Agenda Item H.5.b
NMFS Report
September 2012

# 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

August 23, 2012

**Contents**

A. List of figures i
B. List of tables ii
1. Summary and purpose 1
2. Data used in this report 2
3. Landings and revenue 3
4. Effort and participation 4
5. Quota pound transfer activity 5
6. Total catch, discard and retention rates by species 6
7. Depth of catch by species 7
8. Acknowledgements 7
9. Figures and tables 8-26

**A. List of Figures**

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. ..... 8
Figure 2. Landings and revenue by port group, by the non-whiting fleet, in the shorebased IFQ fishery. Port groups are arranged by latitude. ..... 9
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. ..... 11
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. ..... 12
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. ..... 13
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. ..... 13
Figure 7 (left). Monthly vessel counts for 2011 and 2012 in the non-whiting fleet of the shorebased IFQ fishery. ..... 16
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. ..... 17
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. ..... 18
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). ..... 22
Figure 11. Comparison of average haul depths by IFQ species category, for trawl hauls made during January through May of 2011, and 2012. ..... 24
Figure 12. Boxplot showing coastwide mean haul depth values and variation, for IFQ species caught using trawl gear, during January through May of 2012. ..... 25

**B. List of Tables**

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. ..... 8
Table 2. Landings and revenue by port group, by the non-whiting fleet, in the West Coast, shorebased, groundfish IFQ fishery. Port groups are arranged by latitude. ..... 10
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. ..... 11
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. ..... 12
Table 5. Distribution of revenue for the non-whiting IFQ fleet by species, for January through June of 2011 and 2012. ..... 14
Table 6. Revenue, landings, and price of groundfish species landed in the non-whiting IFQ fleet for January through June of 2011 and 2012. ..... 15
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. ..... 16
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 (source = NMFS, VA database). ..... 17
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. ..... 19
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. ..... 19
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. ..... 20
Table 12. Total catch and attainment by IFQ species categories, divided by fleet, for the period of January through June, in 2011 and 2012. ..... 21
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. ..... 23
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. ..... 26

## 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.

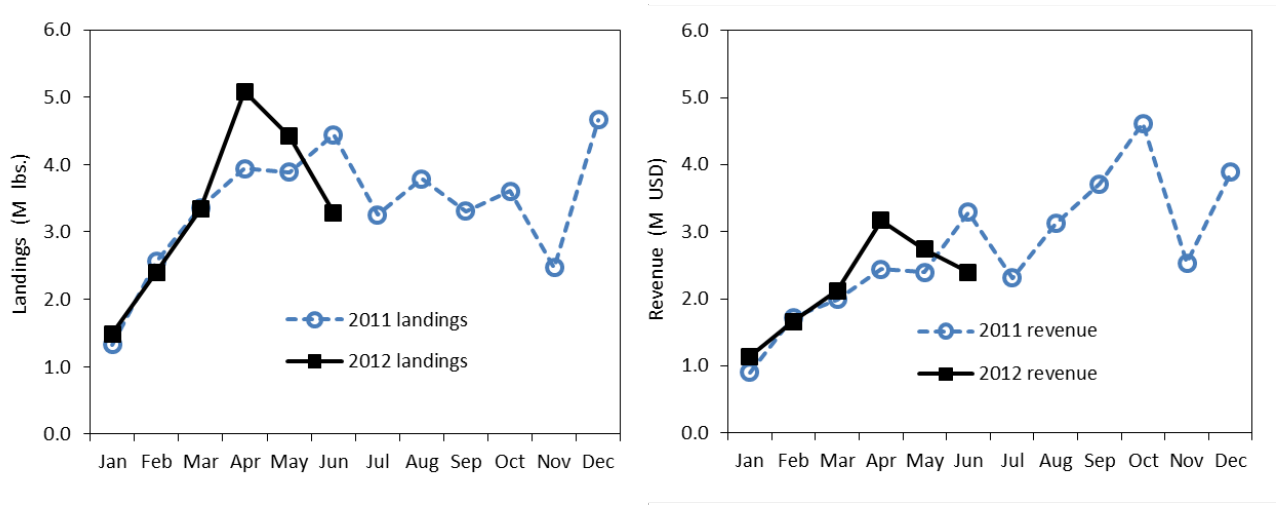



Figure 1. Monthly landings (left) and revenue (right) during January through June of 2012 and 2011, for the non-whiting fleet of the shorebased IFQ fishery.

