

## 17 Groundfish Highlight: Update on the New Federal Individual Fishery Quota Program



Photo: Crew members of the F/V San Giovanni haul in a bottom trawl net near Monterey, California.  
Photo Credit: MK Parker, CDFW.

### Overview

A new federal West Coast Individual Fishery Quota (IFQ) program began in January 2011 for the groundfish trawl fishery after eight years under development. Limited entry (LE) trawl permit holders are allocated quota shares (fixed portion of the commercial allocation) of groundfish species and can fish their corresponding quota pounds (quota share multiplied by the commercial allocation) or lease them to others--quota shares are not yet eligible for sale or transfer. Landings from 2011 were compared with the past seven years of the fishery to preliminarily identify how the IFQ program may be changing the fishery in California.

Overall in 2011, fewer LE trawl permits were active and landings decreased by more than one third compared to 2010. However, the value of landings in 2011 did not decrease compared to previous years because many Pacific whiting, *Merluccius productus* (also known as hake), fishermen traded their quota shares for higher value sablefish, *Anoplopoma fimbria*, shares. Landings of Pacific whiting decreased by almost 100 percent because these permit holders leased their quota pounds and did not fish in California—only 10,500 pounds (5 metric tons) of Pacific whiting were landed in California in 2011 compared to an average of 8,244,000 pounds (3,740 metric tons) from 2004-2010.

Landings were made in port complexes from Crescent City south to the Morro Bay area; there is no LE trawl fishery in southern California (south of Point Conception). About 42 percent of the 38 participating vessels engaged in gear switching and made landings almost exclusively using non-trawl gears. Many of the vessels that fished using non-

trawl gears were in the Morro Bay port complex, which also gained in number of active permits/vessels, number of landings, weight of catch landed and ex-vessel value of landings compared to the previous seven years.

## **Groundfish**

There are over 90 species of marine finfish included in the Pacific Coast Groundfish Fishery Management Plan (Groundfish FMP) that was adopted by the Pacific Fishery Management Council (PFMC) in 1982. Since that time, these species have been jointly managed by the states of California, Idaho, Oregon and Washington, coastal tribes, NOAA Fisheries Service, and the PFMC. In general, the Groundfish FMP guides management of many finfish species found within 200 miles (322 kilometers; Exclusive Economic Zone) of the U.S. Pacific coast off Washington, Oregon, and California.

Many species of groundfish are long-lived and slow growing, which makes them vulnerable to heavy fishing pressure. Prior to the late 1990s, management was much less complex; there were fewer regulations pertaining to groundfish in the commercial and recreational fisheries. Since then, many management changes have occurred in the groundfish fishery. For more joint management information on the groundfish fishery in California, including stock status and the recreational fishery, please see the Status of the Fisheries Report Through 2008, Groundfish Overview section (<http://www.wildlife.ca.gov/marine/status/index.asp>).

Overcapacity (too many participants competing to catch a limited amount of fish) has been a recurring problem in the commercial groundfish fishery. During the last 20 years, several management programs were implemented to reduce overcapacity in sectors of the fishery.

- In 1994, the groundfish trawl and sablefish fixed gear fisheries became LE fisheries. Vessels qualified for permits using qualifying criteria that capped effort and reduced capacity in the fleet. However, this did not result in a large enough reduction to the fleet and additional actions were taken in subsequent years to further address overcapacity.
- In 2001, a permit stacking program was implemented for the sablefish fixed gear fishery that allows an individual to own and fish multiple permits on a boat.
- In 2003, the PFMC and NOAA Fisheries Service developed and implemented a trawl vessel buyout program to further reduce capacity in the LE trawl sector. Coastwide, 92 trawl vessels sold their permits/vessel as part of the buyout program, representing one third of the fleet.
- In 2008, a LE program was created for all sectors of the Pacific whiting fishery (motherships, catcher-processors, and catcher vessels). The Pacific whiting trawl fishery is another sector of the groundfish fishery that continues to be over-capitalized. The program was implemented as an interim measure until the IFQ

program (under development for the entire LE trawl sector) could be implemented.

- In 2009, the West Coast IFQ program was adopted by the PFMC and was implemented in January 2011 through the regulatory authority of NOAA Fisheries Service.

### **Individual Fishery Quota Program**

Individual Fishing Quota (IFQ) programs are limited access privilege programs which control catch levels by granting the privilege to catch a specified portion of the total allowable catch to an individual fisherman, community, or other entity. IFQ programs have been developed in many countries across the globe for more than 250 species. Goals of IFQ programs can be to decrease, or eliminate derby-style fisheries, provide fishery participants with more control over when or where they fish, and to decrease the amount of discarded bycatch of non-target species.

There are 15 IFQ programs currently operating in the United States, and more programs are under development. While most IFQ programs cover only one or a few species, the West Coast IFQ program covers 65 species (Table 17-1), making it the most complex IFQ program in the world currently in operation. Because the program covers many Groundfish FMP species throughout the West Coast, some species on the list are not landed in California in great numbers or at all.

Final adoption of the IFQ program occurred in 2009 and included an IFQ system for the shore based Pacific whiting and non-Pacific whiting fisheries, and a co-op provision for the at-sea (catcher vessel and mothership) Pacific whiting sector. Implementation of the program began in January 2011, and fishing commenced January 11, 2011. Holders of LE trawl permits were allocated quota shares based upon past trawl sector fishery participation and corresponding annual quota pounds for various groundfish species. West Coast IFQ program quota shares are not available for sale or transfer until 2013. The sale/transfer provision will allow current participants to leave the fishery if they desire, and for new entrants to the fishery to purchase their own quota shares. Quota pounds are assigned to a vessel and may be leased to individuals/entities for use.

