

West Coast Groundfish IFQ Fishery

Mid-year Catch Report (January-June) 2012: Emerging Trends

Sean E. Matson, Ph.D.

National Marine Fisheries Service

NWR, Sustainable Fisheries Division

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1. Summary and purpose

There have been some notable changes in the IFQ fishery, during the first half of 2012 compared with the same period in 2011. Quota pound transfers have increased considerably, there has been more trawling in shallower waters, diversity of catch has increased, and use of fixed gear has increased. Harvests of petrale sole, chilipepper rockfish, and yellowtail rockfish are up, while those of some traditionally dominant species, including sablefish and dover sole, are down somewhat. However, in total, landings, revenues, and effort are similar to last year's levels.

Several metrics suggest that early in the second year of trawl rationalization, fishers may know better what to expect, and are more extensively utilizing tools of the IFQ system to plan their fishing year. Quota pound (QP) transfer activity has conspicuously increased. The total pounds transferred vessel-to-vessel is up 25%, while the number of those transfers is currently double its level at the same time last year. Average monthly transfer amounts are also much more uniform (less variable) than last year at this time, suggesting better prior information and measured planning on the part of fishers. Dramatic increases in frequencies of trades of bycatch species like canary, widow, and darkblotched rockfish may indicate a drop in saving or stockpiling of QP for these species, and may reflect increased risk pool activity.

Preliminary data indicate that fishers are trawling shallower on average than last year; coastwide average haul depth has decreased for many species. Shallower fishing behavior, and potentially increased encounters with bycatch species suggest higher confidence, perhaps due in part to increased trading of QP, and sufficient assurance that quota pounds of bycatch species are available if needed. It is also important to note that several small changes to the trawl Rockfish Conservation Area have been made since the beginning of the program in 2011, to allow fishing in some previously closed, shallower areas.

The diversity of landings and revenue distributions among species have increased, compared with the same time last year. Relative proportions of total IFQ, groundfish revenue and landings in the non-whiting fleet have increased for some low-percentage species, and a few high-percentage species have somewhat decreased their portion of the total (e.g. dover sole, sablefish). Some previously under-utilized species (e.g. chilipepper rockfish, yellowtail rockfish, and others) are bringing in a larger portion of the total landings and revenue than at the same time last year.

Use of fixed gear is increasing in the IFQ fishery. According to preliminary data, the proportion of IFQ sablefish landed with fixed gear has increased nine percent over the same time last year, and as a result, revenue from fixed gear, IFQ sablefish has increased by 16 percent. These changes in gear use for sablefish translated in small overall changes to the distributions of landings and revenue among gear types for the entire non-whiting fleet.

Aggregate measures of landings, revenue, effort and catch per unit effort are very similar to the same time last year. Retention rates have not changed appreciably, and show only minor, apparently random fluctuations among species.

The purpose of this report is to summarize and illustrate current catch data and trends for the West Coast Groundfish IFQ Fishery in 2012, and compare them to the same period in the 2011 fishery. This is not meant to be an exhaustive report, but to present an early examination of the data, and divide catch estimates among strata which are of interest to many stakeholders.

2. Data used in this report

Data used in this report originated from four sources, and only pertain to the shorebased non-whiting and shorebased (or shoreside) whiting fleets, of the West Coast Groundfish IFQ Fishery. 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, originated from both electronic fish tickets, and paper fish tickets (landing receipts). Electronic fish ticket data were provided by the Pacific States Marine Fisheries Commission (PSMFC), for IFQ landings that were not represented in the Pacific Fisheries Information Network (PacFIN) database, which houses data from traditional, paper fish tickets. 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. Depth of catch data were provided by the West Coast Groundfish Observer Program (WCGOP) of the Northwest Fishery Science Center, within the National Marine Fisheries Service (NMFS). Data reported from each of these sources in 2012 are preliminary, and are subject to change and correction.

Landed and discarded catch are reported in 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. The terms landing receipt, fish ticket, and ticket are synonymous in this report. 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 shoreside directed whiting fleets were separated by weight of landings by species in each trip. If a trip contained greater than 50 percent Pacific whiting, 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, to avoid high-biased counts from other sources, most likely the result of multiple vessel ID numbers recorded on fish tickets for some vessels.

The results in this report should be considered preliminary due to the recent nature of the data, and since they originated from several different sources, which are at differing stages of completeness. The same metrics calculated from different sources will often differ to some degree, especially when reported inseason. The most recent discarded catch estimates may be slight underestimates, due to potential inseason reporting lag behind landings. This report is based on the best currently available scientific and management information.

3. Landings and revenue

3.1. Landings and revenue by fleet

Aggregate measures of mid-year landings and revenue are very similar to the same time last year (Figure 1, Table 1). Monthly trajectories of landings and revenue through June, by both the non-whiting and shorebased whiting fleets are also very similar to the same time in 2011, although April of 2012 was a bit higher than 2011 and June was a bit lower. Total groundfish landings on non-whiting trips through June were three percent higher in 2012 than the same period in 2011, while revenues were four percent higher. Landings and revenue for shorebased whiting were lower than the same time last year, presumably due to a lower whiting allocation (125.4 million pounds in 2012 vs. 204.6 million pounds in 2011), and business decisions, as the whiting season only began in mid-June.

3.2. Landings and revenue by port

Distributions of landings and revenue by port group are shown in Figure 2 and Table 2. There was a considerable increase in non-whiting landings and revenue in Westport during the first half of 2012 versus the previous year (increases were seen for arrowtooth flounder, Dover sole and sablefish), and some substantial differences in a few other port groups. Astoria landings were slightly lower than 2011, although revenue was slightly higher. Changes in landings and revenue were different across species, but increases in revenue were apparent for Pacific cod, petrale sole and yellowtail rockfish, compared to the same time last year. The Newport, Tillamook and Garibaldi group saw both higher landings and revenue than the same time last year. Petrale sole showed a particular increase in landings and revenue in this port group, while sablefish, and several other species were also important for increased revenue over the same time last year. Charleston, Eureka, and some smaller southern ports saw small increases in revenue compared with last year, while Ilwaco and Chinook, Brookings and Crescent City, and Fort Bragg showed decreases.

3.3. Landings and revenue by gear

Use of fixed gear has increased in the IFQ fishery, compared with mid-year in 2011. The proportion of IFQ sablefish landed with fixed gear in the first half of 2012 increased nine percent over the same period in 2011, and as a result, revenue from fixed gear those sablefish has increased by 16 percent (Figure 3, Table 3). These changes in gear use for sablefish translated in small overall changes to the distributions of landings and revenue among gear types for the entire non-whiting fleet (Figure 4, Table 4).

3.4. Landings and revenue by species

The distributions of groundfish landings and revenue, among the species landed in the non-whiting IFQ fleet were more diverse in the first half of 2012 than the same period in 2011 (Figures 5 and 6, Table 5). For landings, Shannon diversity (or entropy) index values were $H=2.12$ in early 2012 versus $H=1.93$ for the same time in 2011. For revenue, values were $H=1.97$ in early 2012 versus $H=1.71$ for 2011.

This was due both to a small increase in species richness (number of species) and the evenness of their distribution. There were a few more groundfish species landed (54 in 2012 versus 50 in 2011), and

several of the species with highest proportion of landings and or revenue decreased noticeably, while some of those less utilized species simultaneously increased (Figures 5 and 6, Table 5).

The more diverse revenue distribution among species coincides with several individual changes in price and allocation of species, between mid-year 2011 and 2012 (e.g. decreased sablefish prices since 2011). Increased revenue diversity could also, more indirectly reflect an increased general focus on landing more typically low-utilized species, to compensate for lower prices and allocations in 2012 of sablefish, and lower prices of petrale sole, the two highest priced species in the fishery.

The proportion of overall groundfish revenue in the IFQ fishery from some high-revenue species dropped during the first half of 2012 compared with 2011. For example, the proportion of revenue from sablefish dropped from 45% to 38%, and the proportion from Dover sole dropped from 28% to 26% (Table 5), while some other lower-proportion species have increased. For example, petrale sole rose from 7% to 12%, chilipepper rockfish rose from 0.1% to 1.4%, and yellowtail rockfish rose from 0.5 percent to 1.4 percent.

Although average 2012 petrale sole prices have dropped by 11 cents per pound (Table 6) compared with the same period of 2011, landings have been much higher so far this year (coinciding with a 21% higher 2012 allocation), and have thus brought more revenue (171% of the same time last year).

The aggregate, average sablefish price per pound in the IFQ fishery has dropped by 12 cents since the same time last year, and landings and revenue are both lower than mid-year 2011 (Table 6). The northern sablefish allocation is approximately three percent lower in 2012 as well.

Looking at chilipepper rockfish, the price has increased 18 cents per pound since the same time in 2011, and both landings and revenue have increased substantially, with landings at 11 times early 2011 levels, and revenue almost 15 times, rising from a rank of twentieth by revenue, in the non-whiting fleet, to eleventh (Table 5).

Yellowtail rockfish rose from being the thirteenth ranked species by revenue, to eighth, and from 0.5 percent of non-whiting revenue to nearly two percent, although average yellowtail prices dropped three cents lower so far in 2012, compared to the first half of 2011 (Table 5).

Changes in chilipepper and yellowtail rockfish catch patterns were obvious beginning in December of 2011, but it wasn't clear whether this was strictly an end-of-year phenomenon, or something more persistent.

4. Effort and participation

There has been little change in trip-level measures of non-whiting fleet participation, effort, and catch per unit effort between mid-year 2011 and mid-year 2012; the aggregate number of trips, total catch, and catch per trip for mid-year 2012 were all within five percent of the levels mid-year in 2011 (Figure 8, Table 8). Monthly non-whiting fleet participation (Figure 7, Table 7) has been nearly equal, except that

vessel counts dipped somewhat in June. Overall, total non-whiting vessel counts were slightly higher during January through June of 2012, than the same period of 2011 (68 in 2012 versus 64 in 2011). Monthly counts of trips also differed little from 2011.