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% |

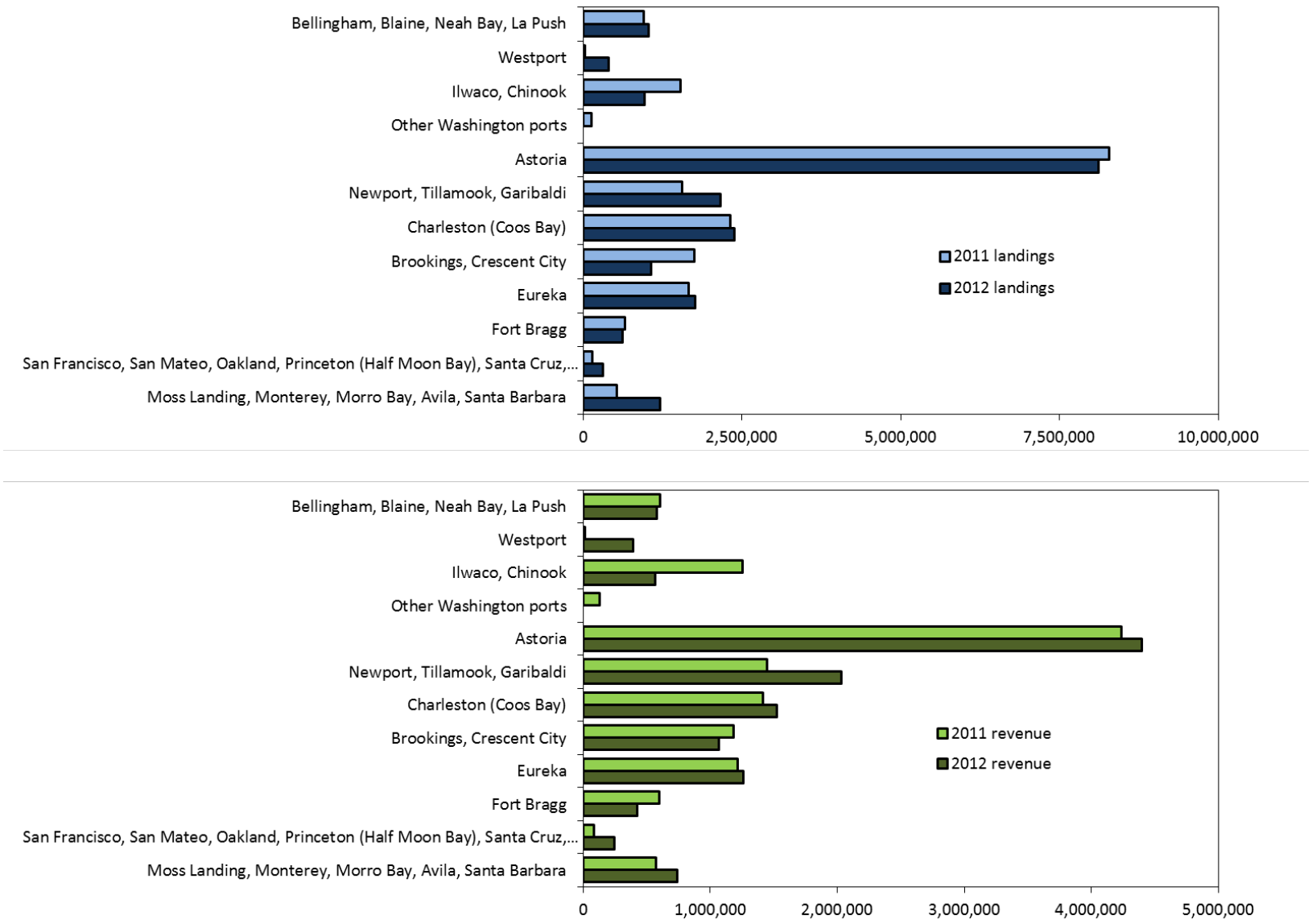



Figure 2. Landings and revenue by port group, by the non-whiting fleet, in the shorebased IFQ fishery. Port groups are arranged by latitude.