The West Coast IFQ program for federal groundfish was developed through a lengthy and complex process which began in 2003 to find a more efficient way to prosecute the LE trawl fishery while reducing impacts to overfished species (Table 17-1). Overfished groundfish species, such as yelloweye rockfish and cowcod, are the primary drivers of management restrictions in the federal groundfish fishery—including the LE trawl fishery—their populations will be rebuilding for decades. Of the species covered by the West Coast IFQ program, seven are currently designated as overfished by the PFMC. These seven rebuilding species can only be caught and retained if permittees hold enough shares and corresponding quota pounds for the overfished species caught. Lack of quota shares for overfished species, such as rebuilding rockfishes, can shut

down a permittee until additional costly, quota can be leased—so individual permittees typically avoid catching rebuilding species.

| <b>Table 17-1. List of federally managed groundfish species and species complexes included in the trawl IFQ program.</b>  |
|---|
| <b>Roundfish</b>  |
| Lingcod ( <i>Ophiodon elongatus</i> )<br>Pacific cod ( <i>Gadus macrocephalus</i> )<br>Pacific whiting ( <i>Merluccius productus</i> )<br>Sablefish ( <i>Anoplopoma fimbria</i> )   |
| <b>Flatfish</b>   |
| Dover sole ( <i>Microstomus pacificus</i> )<br>English sole ( <i>Parophrys vetulus</i> )<br><b>Petrale sole (<i>Eopsetta jordani</i>)<sup>1</sup></b><br>Arrowtooth flounder ( <i>Atheresthes stomias</i> )<br>Starry flounder ( <i>Platichthys stellatus</i> )<br>Other flatfish stock complex <sup>2</sup>  |
| <b>Rockfish</b>   |
| <b>Pacific ocean perch (<i>Sebastes alutus</i>)</b> north of 40°10' N. lat<br>Widow rockfish ( <i>S. entomelas</i> )<br><b>Canary rockfish (<i>S. pinniger</i>)</b><br>Chilipepper rockfish ( <i>S. goodei</i> ) south of 40°10' N. lat<br><b>Bocaccio (<i>S. paucispinus</i>)</b> south of 40°10' N. lat<br>Splitnose rockfish ( <i>S. diplopora</i> ) south of 40°10' N. lat<br>Yellowtail rockfish ( <i>S. flavidus</i> ) north of 40°10' N. lat<br>Shortspine thornyhead ( <i>Sebastolobus alascanus</i> )<br>Longspine thornyhead ( <i>Sebastolobus altivelis</i> ) north of 34°27' N. lat<br><b>Cowcod (<i>S. levis</i>)</b> south of 40°10' N. lat<br><b>Darkblotched rockfish (<i>S. crameri</i>)</b><br><b>Yelloweye rockfish (<i>S. ruberrimus</i>)</b><br>Minor Rockfish shelf complex <sup>3</sup><br>Minor Rockfish slope complex <sup>4</sup>   |
| <sup>1</sup> Species listed in <b>bold</b> are considered overfished under the Groundfish FMP.  |
| <sup>2</sup> Other flatfish includes butter sole ( <i>Isopsetta isolepis</i> ), curlfin sole ( <i>Pleuronichthys decurrens</i> ), flathead sole ( <i>Hippoglossoides elassodon</i> ), Pacific sanddab ( <i>Citharichthys sordidus</i> ), rex sole ( <i>Glyptocephalus zachirus</i> ), rock sole ( <i>Lepidopsetta bilineata</i> ), and sand sole ( <i>Psettichthys melanostichus</i> ).   |
| <sup>3</sup> Minor rockfish shelf complex includes bronzespotted ( <i>Sebastes gilli</i> ), chameleon ( <i>S. phillipsi</i> ), dusky ( <i>S. ciliatus</i> ), dwarf-red ( <i>S. rufinanus</i> ), flag ( <i>S. rubrivinctus</i> ), freckled ( <i>S. lentiginosus</i> ), greenblotched ( <i>S. rosenblatti</i> ), greenspotted ( <i>S. chlorostictus</i> ), greenstriped ( <i>S. elongatus</i> ), halfbanded ( <i>S. semicinctus</i> ), harlequin ( <i>S. variegatus</i> ), honeycomb ( <i>S. umbrosus</i> ), Mexican ( <i>S. macdonaldi</i> ), pink ( <i>S. eos</i> ), pinkrose ( <i>S. simulator</i> ), pygmy ( <i>S. wilsoni</i> ), redstripe ( <i>S. proriger</i> ), rosethorn ( <i>S. helvomaculatus</i> ), rosy ( <i>S. rosaceus</i> ), shortbelly ( <i>S. jordani</i> ), silvergrey ( <i>S. brevispinus</i> ), speckled ( <i>S. ovalis</i> ), squarespot ( <i>S. hopkinsi</i> ), starry ( <i>S. constellatus</i> ), stripetail ( <i>S. saxicola</i> ), swordspine ( <i>S. ensifer</i> ), tiger ( <i>S. nigrocinctus</i> ), and vermilion ( <i>S. miniatus</i> ) rockfishes. |
| <sup>4</sup> Minor rockfish slope complex includes aurora ( <i>Sebastes aurora</i> ), bank ( <i>S. rufus</i> ), blackgill ( <i>S. melanostomus</i> ), redbanded ( <i>S. babcocki</i> ), rougheyeye ( <i>S. aleutianus</i> ), sharpchin ( <i>S. zacentrus</i> ), shortraker ( <i>S. borealis</i> ), and yellowmouth ( <i>S. reedii</i> ) rockfishes.   |

Development of the IFQ program included input from state and federal governments, non-governmental organizations, the fishing industry and fishing communities, and individuals. The West Coast IFQ program regulations are included within the Groundfish FMP as Amendment 20 and implemented through the Federal Register, 50 CFR, Part 660. Due to the complex nature of the West Coast IFQ program, several trailing actions to Amendment 20 have been developed through the PFMC to address unforeseen and emerging issues within the new fishery. These include exemptions for state-managed trawl fisheries, allowing stacking of multiple LE trawl sector permits on one vessel, providing flexibility in sector set-asides to redistribute unharvested allocations to the fleet, and forming risk pools for overfished species so that individuals and communities can work together to share quota pounds for overfished species and allow greater amounts of target species to be taken.