Monthly average catch per trip was substantially lower during March and higher in April, than during the same months in 2011. Differences in monthly catch per trip coincided with changes in catch composition. Lower catch per trip during March reflected lower monthly catch of Dover sole (1.4 M lbs. versus 1.9 M lbs.), arrowtooth flounder, lingcod, and sablefish (north of 40°10' N. lat., 268,000 lbs. versus 268,000 lbs.), (in order of largest to smallest difference). April catch per trip was higher in 2012 than in 2011, reflecting higher catch of several of the same species; Dover sole (3.1 M lbs. versus 2.3 M lbs.), arrowtooth flounder, sablefish (north of 40°10' N. lat.), Pacific cod, petrale sole (99,000 lbs. versus 23,000 lbs.), and yellowtail rockfish during that month (in order from largest to smallest difference). Data from the NMFS vessel accounts database were used for effort and participation, and cover IFQ species categories only.

5. Quota pound transfer activity

Some of the most interesting changes in the IFQ fishery, during the first half of 2012, involve transfers of quota pounds among vessel accounts. These data suggest that fishers may know better what to expect this year, and are more extensively utilizing tools of the IFQ system to plan their fishing year. Quota pound transfer activity has conspicuously increased. The total pounds transferred vessel-to-vessel is up 25%, while the number of those transfers is approximately double its level at the same time last year (Figure 9, Tables 9 and 10). These increases in QP transfers may also reflect increased risk pool activity, but sufficient data are not available to confirm or elaborate.

Average monthly transfer amounts are also much more uniform (less variable) than last year at this time, suggesting better prior information and more measured planning on the part of fishers. Figure 9 shows monthly average transfer values, monthly counts of transfers, and total monthly fleet transfer amounts, both with whiting included (left panels) and excluded (right panels). From January through October of 2011, the monthly average pounds per transfer fluctuated wildly, from as high as 972,000 pounds in January, and as low as 9,200 pounds in February, with the variation gradually decreasing until monthly levels became nearly equal during October, November, and December of 2011. The general picture was very similar with whiting excluded, although monthly variation decreased faster; the average transfer values stabilized much earlier, by April.

The number of transfers per month has remained steadily higher each month, so far in 2012 (47 transfers higher on average; and as much as 13 times higher, or as little as 137 percent higher) versus the same period in 2011. The situation is very similar, whether whiting transfers are included or excluded.

Dramatic increases in frequencies of transfers of bycatch species like canary, widow, and darkblotched rockfish could indicate a sharp drop in saving or stockpiling of QP for these species, and also might

reflect increased risk pool activity (Table 11). For example, there have been 98 vessel-account to vessel-account (VA-to-VA) transfers of canary rockfish during January through June of 2012, versus only 36 at the same time last year. By July of last year, canary rockfish was the sixteenth most transferred (of 29) among IFQ species categories; as of July in 2012, it had become the fourth most transferred species. For darkblotched rockfish, we see a similar situation. Through July of 2012, there had been 86 transfers of darkblotched rockfish, when at the same time in 2011, there had only been 6. The situation is also similar for widow rockfish (100 transfers through July of 2012, vs 42 in 2011), and several other species.

Sablefish and petrale sole, the two most valuable species in the fishery, remain the two most transferred species, respectively, during January through July of both 2011 and 2012.

6. Total catch, attainment and retention rates

Although total IFQ fishery catch is lower than the same time last year (approximately 13 million pounds lower), this difference is almost entirely attributable to whiting catch in the shorebased whiting fleet at this early point in the season. There is also a lower whiting allocation (corresponding with the lower U.S. TAC) to the fishery in 2012 than 2011 (Table 12). Total fishery attainment is virtually unchanged, versus mid-year in 2011. Catch by the shorebased whiting fleet is not a main focus of this report, since it just started fishing in June.

There have been few notable differences in total catch, by species, in the non-whiting fleet, between the first half of 2011 and 2012 (Table 12, Figure 10). One species showing a difference in catch is petrale sole. Both catch and attainment of the petrale sole allocation have both been tracking higher throughout the first half of 2012 than 2011. Catch of petrale sole as of June 31, 2012 was approximately 1.1 million pounds, versus approximately 0.6 million pounds at the same time last year. Due to a higher allocation in 2012, attainment is only 14 percent higher, in spite of the large increase in catch. Another species showing a noticeable difference in catch is chilipepper rockfish, whose total catch has increased from approximately 24,000 pounds to 287,000 pounds, and whose attainment has increased by nine percent. Attainment of sablefish, south of 36° N. lat., is currently 15 percent lower than at the same time in 2011, when catch was at approximately 287,000 pounds; this year it was at 54,000 pounds by June 31. Yellowtail rockfish catch has been much higher during the first half of this year, than mid-year in 2011 (approximately 567,000 pounds, versus 335,000 pounds, respectively). The increased catch translates into little difference in terms of attainment, with an increase of only three percent, for this currently low-utilized species.

Figure 10 shows percent changes in species attainment of their respective IFQ fleet allocations (including both non-whiting and whiting fleets), relative to the same time last year (top), as well as percent changes in species retention rates for the non-whiting fleet only, during the same time periods (bottom). Table 13 shows those same percent changes in retention rates, along with the raw amounts landed, discarded, and total catch. Both Figure 10 and Table 12 reveal approximately zero change in the overall non-whiting fishery retention rate, and relatively small changes in retention for each species,

which appear to fluctuate somewhat randomly. These retention rates are subject to change as observer discard data continue to be updated.

7. Depth of catch by species

Preliminary data indicate that fishers are trawling shallower on average than last year; coastwide average haul depth has decreased for many species. Shallower fishing behavior, and the corresponding potential for increased encounters with many rebuilding stocks suggests higher confidence of fishers, perhaps due in part to increased trading of QP, and sufficient assurance that quota pounds of bycatch species are available if needed.

Figure 11 shows average trawl depth, averaged across hauls that were positive (encounters) for each IFQ species category, for mid-year 2011 and 2012. Table 14 shows the values displayed in Figure 11. There was a reduction in average trawl depth for 24 of the 28 IFQ species categories shown (an estimate for shortspine thornyheads south of 40°10' was not available). The differences in average haul depth ranged between 121 fathoms shallower, and 16 fathoms deeper than the same time in 2011. Fishing activity using non-trawl gear (i.e. fixed gear) did not show a clear difference in average haul depth between years.

It is also important to note that several small modifications were made to both the seaward and shoreward boundaries of the trawl Rockfish Conservation Area (RCA) at several Council meetings, throughout 2011 and 2012, which enabled fishing in shallower waters during some periods of 2012 than during 2011.

Figure 12 shows coastwide mean haul depth values and variation, for IFQ species caught using trawl gear, during January through May of 2012. This is provided to express the levels of variation in encounter depth by species, which could not be clearly shown in Figure 11, while comparing average trawl depth between years.

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); Janell Majewski and Marlene Bellman of the West Coast Groundfish Observer Program, Northwest Fisheries Science Center, National Marine Fisheries Service (NWFSC); Jeff Cowen, of the NWFSC, National Marine Fisheries Service (NMFS), and Sarah Towne of the Northwest Region (NWR) in NMFS for their support, in supplying data for this report.

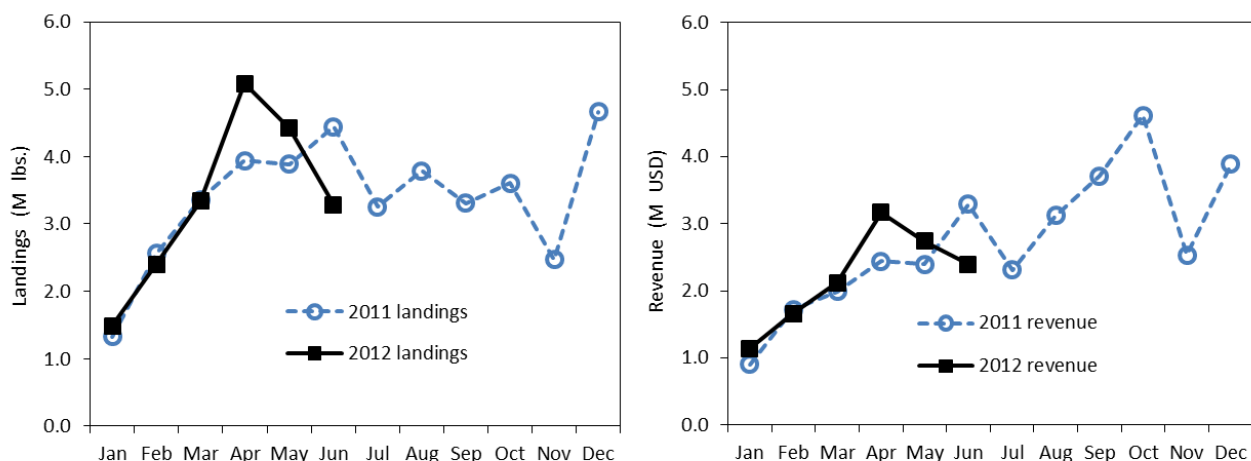


Figure 1. Monthly landings (left) and revenue (right) during January through June of 2012 and 2011, for the non-whiting fleet of the shorebased IFQ fishery.

Table 1. Monthly landings and revenue during January through June of 2012 and 2011, for the non-whiting (top) and whiting (bottom) fleets of the shorebased IFQ fishery. The “Land % 2011” column expresses 2012 landings as a percentage of 2011 landings; the “Rev % 2011” column expresses 2012 revenue in the same way.

