

## To learn more:

[www.westcoast.fisheries.noaa.gov/fisheries/groundfish\\_catch\\_shares/index.html](http://www.westcoast.fisheries.noaa.gov/fisheries/groundfish_catch_shares/index.html)

## Questions?

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**NOAA  
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## Observing the Fishery

The West Coast Groundfish Observer Program continues to provide 100% observer coverage as required by federal regulations supporting the Pacific Fishery Management Council recommendations for individual accountability. The program deployed on average 116 observers on 117 vessels in the shoreside IFQ sectors in 2013-2014. Sea days averaged about 7,000 in those sectors as well as another 1,500 sea days in the at-sea fisheries. That is about 25 "sea-years" worth of data per year! In the catch shares fishery, observers prioritize sampling of protected and overfished species as well as IFQ species for quota management. Observers collect a large suite of fishery-dependent data, such as fishing location and duration, species caught and retained or discarded, biological data including genetic samples and otoliths, and information on interactions with protected species. In addition to providing individual accountability and discard data to allow fishermen to manage their IFQ quotas, observer data is regularly used in stock assessments, fisheries research, and ocean management. Observers and observer data were also used to help further electronic monitoring research in the different sectors of the Catch Share Program.



## Exploring Electronic Monitoring

The Pacific Fishery Management Council and NOAA Fisheries continued exploring the use of electronic monitoring as a possible option to help reduce the cost of fisheries observers in shore-based and mothership fisheries. The fisheries require 100 percent observer coverage but the subsidy program that helps cover the cost of observers is expected to be phased out in 2016. The Pacific Fishery Management Council adopted electronic monitoring methods for the whiting midwater trawl, non-whiting midwater trawl, fixed gear and bottom trawl fisheries in 2014. The methods will be tested under exempted fishing permits in 2015 and 2016, with the expectation of developing electronic monitoring regulations for the whiting fishery in 2016 and the fixed gear and bottom trawl fisheries in 2017.

## The West Coast Catch Shares Program

# 2015 UPDATE FOR THE WEST COAST CATCH SHARES PROGRAM



November 2015



Three years into the Catch Shares Program for the West Coast groundfish fishery, fishermen continue to benefit from increased flexibility while reduced bycatch of overfished species helps rebuild stocks. Fishermen are keeping more of the fish they catch, as well as landing more fish and earning more revenue for each fishing trip. NOAA Fisheries continues to work with the groundfish fleet to assure the program operates cost-effectively.



**NOAA  
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# Introduction

The third year of catch shares in the West Coast groundfish fishery continued many of the positive trends observed in the first two years: improved catch of target species; reduced bycatch; and greater landings and revenues per fishing trip. These results fulfill many of the original goals of catch shares, which replaced the previous race by vessels to catch as many fish as possible, as fast as possible, with a balanced approach that apportions the fishery into predetermined shares. Catch shares gives fishermen newfound flexibility to pursue their catch more efficiently depending on the weather, market conditions, and other factors. The result is a safer, more efficient fishery, with fishermen making more of their own decisions on how, when and where to fish.