### **Total Statewide Landings**

In this report, “landings” refers specifically to those landings attributed to LE trawl sector groundfish landings. Landings from 2011 were compared with the past seven years of the fishery to preliminarily identify how the IFQ program may be changing the fishery. Fishing activity and landings information was compiled from January through December of each year from 2004-2011. Landings information are not provided prior to 2004 due to large differences in fishery management before and after that year (e.g., vessel buyout program, implementation of Rockfish Conservation Areas) which make comparisons of landings and fishery behavior before and after that year inappropriate.

#### Total Statewide Landings (including Pacific whiting)

Total statewide pre-IFQ (from 2004-2010) landings made by LE trawl permits averaged just under 20.5 million pounds (9298 metric tons) and showed a negative trend (Figure 17-1). Landings from 2011 totaled 11.2 million pounds (5091 metric tons), a decrease of 47 percent compared to the average yearly pre-IFQ landings—mainly due to a lack of substantial Pacific whiting landings. However, total ex-vessel value of pre-IFQ landings showed a positive overall trend (Figure 17-1) which continued in 2011. While the average price per pound for Dover sole and sablefish had been increasing in recent years, a drastic increase of \$0.12 and \$0.40 respectively, occurred in 2011 compared to average prices from 2010. The increased price per pound for Dover sole and sablefish, combined with an increased domestic and international demand for U.S. west coast groundfish catch, resulted in landings with an ex-vessel value of more than \$10 million in 2011; this was a 13 percent increase in total sector value compared to the average yearly value of pre-IFQ LE trawl sector landings

In 2011, 38 vessels and 39 permits actively fished under the IFQ system in California, compared to an average of 49 vessels and permits that participated in the LE trawl sector fishery each year from the pre-IFQ time period. This represents a 22 percent decrease in permit and vessel participation for 2011. The vessels and permits active in California in previous years, but not active during 2011, were almost exclusively those which historically harvested Pacific whiting and were based out of Oregon.

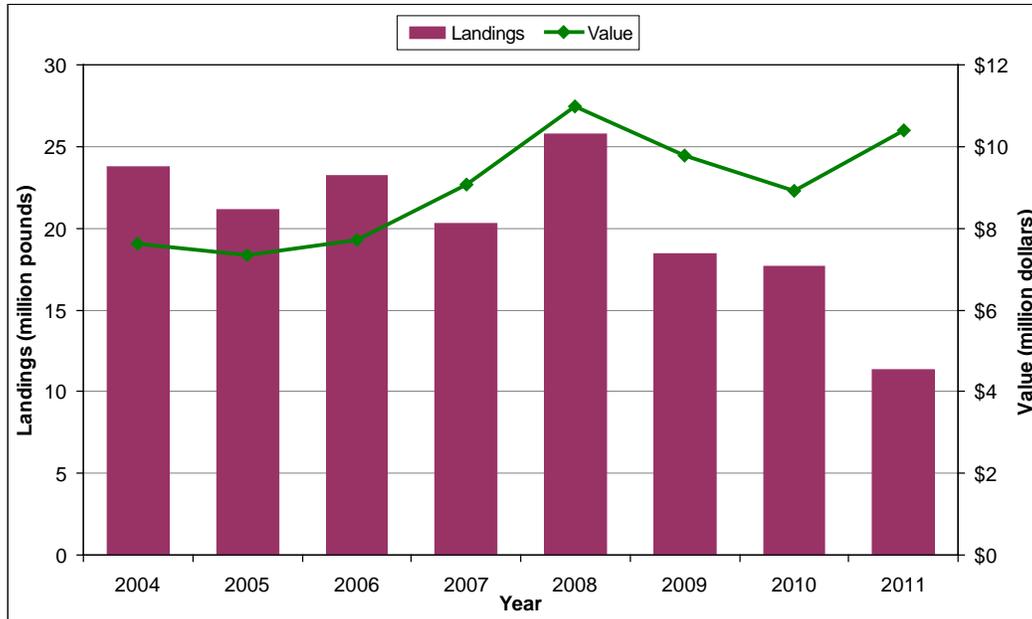


Figure 17-1. Federal groundfish LE trawl fishery landings and value, 2004-2011. Data source: PacFIN data, all species combined including Pacific whiting.

### Landings of Pacific Whiting

From 2004-2010, annual landings of Pacific whiting ranged between about 4 and 12 million pounds (1,800-5,430 metric tons), averaging 8.25 million pounds (3740 metric tons). Landings of Pacific whiting fluctuated from year-to-year, but showed an overall negative trend from 2004-2011 (Figure 17-2). Stock assessments showed a decreasing abundance of Pacific whiting and, consequently, annual catch limits were reduced. The large decrease in landings during 2009 was due to a “stand down” within the fleet; as the fishery approached overfished species bycatch limits, fishery participants stopped fishing and did not extract the entire optimum yield for the year. In 2011, landings of Pacific whiting in California decreased sharply to just over 10,500 pounds (about 5 metric tons) because the holders of Pacific whiting quota shares in California traded their Pacific whiting quota pounds for more valuable sablefish quota pounds. The lack of Pacific whiting landings during 2011 accounts for almost all of the decrease in total groundfish landings that year. However, no decline in overall groundfish ex-vessel value occurred because Pacific whiting is a high volume, low value fishery. The average annual pre-IFQ ex-vessel value of the Pacific whiting fishery in California was about \$500,000; during 2011 the total ex-vessel value of Pacific whiting landings in California was \$83.