Non-whiting

Month	2011 landings	2012 landings	2011 revenue	2012 revenue	Land % 2011	Rev % 2011
Jan	1,324,638	1,490,200	902,457	1,142,216	112%	127%
Feb	2,564,693	2,404,286	1,719,893	1,658,039	94%	96%
Mar	3,360,889	3,335,362	1,991,797	2,121,902	99%	107%
Apr	3,942,465	5,080,809	2,443,745	3,165,813	129%	130%
May	3,884,997	4,419,924	2,395,262	2,743,147	114%	115%
Jun	4,446,585	3,282,856	3,293,042	2,394,554	74%	73%
Total (Jan-June)	19,524,267	20,013,437	12,746,196	13,225,672	103%	104%

Whiting

Month	2011 landings	2012 landings	2011 revenue	2012 revenue	Land % 2011	Rev % 2011
June	24,045,023	11,122,649	2,731,383	1,326,054	46%	49%

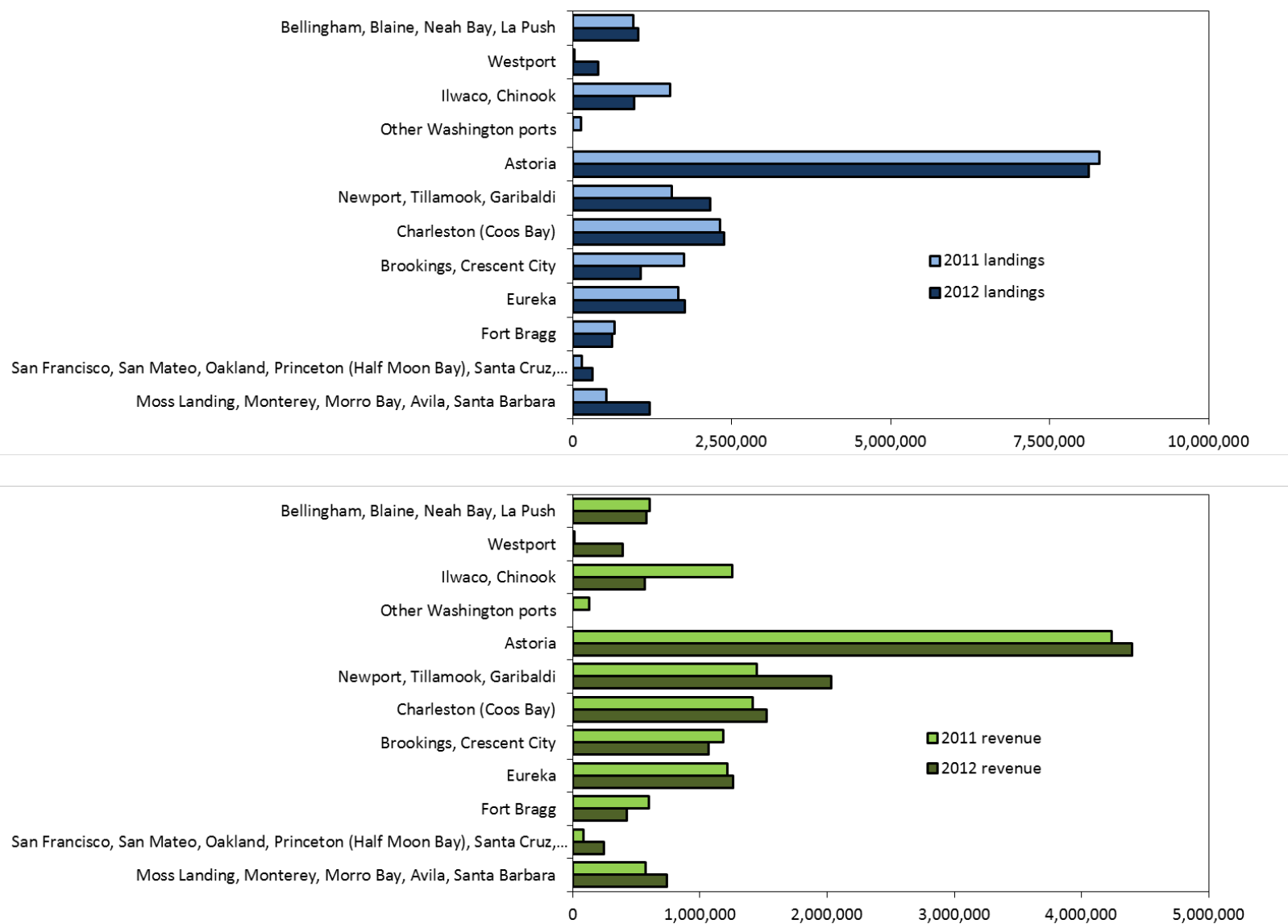


Figure 2. Landings and revenue by port group, by the non-whiting fleet, in the shorebased IFQ fishery. Port groups are arranged by latitude.

Table 2. Landings and revenue by port group, by the non-whiting (top) and shorebased whiting fleet (bottom), in the shorebased, groundfish IFQ fishery, for January through June of 2011, and the same period of 2012. Port groups are arranged by latitude. The two columns each labeled “percent” express either 2012 landings or revenue (whichever appears immediately to left) as a percent of 2011 values.

Port group (non-whiting)	2011 landings	2012 landings	Difference	Percent	2011 revenue	2012 revenue	Difference	Percent
Bellingham, Blaine, Neah Bay, La Push	948,420	1,035,586	87,166	109%	605,806	578,163	-27,643	95%
Westport	21,155	396,298	375,143	1873%	12,646	393,531	380,885	3112%
Ilwaco, Chinook	1,532,617	965,460	-567,157	63%	1,253,901	566,724	-687,177	45%
Other Washington ports	130,220	0	-130,220	0%	127,621	0	-127,621	0%
Astoria	8,282,457	8,114,636	-167,821	98%	4,234,926	4,400,962	166,036	104%
Newport, Tillamook, Garibaldi	1,552,194	2,158,718	606,524	139%	1,444,524	2,032,114	587,590	141%
Charleston (Coos Bay)	2,312,115	2,380,935	68,820	103%	1,413,685	1,526,815	113,130	108%
Brookings, Crescent City	1,751,401	1,066,661	-684,740	61%	1,180,214	1,065,958	-114,256	90%
Eureka	1,664,103	1,767,263	103,160	106%	1,218,356	1,257,458	39,102	103%
Fort Bragg	659,881	616,354	-43,527	93%	597,396	423,155	-174,241	71%
San Francisco, San Mateo, Oakland, Princeton (Half Moon Bay), Santa Cruz, Bodega Bay	143,928	305,238	161,310	212%	81,829	243,162	161,333	297%
Moss Landing, Monterey, Morro Bay, Avila, Santa Barbara	525,776	1,206,288	680,513	229%	575,292	737,630	162,338	128%
Total (Jan-June)	19,524,267	20,013,437	489,171	103%	12,746,196	13,225,672	479,476	104%

Port group (shorebased whiting)	2011 landings	2012 landings	Difference	Percent	2011 revenue	2012 revenue	Difference	Percent
Westport	4,657,841	5,873,467	1,215,626	126%	588,216	568,964	-19,252	97%
Ilwaco, Chinook	704,185		-704,185	0%	64,908		-64,908	0%
Astoria	12,884,796	4,362,987	-8,521,809	34%	1,480,280	654,144	-826,136	44%
Newport, Tillamook, Garibaldi	4,302,970	886,195	-3,416,775	21%	444,145	102,946	-341,199	23%
Charleston (Coos Bay)	1,495,231		-1,495,231	0%	153,834		-153,834	0%
Total (Jan-June)	24,045,023	11,122,649	-12,922,374	46%	2,731,383	1,326,054	-1,405,329	49%

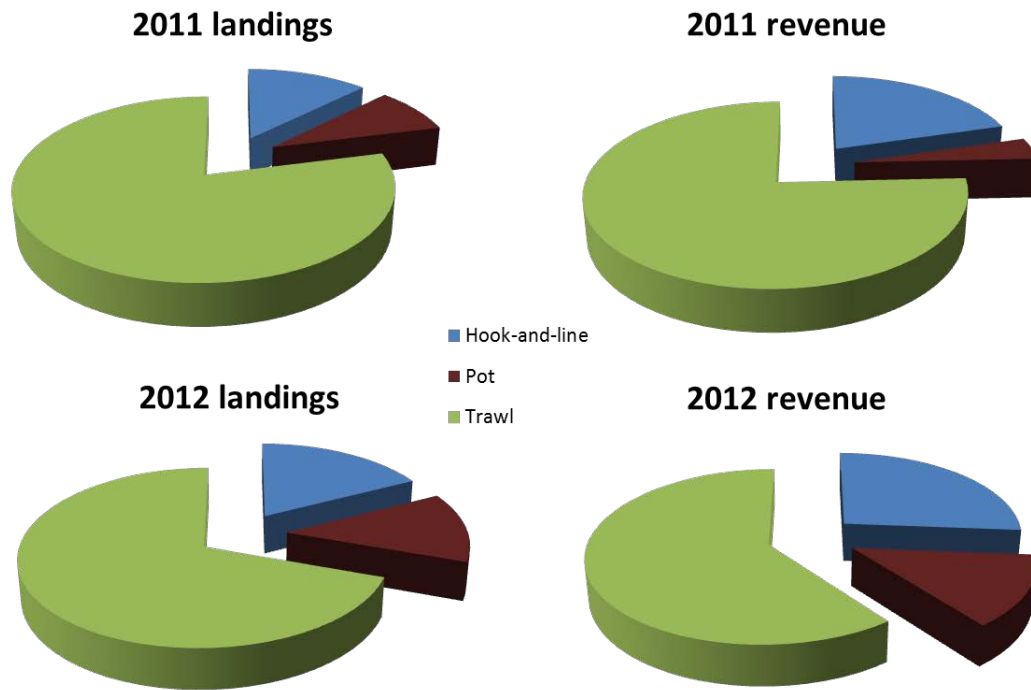


Figure 3. Landings and revenue composition of sablefish catch, by gear group, for non-whiting, IFQ trips during January through June only, in 2011 and 2012.

Table 3. Landings and revenue statistics of sablefish catch, by gear group, for non-whiting, IFQ trips during January through June only, in 2011 and 2012.