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% |

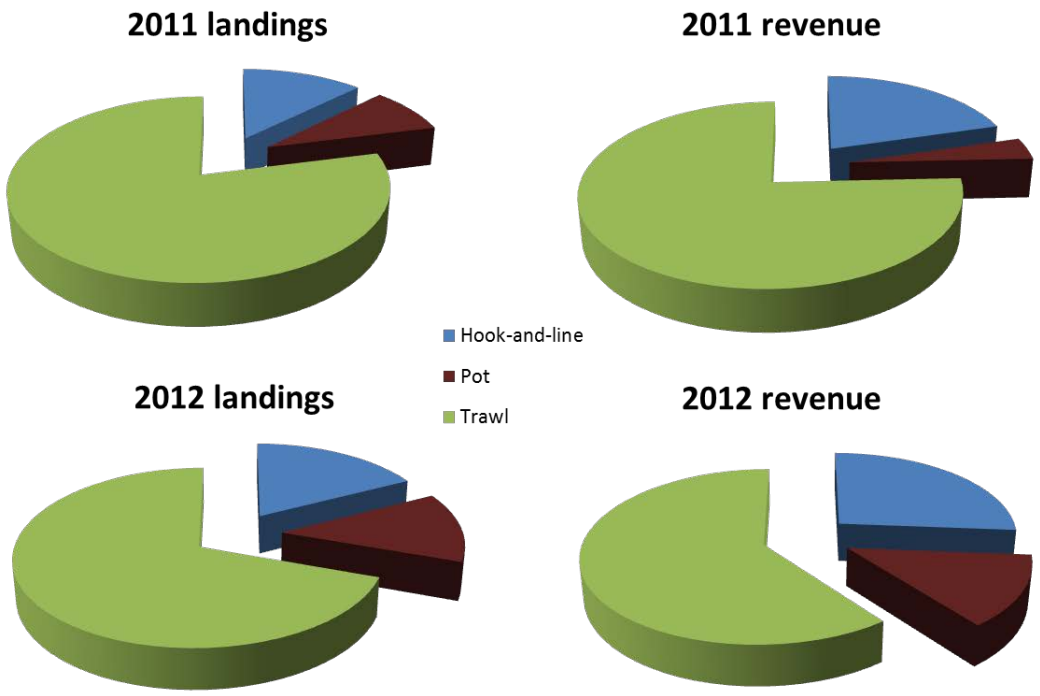



Figure 3. Landings and revenue composition of sablefish catch, by gear group, for non-whiting, IFQ trips during January through June only, in 2011 and 2012.

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% |

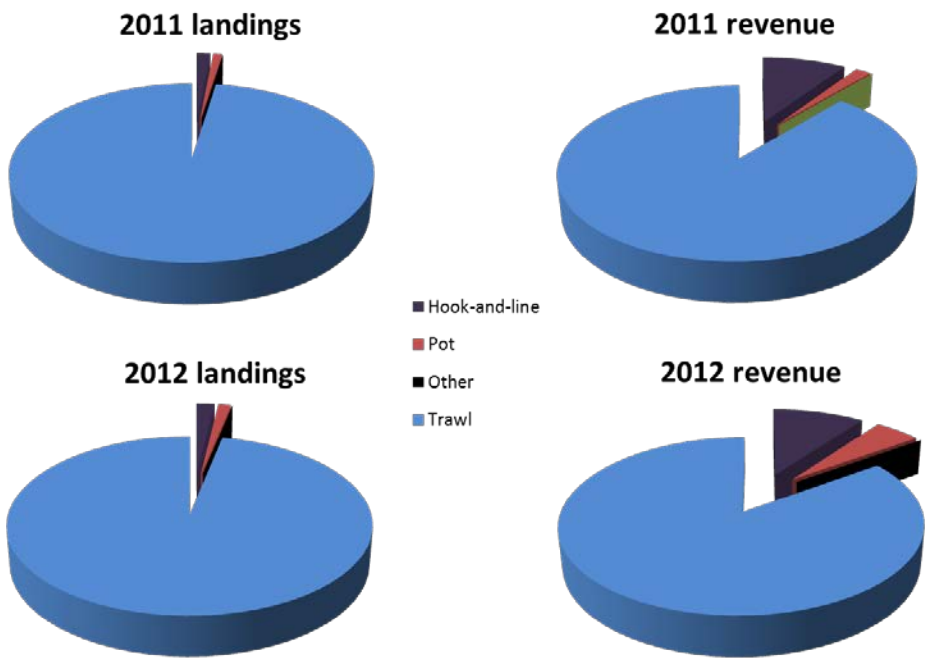



Figure 4. Landings and revenue composition of groundfish catch, by gear group, for non-whiting, IFQ trips during January through June only, of 2011 and 2012.