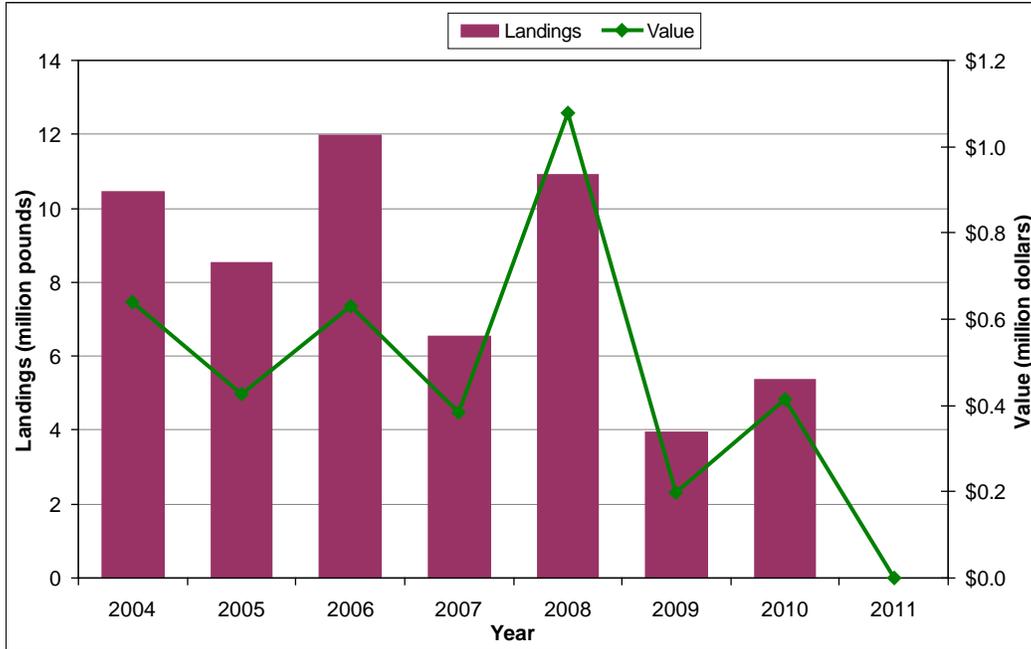


Figure 17-2. Pacific whiting LE trawl landings, 2004-2011. Data source: PacFIN data.

### Landings of Non-Whiting Groundfish

Approximately 11,213,000 pounds (5087 metric tons) of non-Pacific whiting landings were reported for 2011. This is a 15 percent decrease compared to the average pre-IFQ landings (Figure 17-3) but within the pre-IFQ period range. However, there was an eighteen percent increase in ex-vessel value in 2011, compared to the average pre-IFQ ex-vessel value, mostly due to the increased value of Dover sole and sablefish.

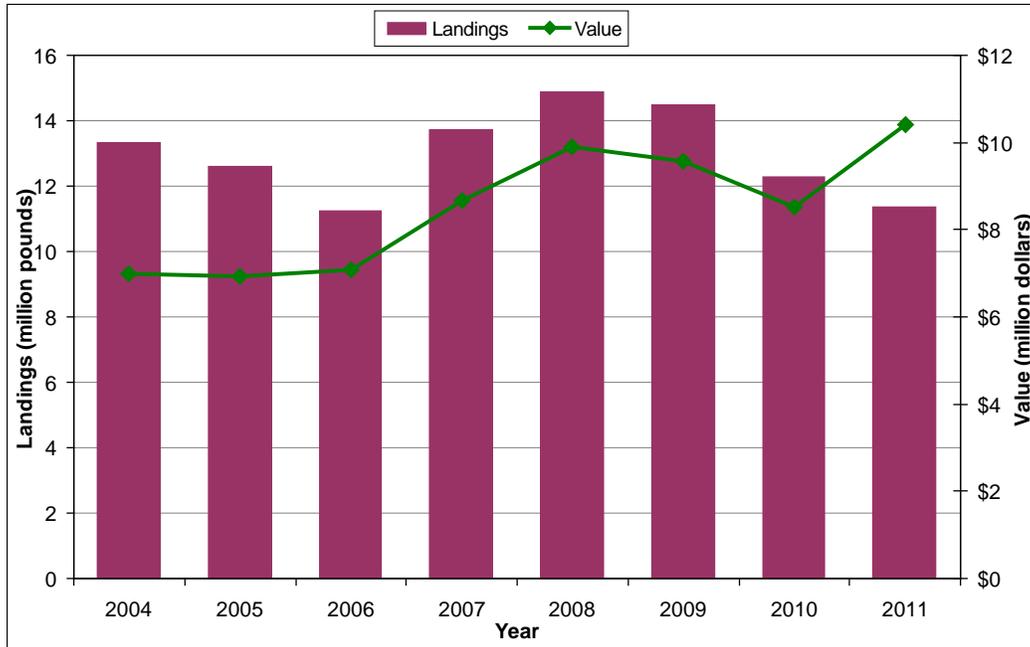


Figure 17-3. Non-whiting federal groundfish LE trawl landings and value, 2004-2011. Data source: PacFIN data, all species combined except Pacific whiting.

### Landings by Month

Landings from the LE trawl fishery were slow to accumulate during the first half of 2011 due to: 1) the fishery participants still learning how to operate their businesses within the IFQ program, and, 2) the strong Dungeness crab fishery, which delayed changing both gears and fishing activities from crab to groundfish. June 2011 was the first month of the year during which non-Pacific whiting landings were comparable to the average pre-IFQ landings [Figure 17-4; approximately 1.1 million pounds (520 metric tons)]. From August through December 2011, the monthly non-Pacific whiting landings exceeded the average pre-IFQ monthly landings (Figure 17-4) by as much as 470,000 pounds (213 metric tons) and in December exceeded the average pre-IFQ landings by 40 percent. The ex-vessel value and landings of non-Pacific whiting in 2011 display a similar trend; the ex-vessel value from 2011 exceeded the average pre-IFQ monthly value from June through December (Figure 17-4), and exceeded the average pre-IFQ monthly ex-vessel value by \$725,000 in September.