Gear group	2011 landings	Land % total	2011 revenue	Rev % total	2011 price lb.
Hook-and-line	277,218	13%	1,164,929	20%	4.20
Pot	187,037	8%	223,420	4%	1.19
Trawl	1,741,726	79%	4,322,463	76%	2.48
Total (Jan-June)	2,205,981	100%	5,710,812	100%	2.59

Gear group	2012 landings	Land % total	2012 revenue	Rev % total	2012 price lb.
Hook-and-line	351,414	17%	1,304,432	26%	3.71
Pot	260,820	13%	661,658	13%	2.54
Trawl	1,402,643	70%	3,007,000	60%	2.14
Total (Jan-June)	2,014,877	100%	4,973,090	100%	2.47

Gear group	Landing % 2011	Rev % 2011	Price % 2011	Δ land comp	Δ rev comp
Hook-and-line	127%	112%	88%	5%	6%
Pot	139%	296%	212%	4%	9%
Trawl	81%	70%	86%	-9%	-15%
Total (Jan-June)	91%	87%	95%	0%	0%

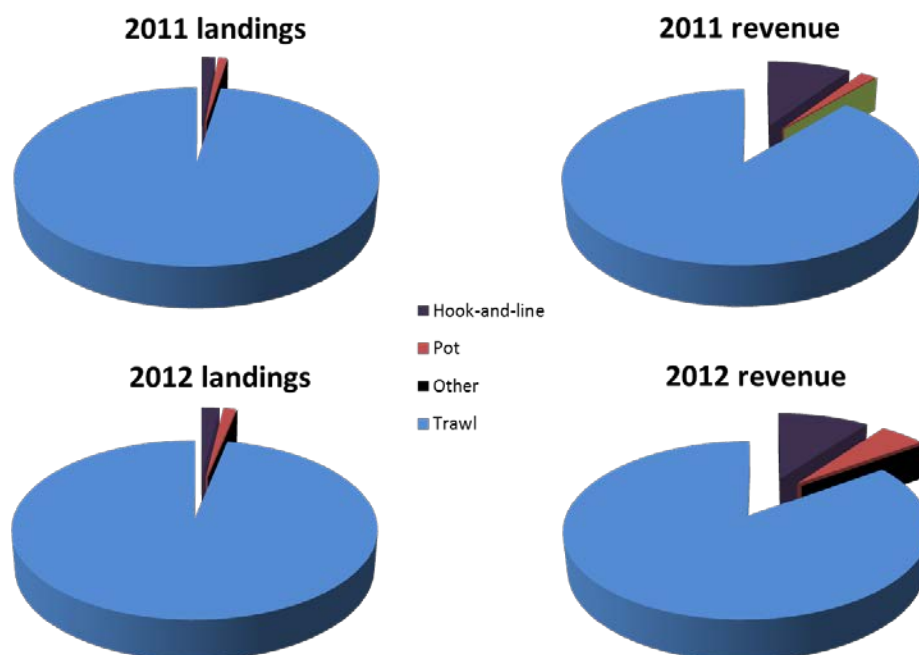


Figure 4. Landings and revenue composition of groundfish catch, by gear group, for non-whiting, IFQ trips during January through June only, of 2011 and 2012.

Table 4. Landings and revenue statistics of groundfish catch, by gear group, for non-whiting, IFQ trips during January through June only, in 2011 and 2012.

Gear group	2011 landings	Land % total	2011 revenue	Rev % total	2011 price lb.
Hook-and-line	290,493	1%	1,188,130	9%	4.09
Pot	188,197	1%	224,578	2%	1.19
Other	na	na	na	na	na
Trawl	19,045,577	98%	11,333,488	89%	0.60
Total (Jan-June)	19,524,267	100%	12,746,196	100%	0.65

Gear group	2012 landings	Land % total	2012 revenue	Rev % total	2012 price lb.
Hook-and-line	379,479	2%	1,319,649	10%	3.48
Pot	262,866	1%	663,800	5%	2.53
Other	38	0%	20	0%	0.53
Trawl	19,371,054	97%	11,242,203	85%	0.58
Total (Jan-June)	20,013,437	100%	13,225,672	100%	0.66

Gear group	Landing % 2011	Rev % 2011	Price % 2011	Δ land comp	Δ rev comp
Hook-and-line	131%	111%	85%	0%	1%
Pot	140%	296%	212%	0%	3%
Other	na	na	na	na	na
Trawl	102%	99%	98%	-1%	-4%
Total (Jan-June)	103%	104%	101%	na	na

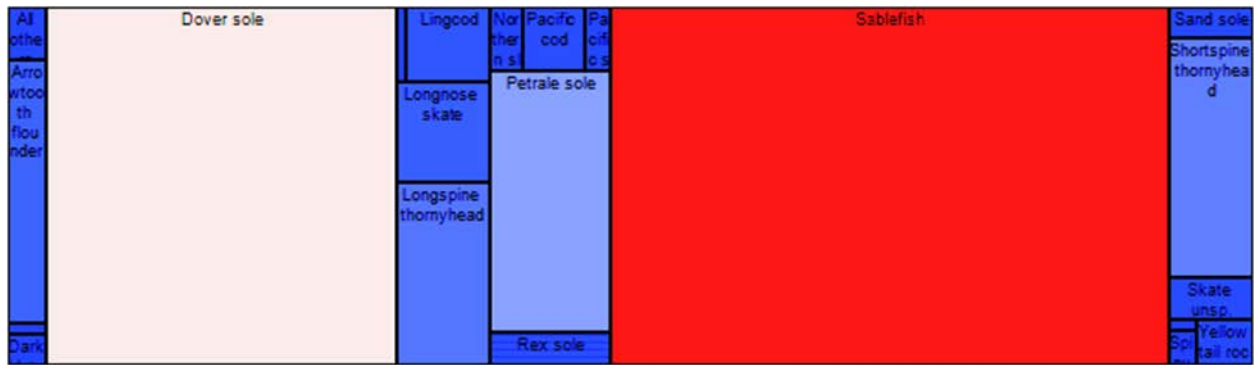


Figure 5. Treemap showing revenue distribution by species name, within the non-whiting fleet of the shorebased IFQ fishery, during the period of January through June of 2011.

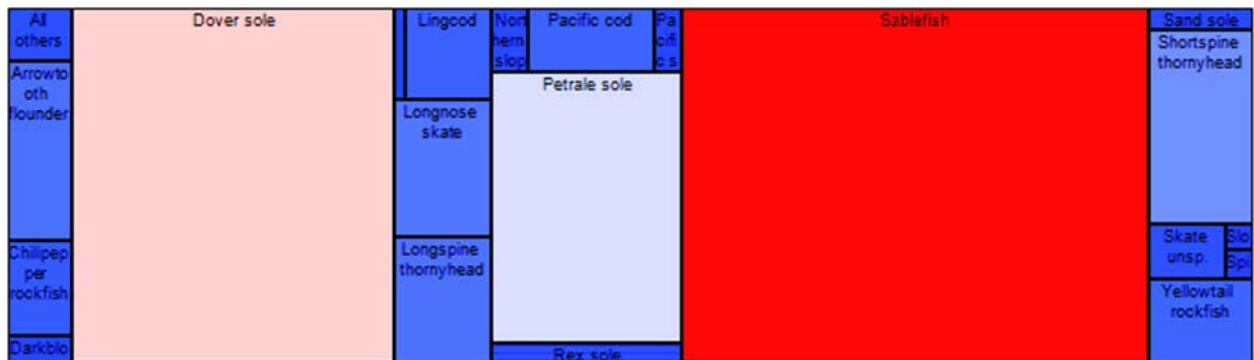


Figure 6. Treemap showing revenue distribution by species name, within the non-whiting fleet of the shorebased IFQ fishery, during the period of January through June of 2012.

Table 5. Distribution of revenue among species, for the non-whiting IFQ fleet, for January through June of 2011 and 2012.

Species	2011 revenue	2011 rev comp	2011 rank	2012 revenue	2012 rev comp	Rev % 2011	Δ rev comp	2012 rank
Sablefish	5,710,812	44.8%	1	4,973,090	37.6%	87%	-7.2%	1
Dover sole	3,609,720	28.3%	2	3,433,406	26.0%	95%	-2.4%	2
Petrale sole	908,019	7.1%	3	1,548,631	11.7%	171%	4.6%	3
Shortspine thornyhead	559,574	4.4%	4	590,249	4.5%	105%	0.1%	4
Longnose skate	258,114	2.0%	7	391,685	3.0%	152%	0.9%	5
Longspine thornyhead	476,917	3.7%	5	354,597	2.7%	74%	-1.1%	6
Arrowtooth flounder	300,363	2.4%	6	351,407	2.7%	117%	0.3%	7
Yellowtail rockfish	69,289	0.5%	13	257,764	1.9%	372%	1.4%	8
Pacific cod	116,736	0.9%	9	244,333	1.8%	209%	0.9%	9
Lingcod	179,710	1.4%	8	232,627	1.8%	129%	0.3%	10
Chilipepper rockfish	12,704	0.1%	20	188,150	1.4%	1481%	1.3%	11
Skate unsp.	99,057	0.8%	11	125,428	0.9%	127%	0.2%	12
Rex sole	109,488	0.9%	10	110,615	0.8%	101%	0.0%	13
Northern slope rockfish unsp.	64,336	0.5%	14	73,262	0.6%	114%	0.0%	14
Sand sole	73,223	0.6%	12	71,780	0.5%	98%	0.0%	15
Pacific sanddab	47,624	0.4%	15	50,792	0.4%	107%	0.0%	16
Darkblotched rockfish	32,942	0.3%	16	49,893	0.4%	151%	0.1%	17
English sole	20,780	0.2%	18	30,521	0.2%	147%	0.1%	18
Spiny dogfish	27,220	0.2%	17	22,754	0.2%	84%	0.0%	19
Slope rockfish unsp.	8,885	0.1%	23	20,445	0.2%	230%	0.1%	20
All others	60,686	0.5%	na	104,243	0.8%	168%	0.3%	na
Total	12,746,196	100.0%	na	13,225,672	100.0%	104%	na	na

Table 6. Aggregate revenue, landings, and price of groundfish species landed in the non-whiting IFQ fleet for January through June of 2011 and 2012.