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 |

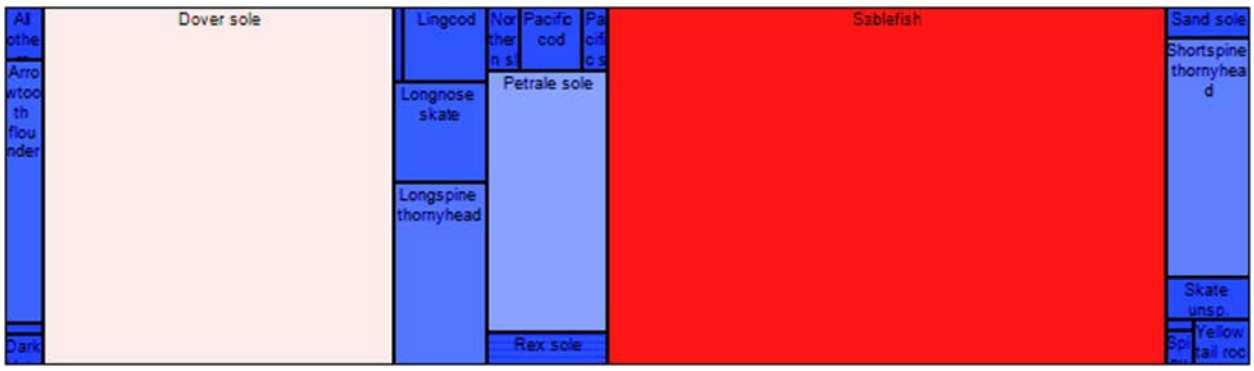



Figure 5. Treemap showing revenue distribution by species name, within the non-whiting fleet of the shorebased IFQ fishery, during the period of January through June of 2011.

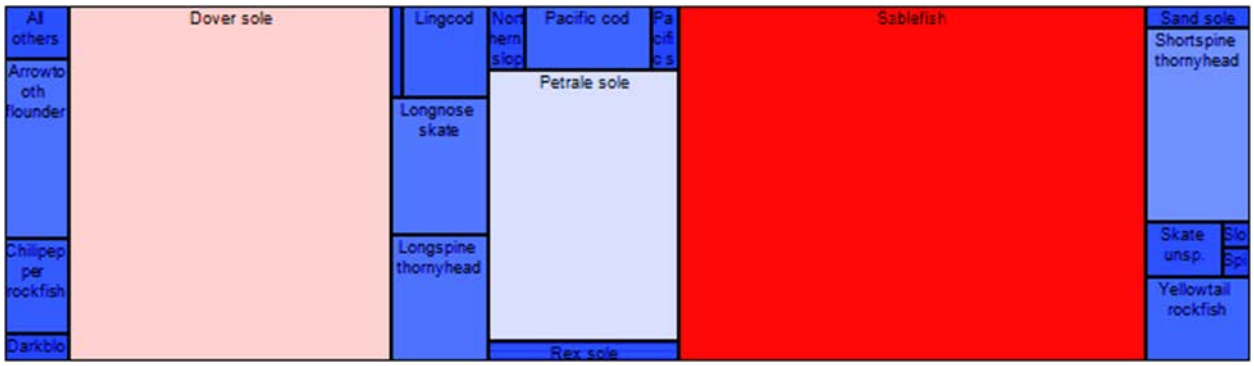



Figure 6. Treemap showing revenue distribution by species name, within the non-whiting fleet of the shorebased IFQ fishery, during the period of January through June of 2012.

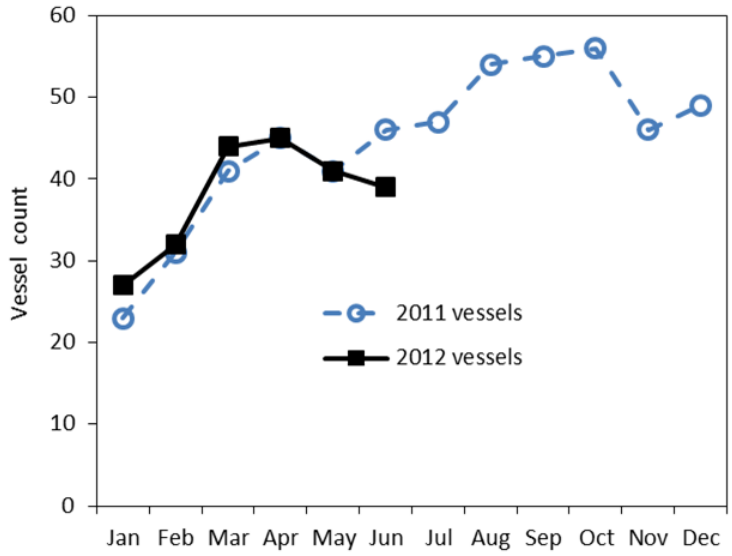
Table 5. Distribution of revenue among species, for the non-whiting IFQ fleet, for January through June of 2011 and 2012.

| 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.




| Month | 2011 vessels | 2012 vessels |
|---|---|---|
| Jan | 23 | 27 |
| Feb | 31 | 32 |
| Mar | 41 | 44 |
| Apr | 45 | 45 |
| May | 41 | 41 |
| Jun | 46 | 39 |
| Jul | 47 | |
| Aug | 54 | |
| Sep | 55 | |
| Oct | 56 | |
| Nov | 46 | |
| Dec | 49 | |
| Total (Jan- Jun) | 64 | 68 |