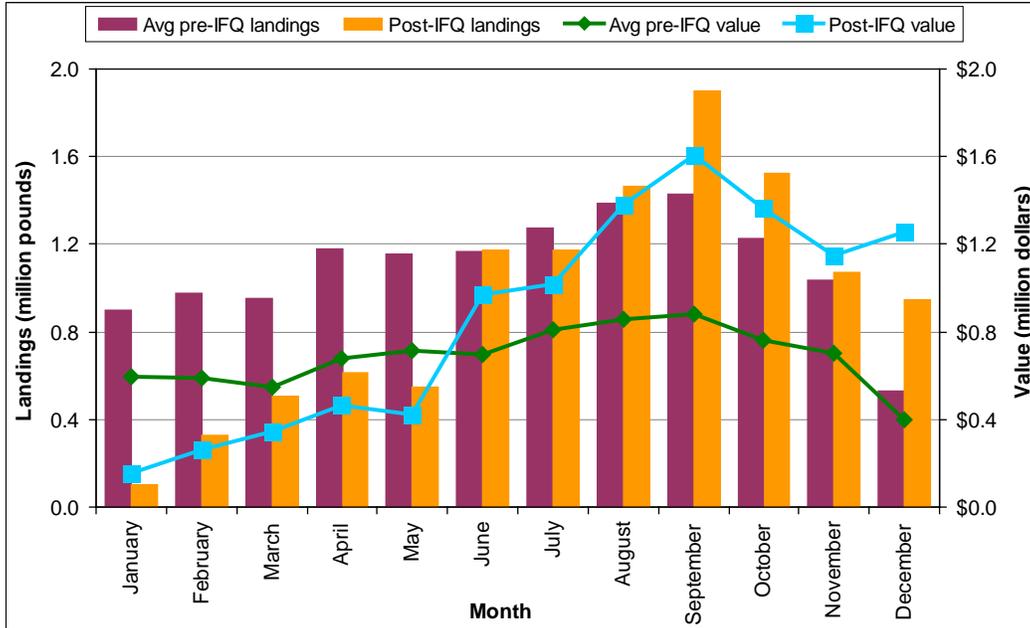


Figure 17-4. Non-whiting federal groundfish LE trawl fishery monthly landings and value, pre- and post-IFQ implementation. Data source: PacFIN data, all species combined except Pacific whiting.

### Landings by Port Complex

Effort in the LE trawl sector in California is focused primarily north of Fort Bragg (Figure 17-5). Since 2006 there have been no landings attributable to LE trawl permits south of Morro Bay. Average pre-IFQ landings in the Eureka and Crescent City port complexes ranged from 5 million to just under 10 million pounds (2267 to 4540 metric tons) landed per year. Much of the effort in these port complexes during the pre-IFQ period focused on the Pacific whiting fishery. A large drop occurred in landings in these port complexes in 2011, due to the lack of Pacific whiting landings. The large drop in landings during 2011 in the San Francisco port complex is due, in large part, to reductions in landings of Petrale sole and other co-occurring species (see Species Composition above). Conversely, landings and value of landings in the Morro Bay port complex increased during 2011, compared to the pre-IFQ landings average; more vessels were fishing than in previous years due to the high market value of sablefish.

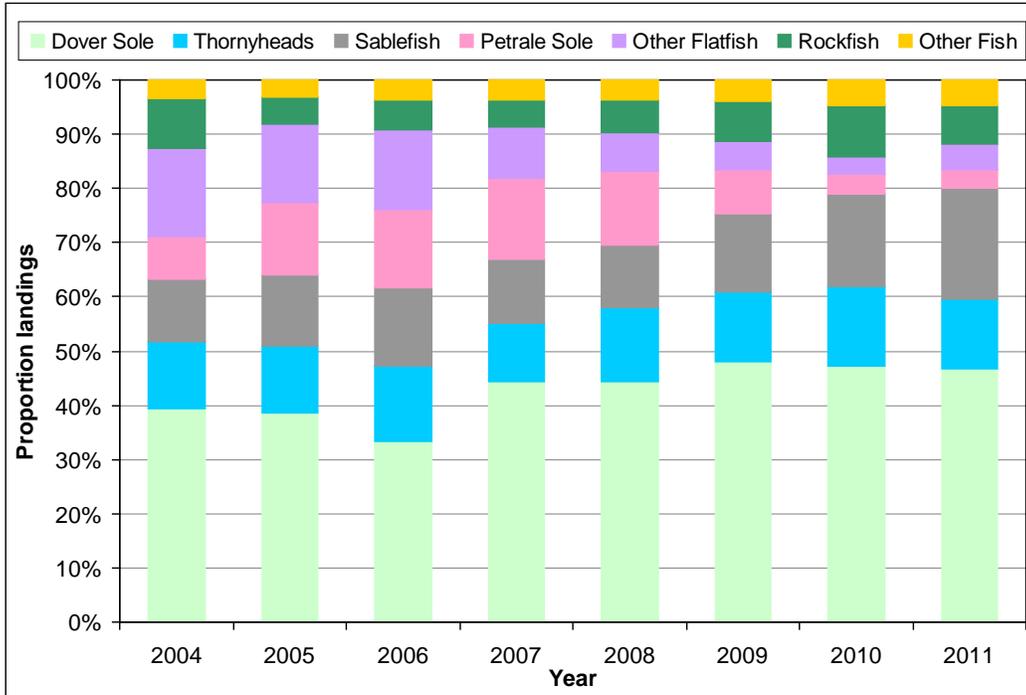


Figure 17-5. Non-whiting federal groundfish LE trawl fishery landings by species, 2004-2011. Data source: PacFIN data, all species combined except for Pacific whiting.