Species	2011 revenue	2011 landings	2011 price	2012 revenue	2012 landings	2012 price	Δ price
Sablefish	5,710,812	2,205,981	2.59	4,973,090	2,014,877	2.47	-0.12
Dover sole	3,609,720	8,923,850	0.40	3,433,406	8,472,858	0.41	0.00
Petrale sole	908,019	623,868	1.46	1,548,631	1,098,578	1.41	-0.05
Shortspine thornyhead	559,574	793,837	0.70	590,249	731,740	0.81	0.10
Longnose skate	258,114	853,965	0.30	391,685	1,006,981	0.39	0.09
Longspine thornyhead	476,917	1,125,747	0.42	354,597	817,708	0.43	0.01
Arrowtooth flounder	300,363	3,048,576	0.10	351,407	2,878,062	0.12	0.02
Yellowtail rockfish	69,289	123,939	0.56	257,764	483,881	0.53	-0.03
Pacific cod	116,736	214,152	0.55	244,333	409,601	0.60	0.05
Lingcod	179,710	217,499	0.83	232,627	307,579	0.76	-0.07
Chilipepper rockfish	12,704	24,231	0.52	188,150	267,951	0.70	0.18
Skate unsp.	99,057	274,533	0.36	125,428	270,678	0.46	0.10
Rex sole	109,488	316,278	0.35	110,615	325,493	0.34	-0.01
Northern slope rockfish unspecified	64,336	132,977	0.48	73,262	150,054	0.49	0.00
Sand sole	73,223	74,359	0.98	71,780	74,990	0.96	-0.03
Pacific sanddab	47,624	101,621	0.47	50,792	102,495	0.50	0.03
Darkblotched rockfish	32,942	68,461	0.48	49,893	100,152	0.50	0.02
English sole	20,780	66,613	0.31	30,521	94,201	0.32	0.01
Spiny dogfish	27,220	97,797	0.28	22,754	88,080	0.26	-0.02
Slope rockfish unsp.	8,885	14,207	0.63	20,445	34,849	0.59	-0.04
All others	60,686	221,776	0.27	104,243	282,629	0.37	0.10
Total	12,746,196	19,524,267	0.65	13,225,672	20,013,437	0.66	0.01

Table 7 (right). Monthly vessel counts for 2011 and 2012 in the non-whiting fleet of the shorebased IFQ fishery. Totals reflect January through June only.

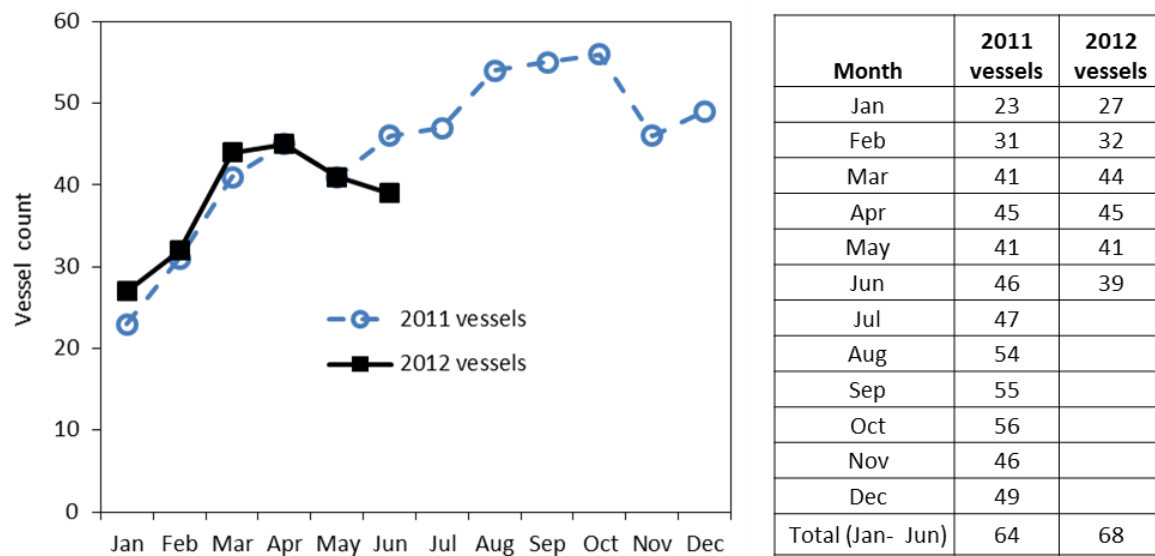


Figure 7 (left). Monthly vessel counts for 2011 and 2012 in the non-whiting fleet of the shorebased IFQ fishery.

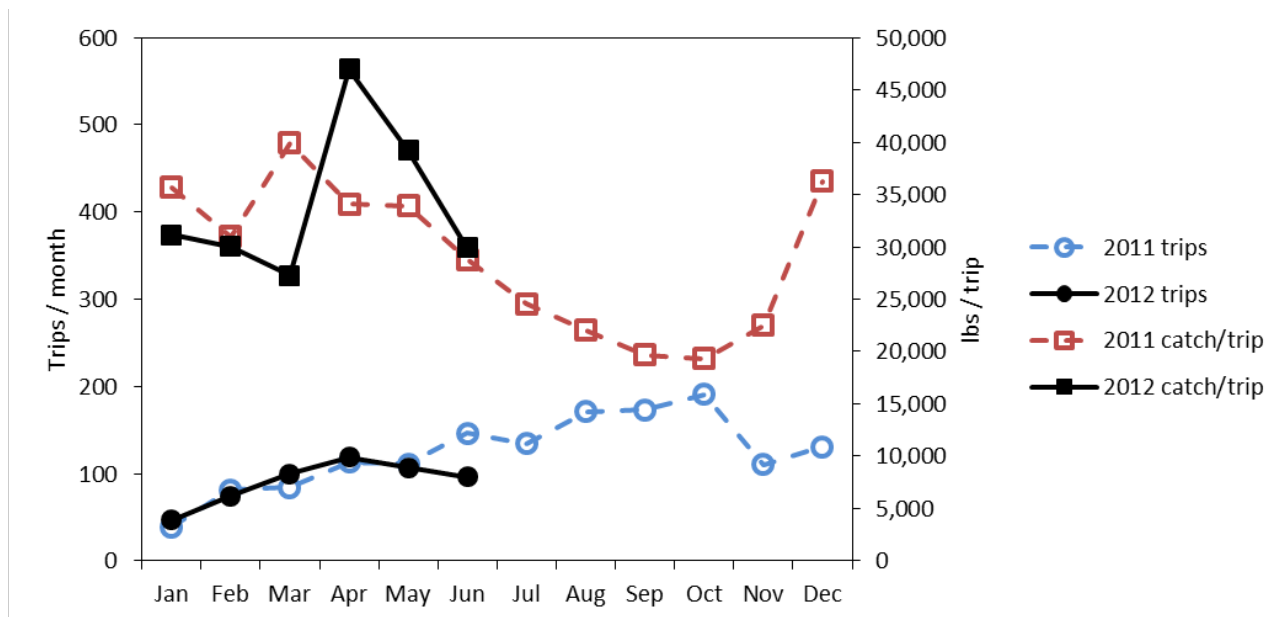


Figure 8. Monthly indicators of non-whiting fleet effort and catch per unit effort, as number of trips (bottom, circles) and catch per trip (top, squares), comparing January through June of 2011, versus 2012.

Table 8. 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), comparing January through June of 2011, versus 2012.

Month	2011 trips	2011 catch	2011 catch/ trip	2012 trips	2012 catch	2012 catch/ trip	Trips %	Catch %	Catch/ trip %
Jan	39	1,391,286	35,674	47	1,465,150	31,173	121%	105%	87%
Feb	81	2,507,351	30,955	74	2,221,771	30,024	91%	89%	97%
Mar	84	3,354,758	39,938	100	2,724,019	27,240	119%	81%	68%
Apr	113	3,853,779	34,104	119	5,592,977	47,000	105%	145%	138%
May	111	3,767,659	33,943	107	4,195,947	39,214	96%	111%	116%
Jun	146	4,201,510	28,777	96	2,872,536	29,922	66%	68%	104%
Jul	134	3,289,497	24,548						
Aug	171	3,766,677	22,027						
Sep	173	3,400,229	19,655						
Oct	191	3,694,772	19,344						
Nov	110	2,476,666	22,515						
Dec	131	4,753,227	36,284						
Total (Jan-June)	574	19,076,343	33,899	543	19,072,400	34,096	95%	100%	101%