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

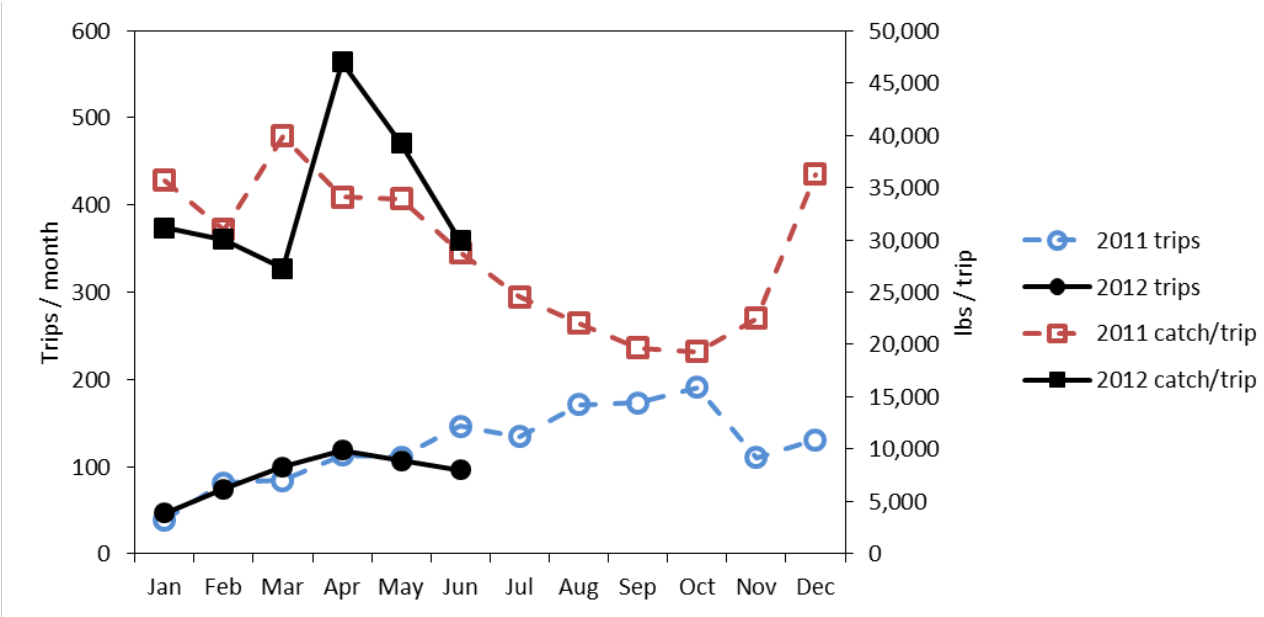



Figure 8. Monthly indicators of non-whiting fleet effort and catch per unit effort, as number of trips (bottom, circles) and catch per trip (top, squares), comparing January through June of 2011, versus 2012.