## Gear Switching

Part of the IFQ program is referred to as gear switching and it allows IFQ pounds to be harvested using fixed gear (also known as non-trawl, which includes trap and hook-and-line gears). Gear-switching from trawl to fixed gear is allowed once in the same calendar year per permit and landings continue to count against one's quota allowance. The use of trawl and fixed gears on the same trip is not allowed. The purpose of gear switching is to promote the development and use of innovative gears and fishing techniques, particularly the use of fishing gears that are considered to be less detrimental to the ocean environment, specifically the sea floor. In 2011, 10 percent of the weight of non-Pacific whiting landings from the IFQ program were made using non-trawl gear and 16 of the 38 vessels (or 42 percent) participating in the fishery made landings that counted against their quota using fixed gears. Of the species covered by the IFQ program, sablefish was the most frequently landed species using fixed gears during 2011. That year, 2.2 million pounds (1010 metric tons), or 48 percent, of the sablefish IFQ landings were made using fixed gears, which generally command higher market prices than fish caught using trawl gears.

## Species Composition

Landings of all species and species groupings decreased in 2011, except for sablefish, which experienced a 20 percent increase in landings compared to the average pre-IFQ period. Dover sole, thornyhead, and sablefish (DTS) complex landings increased

approximately 15 percent from 2004-2011, accounting for 80 percent of non-whiting landings (Figure 17-6) in 2011. Landings of DTS complex species accounted for \$6.9 million, or 88 percent, of the total 2011 LE trawl revenue. Conversely, landings of Petrale sole and other flatfish, besides Dover sole, declined sharply beginning in 2009 due to the overfished status determination for Petrale sole (2009) and subsequent management restrictions adopted to reduce landings of Petrale sole (for more information, see the section on Petrale Sole in this report). Since multiple species of flatfish are often caught together in the trawl sector, restrictions to Petrale sole landings also affected landings of other flatfish species, other than Dover sole.

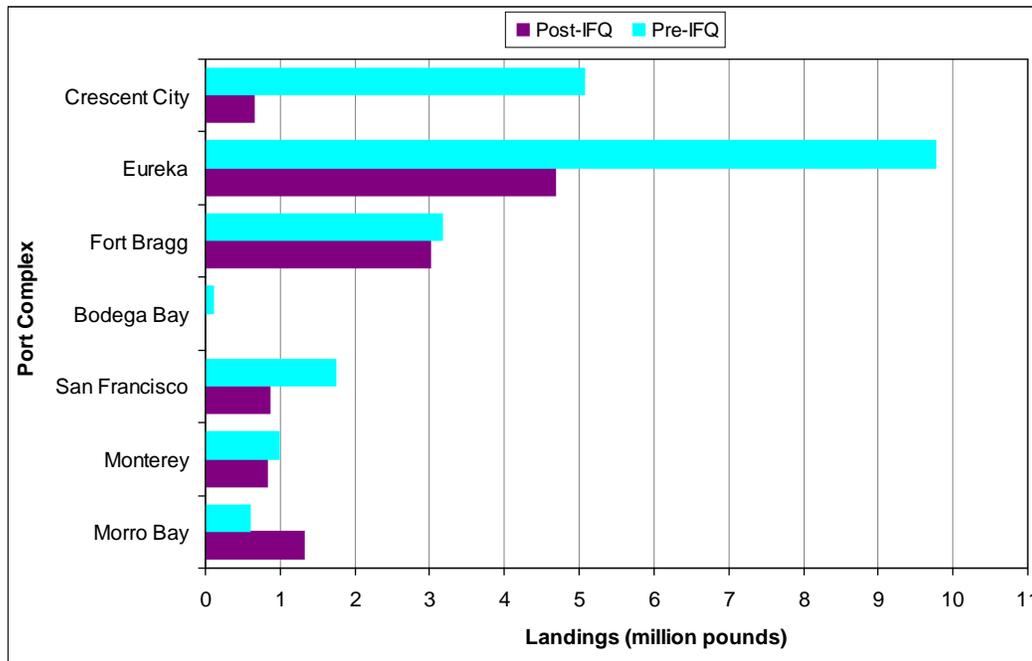


Figure 17-6. Federal groundfish LE trawl fishery landings, pre- and post-IFQ implementation. Data source: PacFIN data, all species combined including Pacific whiting. Pre-IFQ data are averaged from 2004-2010, post-IFQ data are from 2011. No LE trawl landings were made south of Morro Bay.

### Catch of Overfished Species

Historically, accounting for bycatch of overfished species has been complicated and, as a result, initially distributing limited quota shares for overfished species was challenging. Retention of overfished species was prohibited, so few landings were available with which to distribute catch shares based upon past fishing effort. In addition, obtaining information at a state level can also be challenging. Overfished species quota shares are very limited, but often necessary to prosecute the fishery, so their use has significant importance to IFQ program development and success.

The IFQ program requires 100 percent observer coverage for all LE trawl trips, and all catch of overfished species is accounted for, even though much is still discarded at sea. Cowcod landings provide some indication of whether overfished species bycatch

knowledge is improving because cowcod are only caught in California and have a very low bycatch quota. During the pre-IFQ period, landings of cowcod were only reported in 2004 (65 pounds; 29 kilograms) and 2007 (758 pounds; 344 kilograms). Cowcod were likely encountered more often than that, but were discarded at sea and therefore not in reported landings. West Coast Groundfish Observer Program data provides more complete overfished species catch data than landings alone, but prior to the IFQ program's implementation, not all LE trawl trips had a West Coast Groundfish Observer onboard. During the first year of the IFQ program and full observer coverage, 39 pounds (18 kilograms) of cowcod were caught in California and counted against the overfished species quota pounds; landings records report only 32 pounds (15 kilograms) of cowcod landed during the same period. This 100 percent tracking will provide better information for future management decisions as total catch amounts will be known.

