N.	319,938	288,269	31,669	90.1%	485,108	443,700	41,408	91.5%	1.4%
Minor slope rockfish South of 40°10' N.	113,337	110,681	2,656	97.7%	270,847	262,332	8,515	96.9%	-0.8%
Other flatfish	1,527,767	1,257,341	270,426	82.3%	1,510,606	1,292,219	218,387	85.5%	3.2%
Pacific cod	556,691	556,663	28	100.0%	873,674	872,172	1,502	99.8%	-0.2%
Pacific halibut (IBQ) North of 40°10' N.	70,839	774	70,065	1.1%	71,586	1,522	70,064	2.1%	1.0%
Pacific ocean perch North of 40°10' N.	101,433	100,532	901	99.1%	118,142	115,385	2,757	97.7%	-1.4%
Pacific whiting	201,030,361	199,472,944	1,557,417	99.2%	144,714,624	143,977,021	737,603	99.5%	0.3%
Petrale sole	1,789,627	1,753,538	36,089	98.0%	2,331,479	2,305,976	25,503	98.9%	0.9%
Sablefish North of 36° N.	5,287,802	5,237,173	50,629	99.0%	4,910,101	4,861,610	48,491	99.0%	0.0%
Sablefish South of 36° N.	1,009,286	995,446	13,840	98.6%	499,843	495,781	4,062	99.2%	0.6%
Shortspine thornyheads North of 34°27' N.	1,574,518	1,560,610	13,908	99.1%	1,569,734	1,554,790	14,944	99.0%	-0.1%
Shortspine thornyheads South of 34°27' N.	18,653	18,165	488	97.4%	808	732	76	90.6%	-6.8%
Splitnose rockfish South of 40°10' N.	88,523	21,108	67,415	23.8%	117,251	42,919	74,332	36.6%	12.8%
Starry flounder	25,936	24,391	1,545	94.0%	18,402	17,781	621	96.6%	2.6%
Widow rockfish	303,703	277,506	26,197	91.4%	340,210	340,081	129	100.0%	8.6%
Yelloweye rockfish	128	117	11	91.4%	76	76	0	100.0%	8.6%
Yellowtail rockfish North of 40°10' N.	1,629,184	1,628,947	237	100.0%	2,194,137	2,193,586	551	100.0%	0.0%
Total	242,304,309	238,927,058	3,377,251	98.6%	185,690,978	183,478,777	2,212,201	98.8%	0.2%