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% |

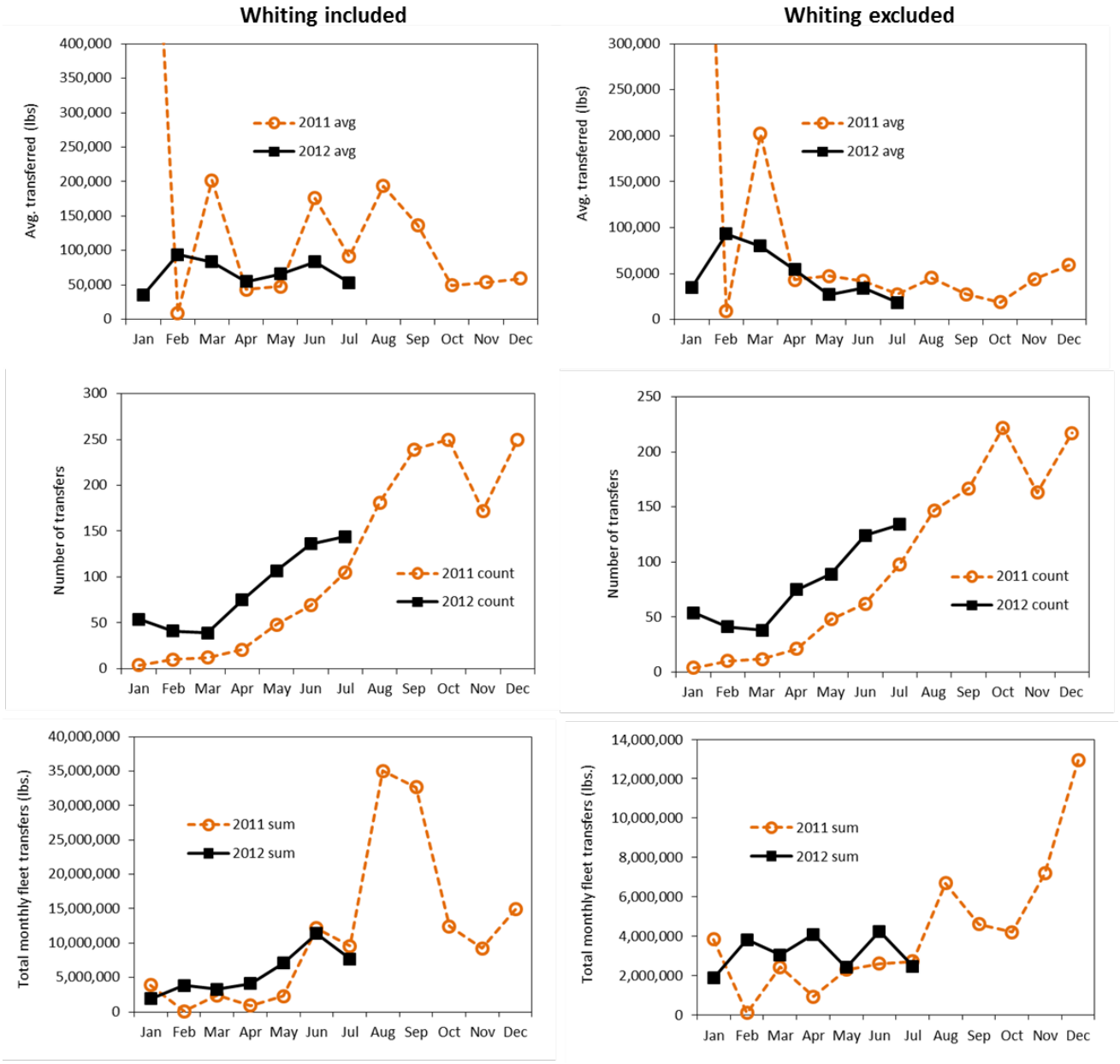



Figure 9. Metrics describing monthly IFQ quota pound transfers from January through June of 2011 and 2012 (vessel account to vessel account), including and excluding Pacific whiting.