### **Catch Per Unit Effort**

Catch-per-unit-effort (CPUE), measured as the average number of pounds of fish landed per trip, can be an indicator of the efficiency of the fleet and/or the health of the fishery resource. The overall CPUE of the LE trawl fishery fluctuated from year to year and was heavily influenced by Pacific whiting landings. Years when more Pacific whiting were landed had higher CPUE values than years with less Pacific whiting (Figure 17-7). Total LE trawl sector CPUE was 15,188 pounds (6.89 metric tons) during 2011, which is only 560 pounds (0.25 metric tons) less than the average pre-IFQ CPUE.

The largest decrease in CPUE for Pacific whiting landings (Figure 17-8) occurred between 2010 and 2011 which would be expected since landings during 2011 decreased by almost 100 percent compared to pre-IFQ years. Prior to the decline of Pacific whiting landings during 2011, Pacific whiting generally had a high CPUE—often more than 100,000 pounds (45 metric tons) per trip, because of the high volume nature and limited season length of the Pacific whiting fishery.

When Pacific whiting are removed from the overall landings (Figure 17-7), a positive trend of increasing CPUE is seen in the non-Pacific whiting landings. While fewer vessels participated in the fishery during 2011, and fewer trips were made, the average per trip weight of non-Pacific whiting landings increased 27 percent compared to 2010. The CPUE for non-Pacific whiting landings in 2011 was 15,174 pounds (6.88 metric tons), which is 5,392 pounds (2.45 metric tons) more than the pre-IFQ period average non-Pacific whiting CPUE – meaning the fleet was more efficient.

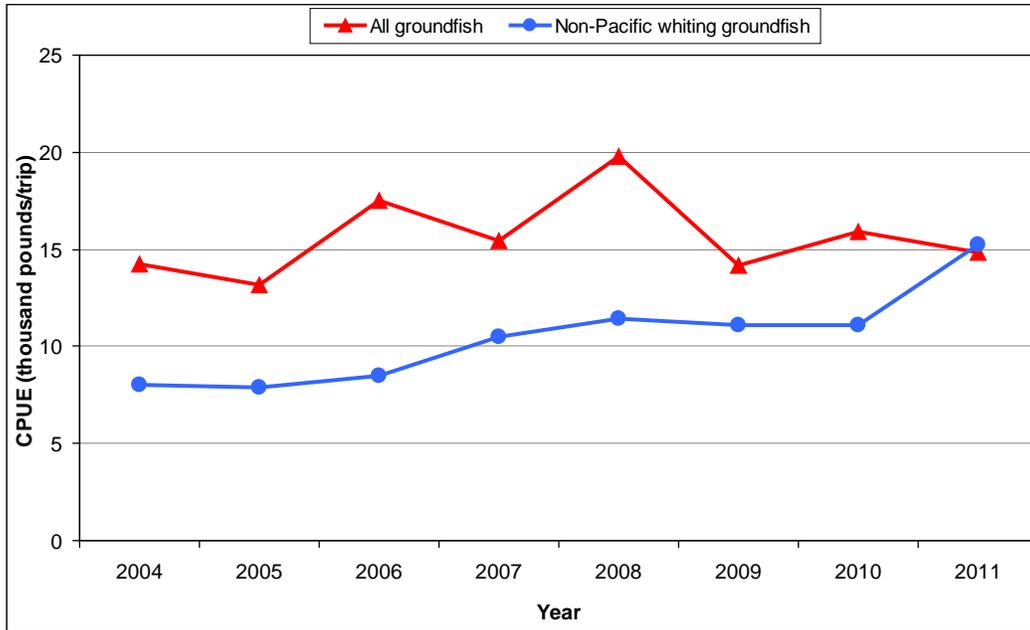


Figure 17-7. Federal groundfish LE trawl fishery CPUE (pounds per trip), 2004-2011. Data source: PacFIN data.

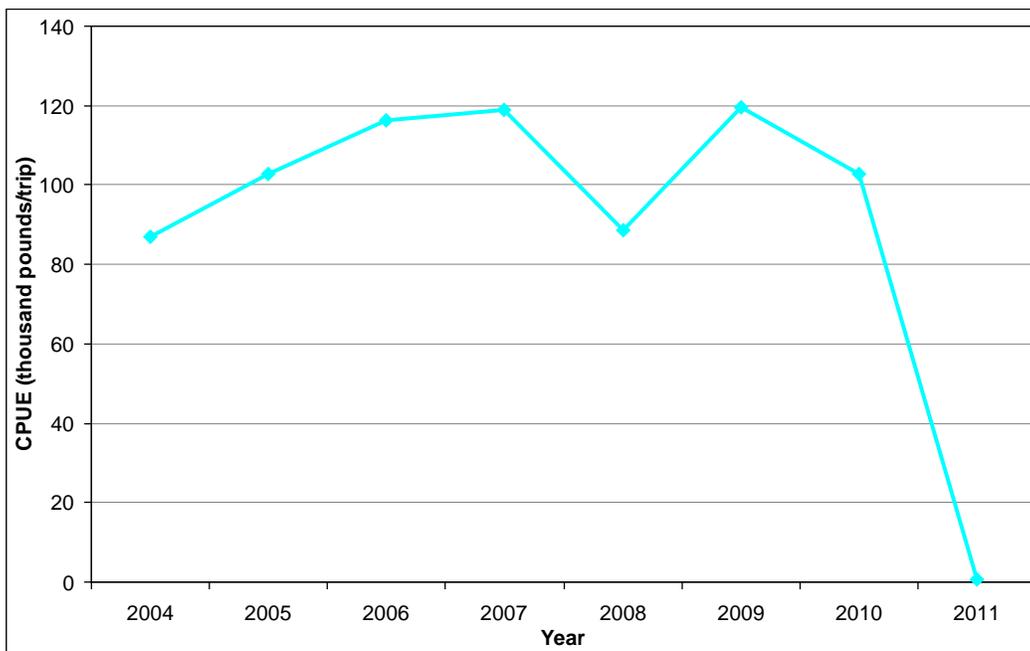


Figure 17-8. Pacific whiting federal LE trawl CPUE (pounds per trip), 2004-2011. Data source: PacFIN data.