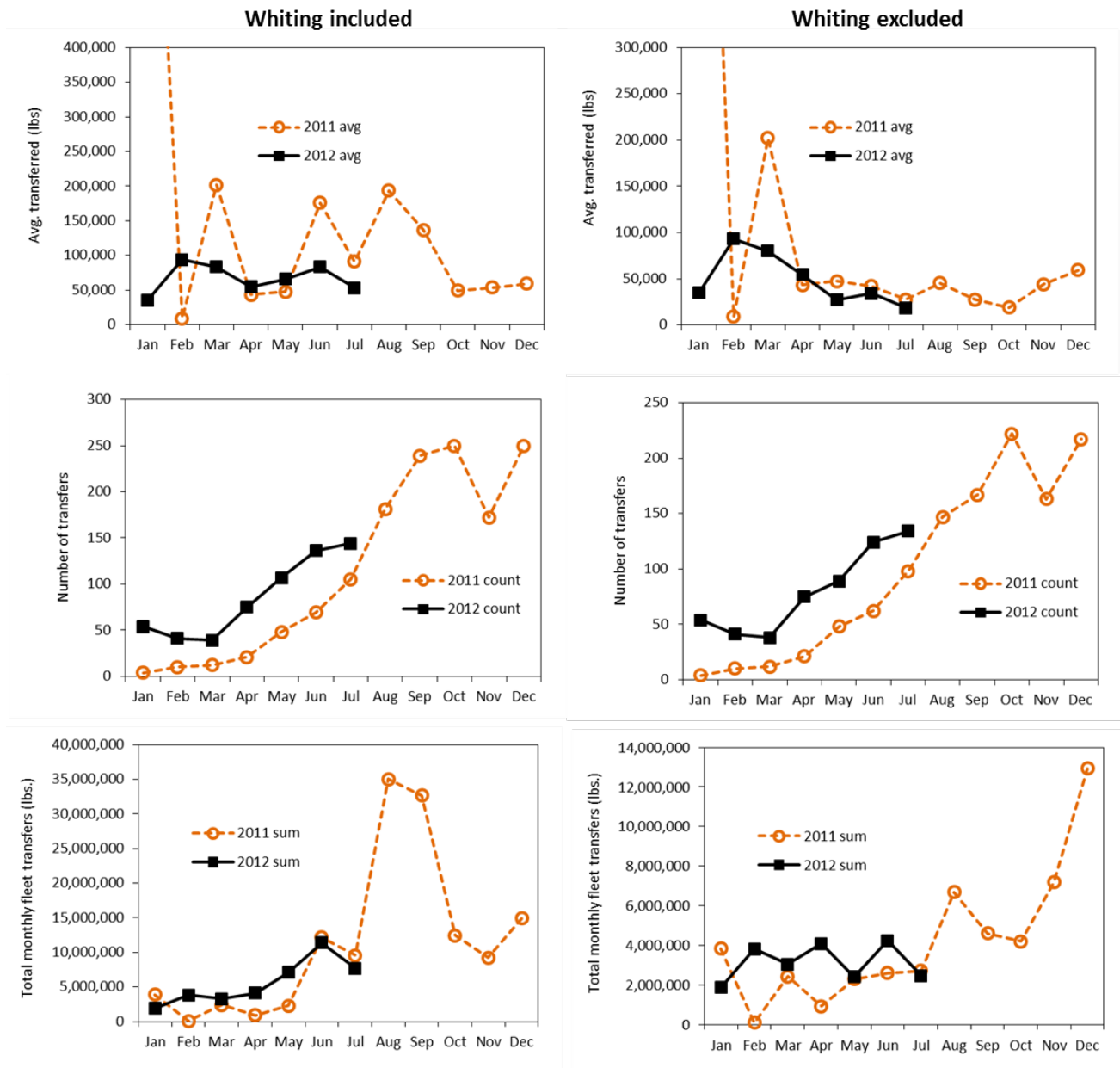


Figure 9. Metrics describing monthly IFQ quota pound transfers from January through June of 2011 and 2012 (vessel account to vessel account), including and excluding Pacific whiting.

Table 9. Metrics describing monthly IFQ quota pound transfers from January through June of 2011 and 2012 (vessel account to vessel account), including Pacific whiting.

Month	2011 sum lbs.	2011 avg.	2011 S.E.	2011 count	2012 sum lbs.	2012 avg.	2012 S.E.	2012 count
Jan	3,888,590	972,148	164,305	4	1,899,208	35,171	10,747	54
Feb	92,054	9,205	5,642	10	3,849,071	93,880	35,453	41
Mar	2,425,391	202,116	165,943	12	3,262,853	83,663	37,328	39
Apr	911,906	43,424	14,010	21	4,122,711	54,969	19,102	75
May	2,290,497	47,719	14,273	48	7,058,958	65,972	21,502	107
Jun	12,137,481	175,906	65,015	69	11,395,389	83,790	27,848	136
Jul	9,574,841	91,189	36,609	105	7,683,296	53,356	25,669	144
Aug	35,051,632	193,655	48,905	181				
Sep	32,670,687	136,697	24,796	239				
Oct	12,430,138	49,721	11,394	250				
Nov	9,234,473	53,689	16,741	172				
Dec	14,883,439	59,534	14,674	250				
Jan-July total	31,320,760	na	na	269	39,271,486	na	na	596

Table 10. Metrics describing monthly IFQ quota pound transfers from January through June of 2011 and 2012 (vessel account to vessel account), excluding Pacific whiting.

Month	2011 sum lbs.	2011 avg.	2011 S.E.	2011 count	2012 sum lbs.	2012 avg.	2012 S.E.	2012 count
Jan	3,833,222	958,306	164,305	4	1,866,022	34,556	10,548	54
Feb	92,054	9,205	5,642	10	3,816,273	93,080	35,156	41
Mar	2,425,159	202,097	165,945	12	3,033,578	79,831	35,565	38
Apr	911,627	43,411	14,010	21	4,080,763	54,410	19,033	75
May	2,278,838	47,476	14,106	48	2,408,179	27,058	8,990	89
Jun	2,604,395	42,006	18,892	62	4,243,676	34,223	14,674	124
Jul	2,701,377	27,565	10,171	98	2,462,898	18,380	2,883	134
Aug	6,676,483	45,418	18,691	147				
Sep	4,608,517	27,596	9,933	167				
Oct	4,199,835	18,918	4,084	222				
Nov	7,178,761	44,041	17,154	163				
Dec	12,925,232	59,563	16,230	217				
Jan-July total	14,846,672	na	na	255	21,911,389	na	na	555

Table 11. Total IFQ quota pound transfers by species, during January through June of 2011 and 2012 (vessel account to vessel account), including Pacific whiting. The table is sorted by the count of QP transfers during January through June of 2012.

IFQ species category	2011 sum lbs.	2011 rank sum	2011 count	2011 rank ct.	2012 sum lbs.	2012 rank sum	2012 count	2012 rank ct.
Sablefish North of 36° N.	812,989	7	80	1	1,451,367	5	105	1
Petrale sole	379,531	11	79	2	956,418	8	101	2
Widow rockfish	81,434	16	42	16	248,659	16	100	3
Canary rockfish	4,330	25	36	17	17,625	24	98	4
Darkblotched rockfish	56,476	18	58	6	144,198	19	86	5
Longspine thornyheads North of 34°27' N.	800,796	8	57	8	1,133,931	7	73	6
Pacific whiting	16,474,088	1	59	5	17,360,097	1	66	7
Shortspine thornyheads North of 34°27' N.	491,116	10	64	3	591,971	12	60	8
Sablefish South of 36° N.	160,373	13	26	20	363,178	13	56	9
Lingcod	283,561	12	44	13	685,537	11	55	10
Pacific halibut (IBQ) North of 40°10' N.	29,359	22	31	19	54,293	23	55	10
Pacific ocean perch North of 40°10' N.	30,408	21	53	10	57,532	22	55	10
Bocaccio rockfish South of 40°10' N.	2,196	26	6	27	17,040	25	49	13
Dover sole	4,454,662	2	64	3	6,437,768	2	45	14
Pacific cod	894,199	6	43	15	730,303	10	45	14
Yelloweye rockfish	87	28	10	22	228	28	43	16
Yellowtail rockfish North of 40°10' N.	972,805	5	44	13	1,341,513	6	43	16
Arrowtooth flounder	2,012,074	4	55	9	3,347,985	3	37	18
Minor shelf rockfish North of 40°10' N.	76,521	17	33	18	124,433	20	35	19
Other flatfish	745,450	9	58	6	854,331	9	33	20
Minor slope rockfish North of 40°10' N.	152,840	14	49	11	210,157	17	30	21
Minor slope rockfish South of 40°10' N.	27,459	23	11	21	102,573	21	28	22
Chilipepper rockfish South of 40°10' N.	112,196	15	9	24	352,866	14	26	23
Starry flounder	48,399	19	10	22	157,859	18	26	23
Cowcod South of 40°10' N.	38	29	4	29	187	29	25	25
English sole	2,175,297	3	45	12	2,220,868	4	24	26
Minor shelf rockfish South of 40°10' N.	6,399	24	8	25	8,927	27	24	26
Splitnose rockfish South of 40°10' N.	34,182	20	7	26	286,906	15	24	26
Shortspine thornyheads South of 34°27' N.	1,495	27	5	28	12,736	26	20	29
Total	31,320,760	na	na	na	39,271,486	na	na	na

Table 12. Total catch and attainment of IFQ fishery allocations, by IFQ species categories, divided by fleet, for the period of January through June, in 2011 and 2012.

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	3,333,841	1,478	3,335,319	27,406,105	12%	3,153,094	3,391	3,156,485	20,861,131	15%	-178,834	3%
Bocaccio rockfish South of 40°10' N.	1,716		1,716	132,277	1%	10,291		10,291	132,277	8%	8,575	6%
Canary rockfish	693	281	974	57,100	2%	3,886	101	3,987	57,761	7%	3,013	5%
Chilipepper rockfish South of 40°10' N.	24,427		24,427	3,252,370	1%	286,758		286,758	2,934,904	10%	262,331	9%
Cowcod South of 40°10' N.	8		8	3,968	0%	2		2	3,968	0%	-6	0%
Darkblotched rockfish	69,835	269	70,104	552,997	13%	107,532	508	108,040	548,808	20%	37,936	7%
Dover sole	9,200,257	39	9,200,296	49,018,682	19%	8,645,605	12	8,645,617	49,018,682	18%	-554,679	-1%
English sole	80,517	1	80,518	41,166,808	0%	92,328		92,328	21,037,611	0%	11,810	0%
Lingcod	228,178	1,217	229,395	4,107,873	6%	334,416	821	335,237	3,991,800	8%	105,842	3%
Longspine thornyheads North of 34°27' N.	1,195,507	0	1,195,507	4,334,839	28%	860,765	620	861,385	4,219,648	20%	-334,122	-7%
Minor shelf rockfish North of 40°10' N.	11,320	70	11,390	1,150,813	1%	31,056	1,214	32,270	1,150,813	3%	20,880	2%
Minor shelf rockfish South of 40°10' N.	443		443	189,598	0%	6,907		6,907	189,598	4%	6,464	3%
Minor slope rockfish North of 40°10' N.	141,129	4,740	145,869	1,828,779	8%	155,783	9,662	165,445	1,828,779	9%	19,576	1%
Minor slope rockfish South of 40°10' N.	17,279		17,279	831,958	2%	48,112	87	48,199	831,958	6%	30,920	4%
Other flatfish	559,436	914	560,350	9,253,683	6%	496,991	91	497,082	9,253,683	5%	-63,268	-1%
Pacific cod	214,173	5	214,178	2,502,247	9%	377,084	12	377,096	2,502,247	15%	162,918	7%
Pacific halibut (IBQ) North of 40°10' N.	30,597	52	30,649	257,524	12%	40,618	2,636	43,254	232,856	19%	12,605	7%
Pacific ocean perch North of 40°10' N.	37,535	24	37,559	263,148	14%	49,883	513	50,396	263,441	19%	12,837	5%
Pacific whiting	157,707	23,832,545	23,990,252	204,628,442	12%	199,743	10,660,493	10,860,236	125,447,480	9%	-13,130,016	-3%
Petrale sole	634,466		634,466	1,920,226	33%	1,102,243		1,102,243	2,324,995	47%	467,777	14%
Sablefish North of 36° N.	1,947,194	633	1,947,827	5,613,719	35%	1,650,860	267	1,651,127	5,438,797	30%	-296,700	-4%
Sablefish South of 36° N.	228,372		228,372	1,170,390	20%	54,453		54,453	1,133,352	5%	-173,919	-15%
Shortspine thornyheads North of 34°27' N.	804,255	1,384	805,639	3,156,138	26%	746,540	875	747,415	3,120,533	24%	-58,224	-2%
Shortspine thornyheads South of 34°27' N.			0	110,231	0%			0	110,231	0%	0	0%
Splitnose rockfish South of 40°10' N.	11,077		11,077	3,045,245	0%	28,022		28,022	3,206,513	1%	16,945	1%
Starry flounder	13,011		13,011	1,471,586	1%	11,347		11,347	1,480,404	1%	-1,664	0%
Widow rockfish	9,403	3,108	12,511	755,348	2%	30,387	2,403	32,790	755,352	4%	20,279	3%
Yelloweye rockfish	43		43	1,323	3%	8		8	1,323	1%	-35	-3%
Yellowtail rockfish North of 40°10' N.	123,924	210,906	334,830	6,821,455	5%	547,686	19,793	567,479	6,850,556	8%	232,649	3%
Total	19,076,343	24,057,666	43,134,009	375,004,872	12%	19,072,400	10,703,499	29,775,899	268,929,501	11%	-13,358,110	0%