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% |

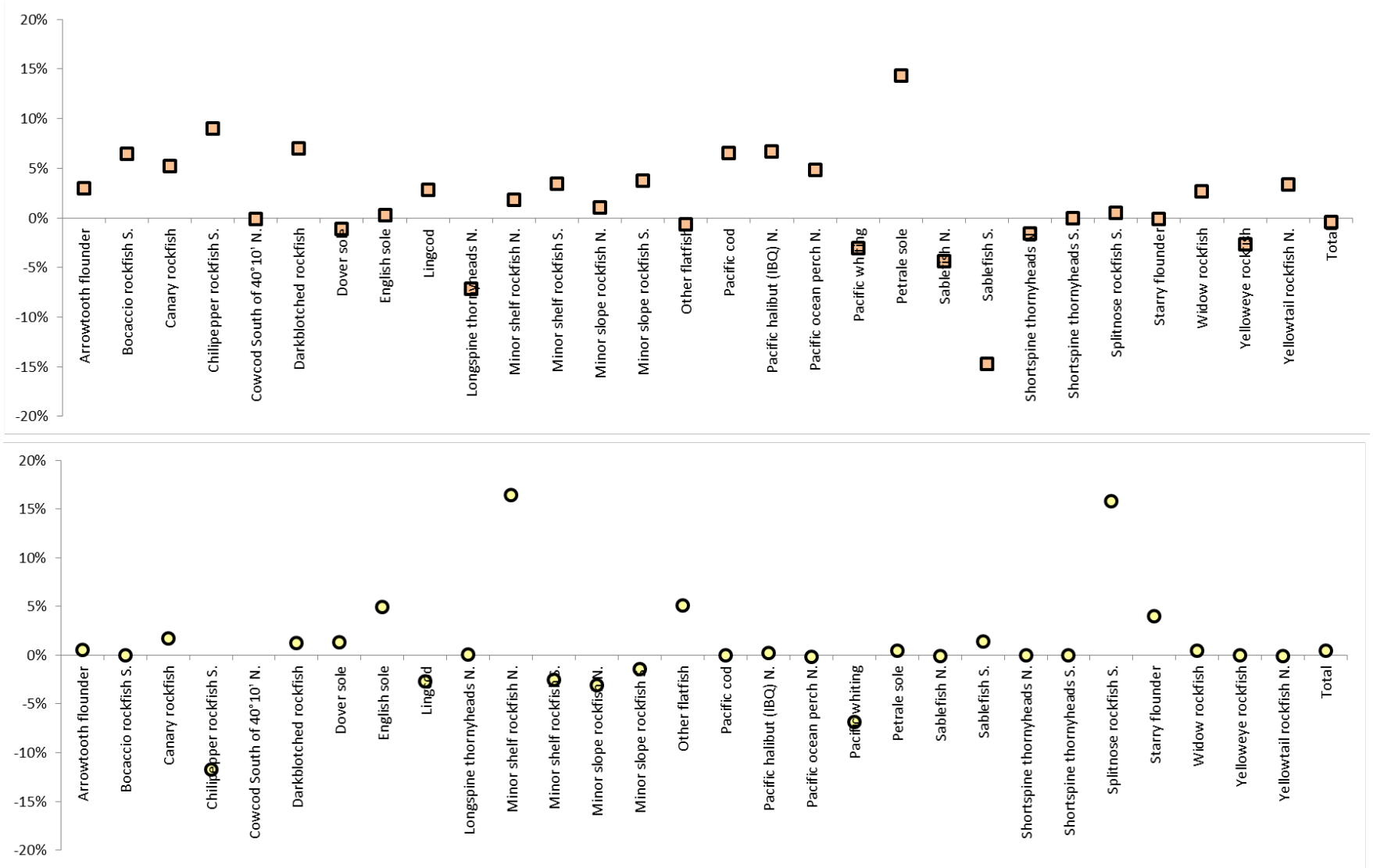



Figure 10. Percent changes in mid-year attainment of IFQ fishery allocations by species for 2011 and 2012 (top, orange-filled squares), and percent changes in retention rates for the non-whiting fleet, in the same fishery, over the same period (bottom, yellow-filled circles).

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% |

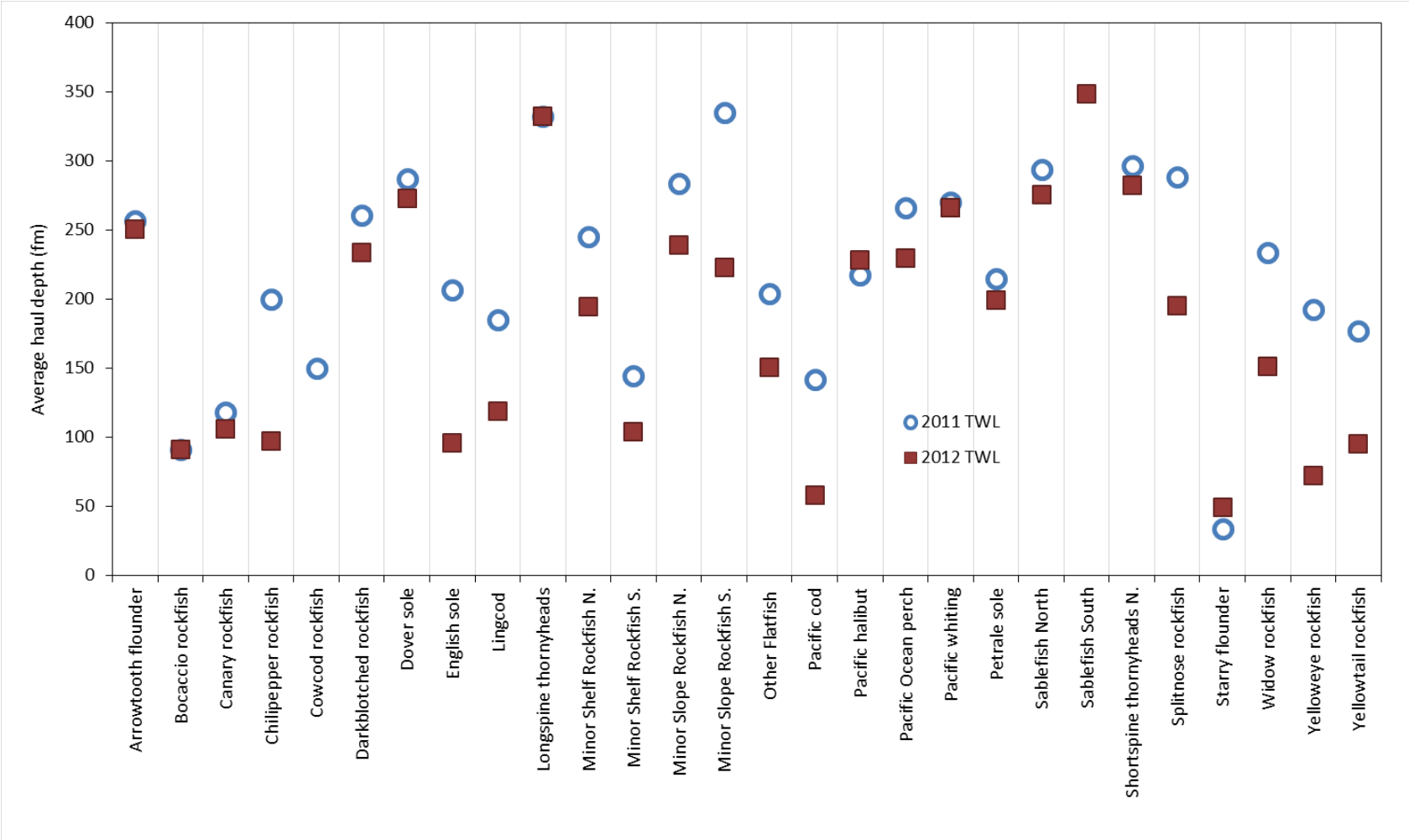



Figure 11. Comparison of average haul depths by IFQ species category, for trawl hauls made during January through May of 2011, and 2012.