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## Further Reading

Branch TA. 2009. How do individual transferable quotas affect marine ecosystems? *Fish and Fisheries* 10(1):39–57.

Chu C. 2009. Thirty years later: the global growth of ITQs and their influence on stock status in marine fisheries. *Fish and Fisheries* 10(2):217-230

Sanchirico JN, Holland D, Quigley K, Fina M. 2006. Catch-quota balancing in multispecies individual fishing quotas. *Marine Policy* 30(6):767-785

For more information on the federal IFQ program go to the PFMC's website at:  
<http://www.pcouncil.org/groundfish/fishery-management-plan/fmp-amendment-20/>

or visit the NOAA Fisheries Service website at:

<http://www.nwr.noaa.gov/Groundfish-Halibut/Groundfish-Fishery-Management/Trawl-Program/index.cfm>

For more information on groundfish and groundfish management in California go to the California Department of Fish and Wildlife's Groundfish Central website at:

<http://www.wildlife.ca.gov/marine/groundfishcentral/index.asp>.

| Groundfish LE trawl landings and value, 2004-2011. |                                |              |                 |             |                |              |
|--|--------------------------------|--------------|-----------------|-------------|----------------|--------------|
| Year   | Non-Pacific whiting groundfish |              | Pacific whiting |             | All groundfish |              |
|  | Pounds                         | Value        | Pounds          | Value       | Pounds         | Value        |
| 2004   | 13,325,265                     | \$6,989,275  | 10,453,874      | \$640,860   | 23,779,139     | \$7,630,136  |
| 2005   | 12,596,050                     | \$6,928,066  | 8,543,526       | \$427,176   | 21,139,576     | \$7,355,243  |
| 2006   | 11,259,883                     | \$7,089,111  | 11,968,718      | \$630,709   | 23,228,601     | \$7,719,820  |
| 2007   | 13,719,101                     | \$8,682,936  | 6,541,721       | \$384,667   | 20,260,822     | \$9,067,603  |
| 2008   | 14,887,327                     | \$9,893,611  | 10,900,438      | \$1,079,336 | 25,787,764     | \$10,972,948 |
| 2009   | 14,460,122                     | \$9,583,530  | 3,950,314       | \$197,083   | 18,410,436     | \$9,780,612  |
| 2010   | 12,281,157                     | \$8,507,844  | 5,351,328       | \$413,995   | 17,632,485     | \$8,921,839  |
| 2011   | 11,351,343                     | \$10,398,366 | 10,504          | \$83        | 11,361,847     | \$10,398,449 |

Data source: PacFIN data, all species including Pacific whiting.

| <b>Non-Pacific whiting groundfish LE trawl landings by month, 2004-2011.</b> |                |              |                 |              |
|--|----------------|--------------|-----------------|--------------|
| <b>Month</b>   | <b>Pre-IFQ</b> |              | <b>Post-IFQ</b> |              |
|  | <b>Pounds</b>  | <b>Value</b> | <b>Pounds</b>   | <b>Value</b> |
| <b>January</b>   | 899,217        | \$595,292    | 98,464          | \$155,778    |
| <b>February</b>  | 976,863        | \$589,645    | 329,403         | \$261,366    |
| <b>March</b>   | 952,048        | \$545,227    | 508,251         | \$346,877    |
| <b>April</b>   | 1,177,161      | \$681,538    | 613,623         | \$466,256    |
| <b>May</b>   | 1,155,913      | \$715,934    | 545,404         | \$420,318    |
| <b>June</b>  | 1,164,067      | \$696,046    | 1,172,392       | \$968,007    |
| <b>July</b>  | 1,275,913      | \$807,716    | 1,174,770       | \$1,017,883  |
| <b>August</b>  | 1,389,426      | \$857,341    | 1,461,428       | \$1,383,311  |
| <b>September</b>   | 1,431,008      | \$883,761    | 1,901,029       | \$1,609,726  |
| <b>October</b>   | 1,228,824      | \$764,760    | 1,525,949       | \$1,365,346  |
| <b>November</b>  | 1,037,941      | \$702,637    | 1,071,491       | \$1,148,894  |
| <b>December</b>  | 530,034        | \$399,297    | 949,139         | \$1,254,602  |

Data source: PacFIN data, all species combined except for Pacific whiting. Pre-IFQ data are averaged from 2004-2010, post-IFQ data are from 2011.

| <b>Groundfish LE trawl landings by port complex, 2004-2011.</b> |                |                 |
|---|----------------|-----------------|
| <b>Port complex</b>   | <b>Pre-IFQ</b> | <b>Post-IFQ</b> |
|   | <b>Pounds</b>  | <b>Pounds</b>   |
| <b>Crescent City</b>  | 5,073,206      | 656,936         |
| <b>Eureka</b>   | 9,763,915      | 4,673,853       |
| <b>Fort Bragg</b>   | 3,172,106      | 3,012,512       |
| <b>Bodega Bay</b>   | 110,168        | 5,733           |
| <b>San Francisco</b>  | 1,748,154      | 866,239         |
| <b>Monterey</b>   | 982,009        | 819,131         |
| <b>Morro Bay</b>  | 601,713        | 1,327,442       |

Data source: PacFIN data, all species combined including Pacific whiting. Pre-IFQ data are averaged from 2004-2010, post-IFQ data are from 2011. No LE trawl landings were made south of Morro Bay.