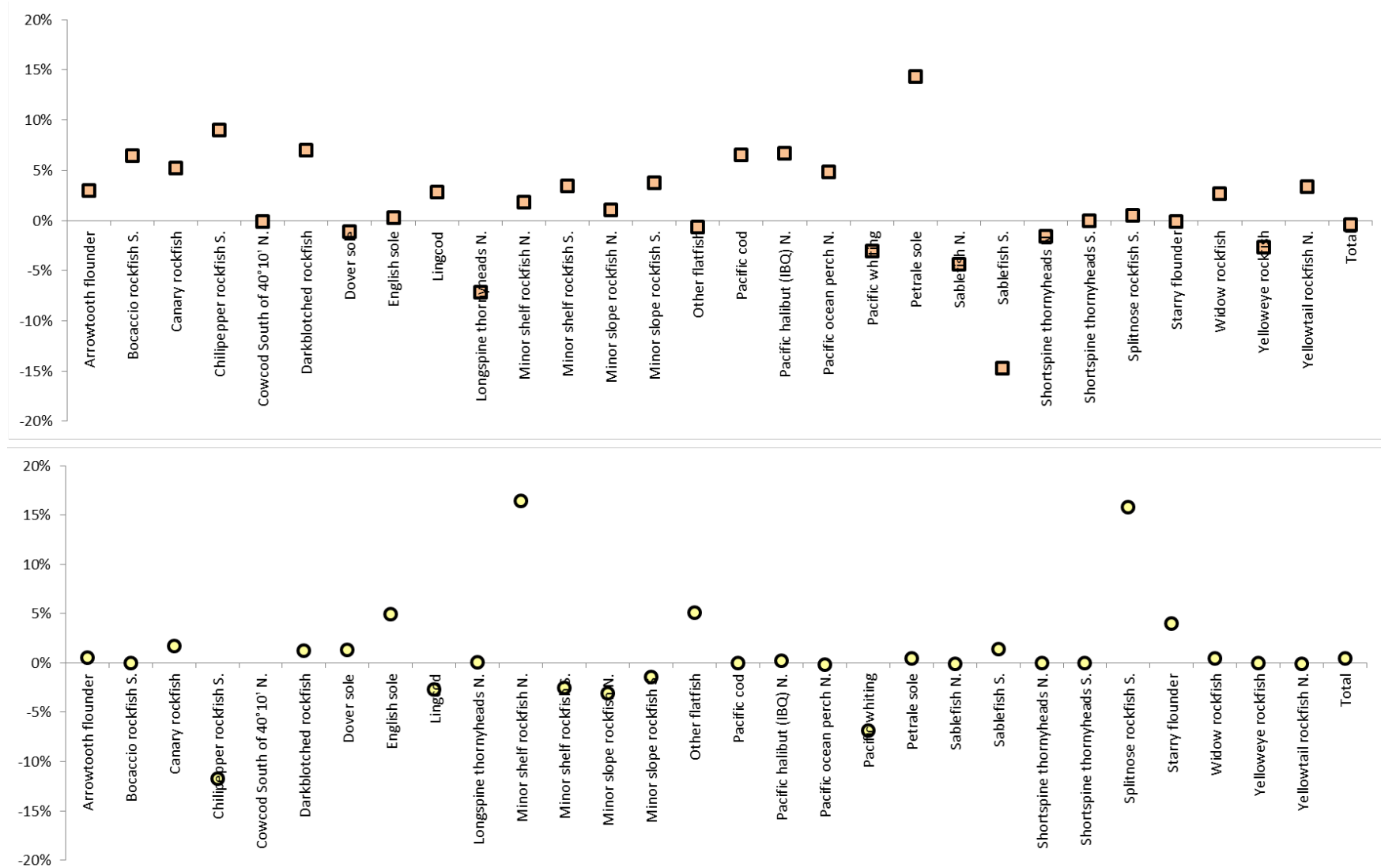


Figure 10. Percent changes in mid-year attainment of IFQ fishery allocations by species for 2011 and 2012 (top, orange-filled squares), and percent changes in retention rates for the non-whiting fleet, in the same fishery, over the same period (bottom, yellow-filled circles).

Table 13. Total catch, landings, discards, and retention rates for the non-whiting fleet, in the IFQ fishery, during January through June of 2011 and 2012.

Species category	2011 Total catch	2011 Landed	2011 Discarded	2011 Retention	2012 Total catch	2012 Landed	2012 Discarded	2012 Retention	Retention dif.
Arrowtooth flounder	3,333,841	3,144,111	189,730	94%	3,153,094	2,991,238	161,856	95%	1%
Bocaccio rockfish South of 40°10' N.	1,716	1,701	15	NA	10,291	10,286	5	NA	NA
Canary rockfish	693	667	26	96%	3,886	3,807	79	98%	2%
Chilipepper rockfish South of 40°10' N.	24,427	24,221	206	99%	286,758	250,682	36,076	87%	-12%
Cowcod South of 40°10' N.	8	8	0	100%	2	1	1	50%	-50%
Darkblotched rockfish	69,835	68,229	1,606	98%	107,532	106,383	1,149	99%	1%
Dover sole	9,200,257	9,043,493	156,764	98%	8,645,605	8,615,091	30,514	100%	1%
English sole	80,517	66,063	14,454	82%	92,328	80,316	12,012	87%	5%
Lingcod	228,178	217,299	10,879	95%	334,416	309,529	24,887	93%	-3%
Longspine thornyheads North of 34°27' N.	1,195,507	1,129,052	66,455	94%	860,765	813,729	47,036	95%	0%
Minor shelf rockfish North of 40°10' N.	11,320	8,436	2,884	75%	31,056	28,256	2,800	91%	16%
Minor shelf rockfish South of 40°10' N.	443	19	424	4%	6,907	120	6,787	2%	-3%
Minor slope rockfish North of 40°10' N.	141,129	135,498	5,631	96%	155,783	144,781	11,002	93%	-3%
Minor slope rockfish South of 40°10' N.	17,279	17,113	166	99%	48,112	46,958	1,154	98%	-1%
Other flatfish	559,436	506,616	52,820	91%	496,991	475,480	21,511	96%	5%
Pacific cod	214,173	214,153	20	100%	377,084	377,072	12	100%	0%
Pacific halibut (IBQ) North of 40°10' N.	30,597	30	30,567	0%	40,618	136	40,482	0%	0%
Pacific ocean perch North of 40°10' N.	37,535	37,335	200	99%	49,883	49,529	354	99%	0%
Pacific whiting	157,707	27,354	130,353	17%	199,743	20,916	178,827	10%	-7%
Petrale sole	634,466	629,957	4,509	99%	1,102,243	1,099,589	2,654	100%	0%
Sablefish North of 36° N.	1,947,194	1,936,078	11,116	99%	1,650,860	1,640,239	10,621	99%	0%
Sablefish South of 36° N.	228,372	224,576	3,796	98%	54,453	54,295	158	100%	1%
Shortspine thornyheads North of 34°27' N.	804,255	797,025	7,230	99%	746,540	739,948	6,592	99%	0%
Shortspine thornyheads South of 34°27' N.	-	-	-	na	-	-	-	na	na
Splitnose rockfish South of 40°10' N.	11,077	2,739	8,338	25%	28,022	11,367	16,655	41%	16%
Starry flounder	13,011	12,402	609	95%	11,347	11,268	79	99%	4%
Widow rockfish	9,403	9,353	50	99%	30,387	30,367	20	100%	0%
Yelloweye rockfish	43	43	0	100%	8	8	0	100%	0%
Yellowtail rockfish North of 40°10' N.	123,924	123,924	0	100%	547,686	547,267	419	100%	0%
Total	19,076,343	18,377,495	698,848	96%	19,072,400	18,458,658	613,742	97%	0%