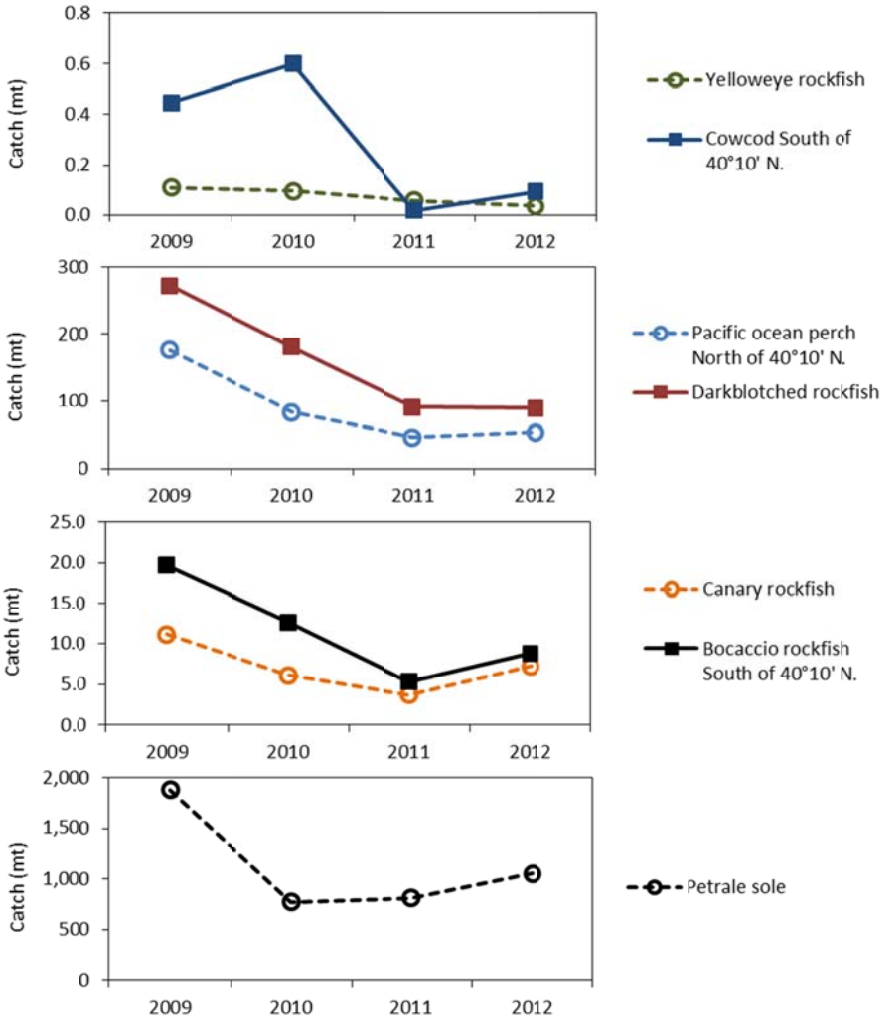

Figure 13. Total annual catch of rebuilding species from 2009 and 2010, in the limited entry trawl and shoreside whiting fisheries, as well as 2011 and 2012, in the Shorebased IFQ Program, in metric tons. Source = WCGOP Groundfish Mortality Report (2009-2010) and the Shorebased IFQ Vessel Accounts System (2011-2012).

Table 16. Total annual catch of rebuilding species from 2009 and 2010, in the limited entry trawl and shoreside whiting fisheries, as well as 2011 and 2012, in the Shorebased IFQ Program, in metric tons. Two-year average catch, and average annual catch in 2011-12 as a percentage of that of 2009-10 is presented in the far right column ("post/pre IFQ"). Source = WCGOP Groundfish Mortality Report (2009-2010) and the Shorebased IFQ Program, Vessel Accounts System (2011-2012).

Species	2009	2010	2009-2010 ave.	2011	2012	2011-2012 ave.	Post/pre %
Yelloweye rockfish	0.11	0.13	0.12	0.06	0.03	0.05	39.3%
Cowcod South of 40°10' N.	0.45	0.61	0.53	0.02	0.09	0.06	10.4%
Canary rockfish	11.16	6.39	8.78	3.69	7.23	5.46	62.2%
Bocaccio rockfish South of 40°10' N.	19.71	12.93	16.32	5.31	8.83	7.07	43.3%
Pacific ocean perch North of 40°10' N.	175.41	136.55	155.98	46.01	53.59	49.80	31.9%
Darkblotched rockfish	272.32	291.84	282.08	90.84	89.64	90.24	32.0%
Petrale sole	1881.91	900.37	1391.14	811.76	1057.54	934.65	67.2%

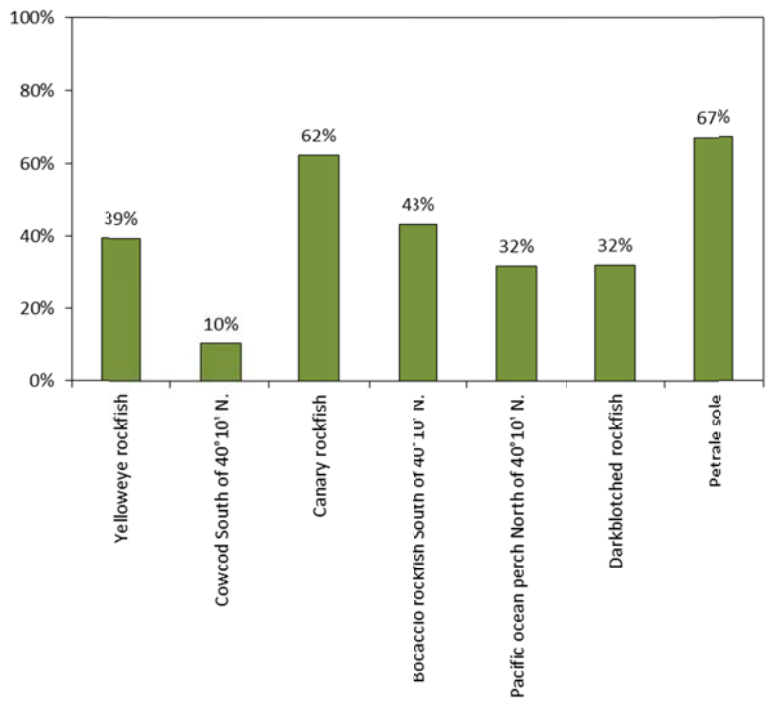

Figure 14. Two-year average catch during 2011-12 as a percentage of that of 2009-10, by species category. Source = WCGOP Groundfish Mortality Report data (2009-2010) and vessel accounts system of the Shorebased IFQ Program (2011-2012).