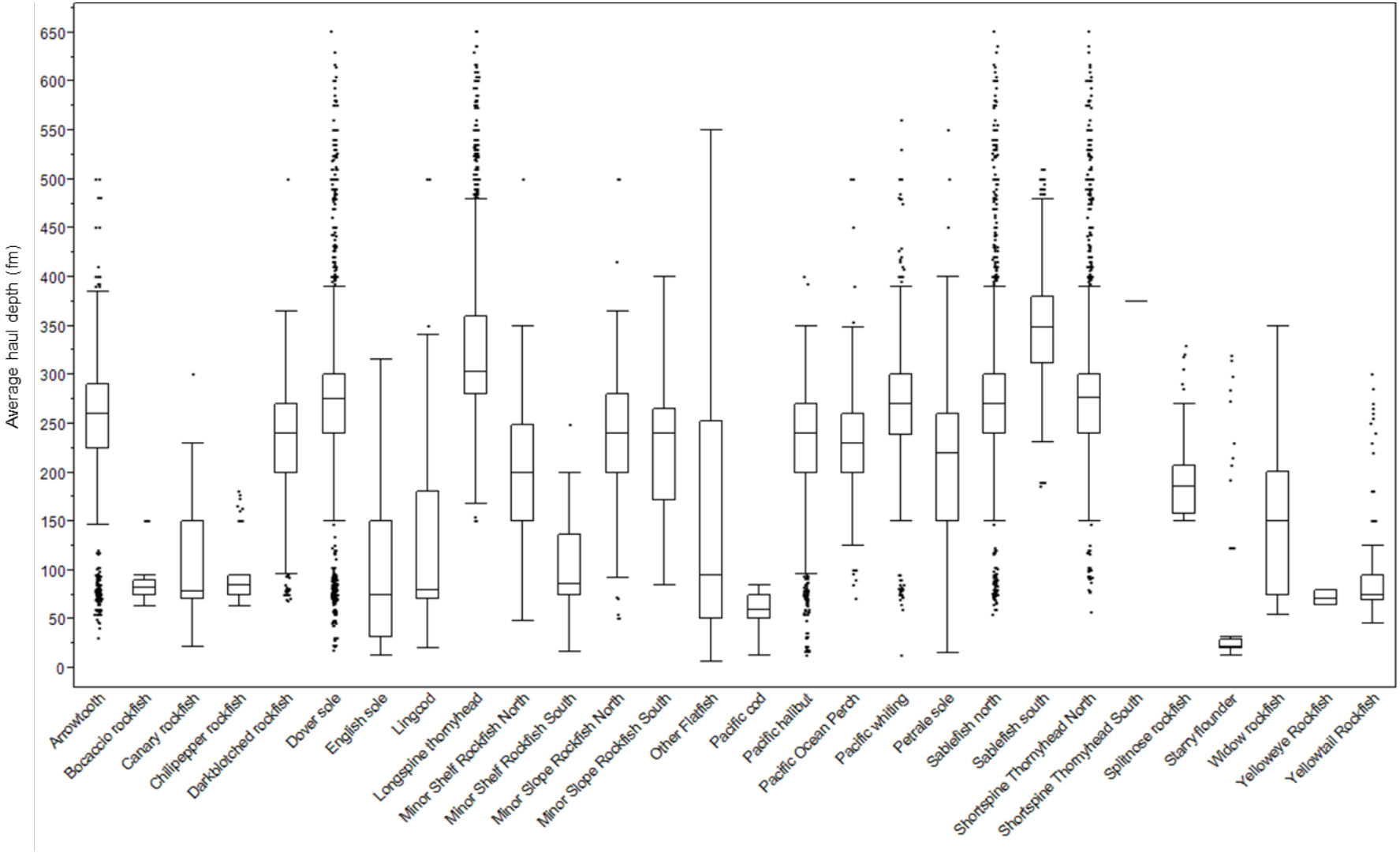



Figure 12. Boxplot showing coastwide mean haul depth values and variation, for IFQ species caught using trawl gear, during January through May of 2012.

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 |
| Petrale 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 |