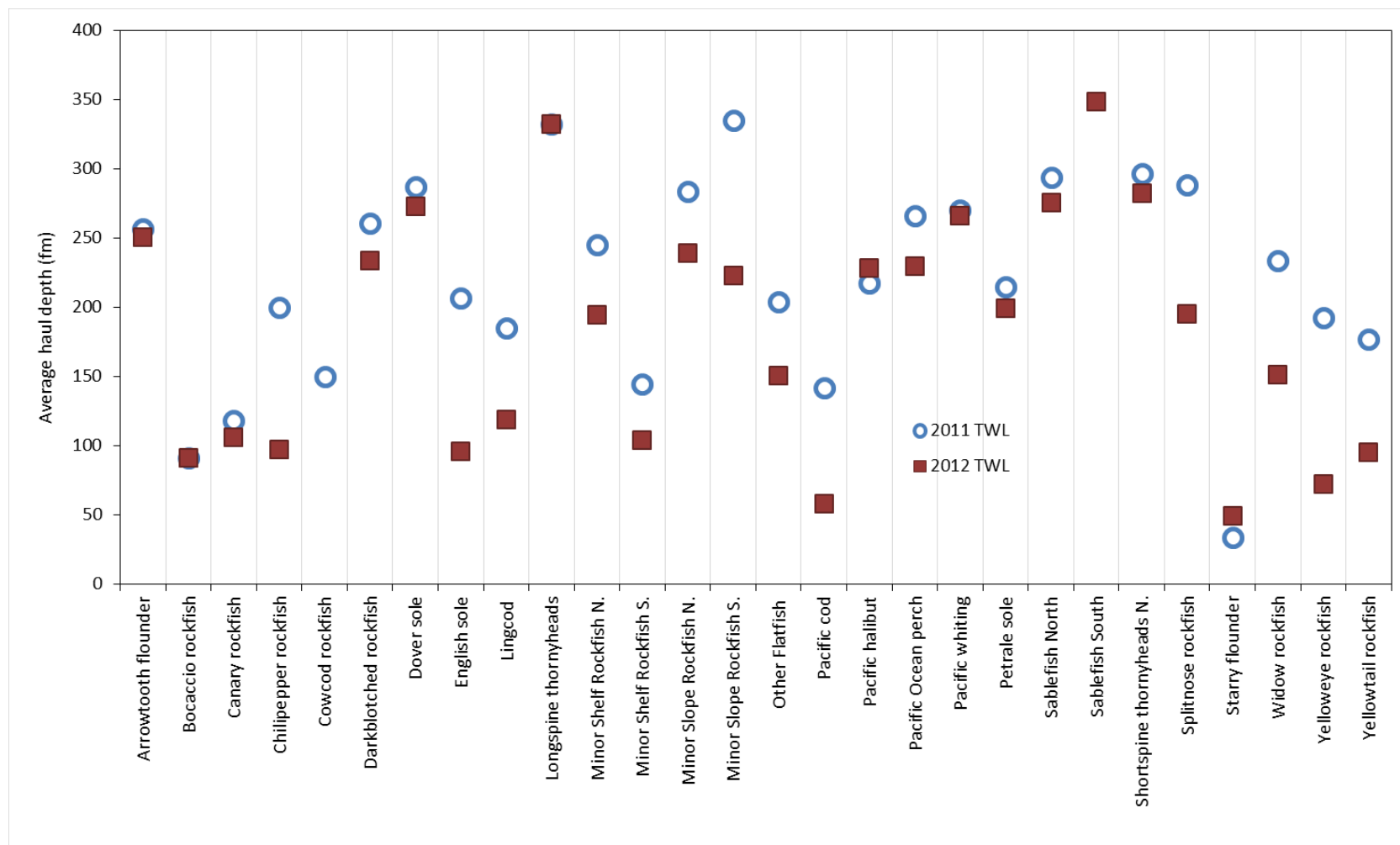


Figure 11. Comparison of average haul depths by IFQ species category, for trawl hauls made during January through May of 2011, and 2012.

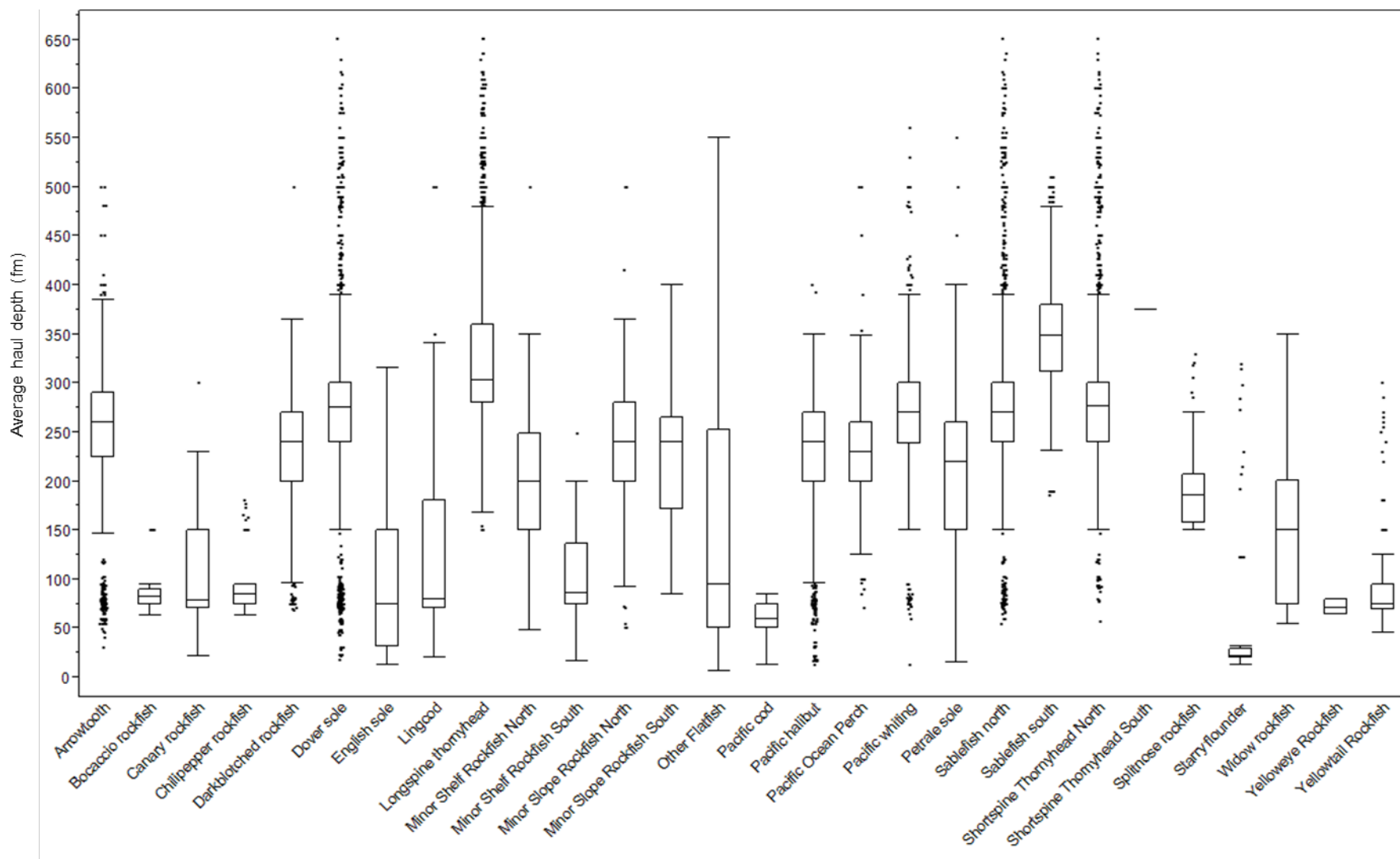


Figure 12. Boxplot showing coastwide mean haul depth values and variation, for IFQ species caught using trawl gear, during January through May of 2012.

Table 14. Coastwide mean haul depth by species category and gear type, for species caught in the IFQ fishery, during January through May of 2011 and 2012.

IFQ species category	2011 NTW	2011 TWL	2012 NTW	2012 TWL	NTW dif.	TWL dif.
Arrowtooth flounder	281.3	256.7	285.7	250.7	4.4	-6.0
Bocaccio rockfish		91.4		90.9		-0.4
Canary rockfish		117.9		106.2		-11.6
Chilipepper rockfish		200.1		97.1		-103.0
Cowcod rockfish		150.0				
Darkblotched rockfish	398.8	260.8	300.0	233.7	-98.8	-27.1
Dover sole	347.8	286.9	310.3	273.1	-37.5	-13.8
English sole	216.5	206.5	346.3	96.0	129.8	-110.6
Lingcod	186.7	184.8	227.3	119.0	40.7	-65.8
Longspine thornyheads	489.0	332.0	460.8	332.5	-28.2	0.5
Minor Shelf Rockfish N.	247.5	244.9	279.6	194.5	32.1	-50.4
Minor Shelf Rockfish S.		144.3	396.5	103.8		-40.5
Minor Slope Rockfish N.	402.7	283.6	272.4	239.4	-130.3	-44.3
Minor Slope Rockfish S.	261.2	335.2	320.3	223.1	59.2	-112.1
Other Flatfish	247.5	203.7	346.3	150.4	98.8	-53.3
Pacific cod		141.6		58.3		-83.3
Pacific halibut	255.8	217.3	257.6	228.3	1.8	11.0
Pacific Ocean perch	396.6	265.9	284.5	229.7	-112.1	-36.2
Pacific whiting	374.2	270.1	346.3	265.9	-27.9	-4.2
Petrable sole	395.8	214.7	346.3	198.9	-49.6	-15.7
Sablefish North	433.8	293.8	378.3	275.6	-55.5	-18.2
Sablefish South	366.6			348.6		
Shortspine thornyheads N.	431.7	296.3	394.2	282.1	-37.5	-14.2
Splitnose rockfish	215.0	288.3		195.1		-93.2
Starry flounder		33.5	346.3	49.0		15.5
Widow rockfish		233.8		151.2		-82.6
Yelloweye rockfish		192.8		72.0		-120.8
Yellowtail rockfish		177.2	445.0	95.0		-82.1