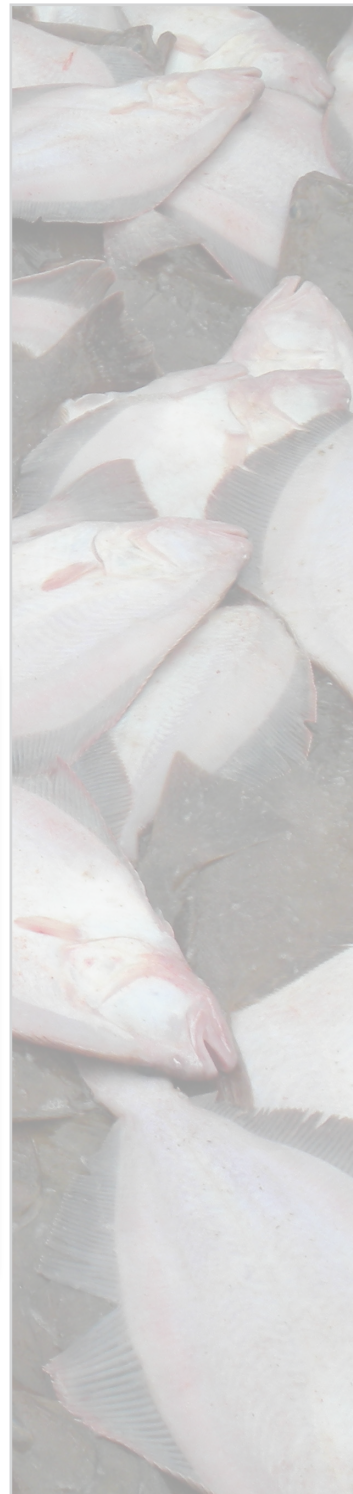
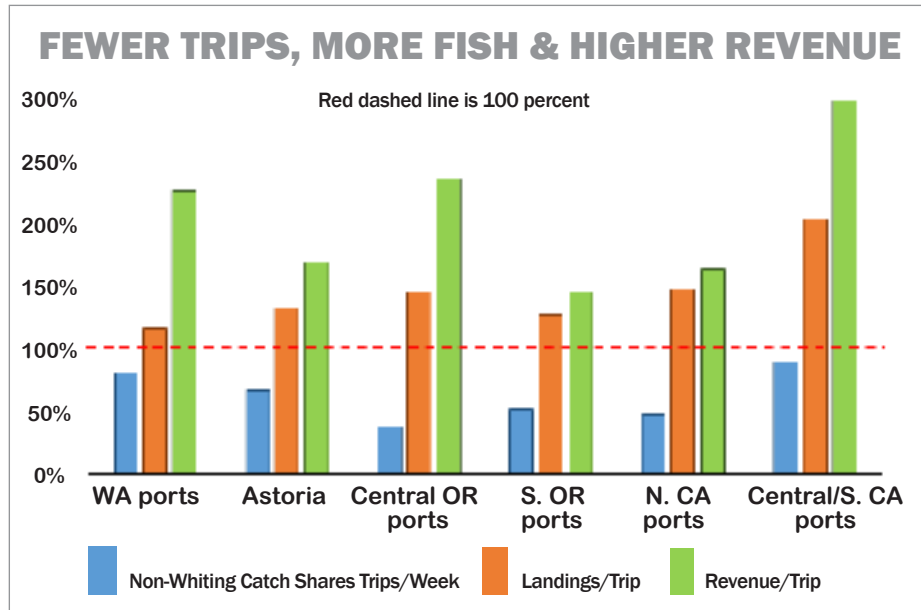
In 2014, NOAA Fisheries began charging fishermen for the cost of administering the program, as the law requires. Any new cost creates challenges, and the fleet has stressed to NOAA Fisheries that this cost is no different. The concerns underscore the importance of administering the Catch Shares Program cost-effectively. As expected, federal reimbursement for the cost of required fisheries observers has been gradually reduced. NOAA Fisheries continues to explore options to reduce observer costs, such as allowing new observer providers to enter the fishery, while exploring alternative options such as electronic monitoring.

## Increasing Efficiency

Vessels are making fewer trips per week but catching more fish and earning more revenue per trip under catch shares than they did previously, a sign of improving efficiency. The average annual revenue per trip doubled in many ports. The total non-whiting catch rose about 3.5 million pounds in 2013 compared to 2012 and fishermen caught 7 percent more of their quota. Non-whiting landings and revenue from bottom-trawl gear remained consistently high under catch shares, and with mid-water trips, landings and revenues increased rapidly into 2013 with substantial catches of yellowtail rockfish and widow rockfish. The exception was non-trawl landings and revenue, which have dropped consistently through 2012 and 2013. The decline was likely related to reduced prices for sablefish, the primary non-trawl target species.

As expected, overall participation in the fishery has dropped slightly in each year under catch shares, in terms of the number of vessels fishing. The total number of vessels with a recorded catch fell from 105 in 2012 to 103 in 2013, with the number making non-whiting trips dropping from 91 in 2012 to 88 in 2013.

Right: Average values for three metrics from the West Coast Catch Shares Program as a percent of their corresponding average values pre-catch shares. Metrics expressed in this manner include, from left to right, number of non-whiting catch shares trips per week (vessel-days, blue columns), average trip size (landed pounds round weight, orange columns), and revenue per trip (dollars per trip, green columns). For example, average weekly trip frequency in Astoria during the Catch Shares Program was 68 percent of what it was before the Catch Shares Program was established, but the average trip size in the Catch Shares Program is 135 percent, and average revenue per trip in the Catch Shares Program is 172 percent of what it was before the Catch Shares Program was established. The pattern is consistent across port groups.



# Pacific Coast Groundfish Fishery Social Study

The Pacific Coast Groundfish Fishery Social Study is a multi-year study designed to measure social changes in affected fishing communities resulting from the Catch Shares Program. Following extensive social data collection using surveys and interviews in 2010 and 2012, NOAA Fisheries social scientists presented the first findings of this study to the Pacific Fishery Management Council in late 2014. This initial report presents new information under the themes of Graying of the Fleet, Changing Social Relationships, Program Perceptions, and Fisheries Participation. Brief summaries of the initial findings are presented here. NOAA is continuing to analyze the data for community comparisons, social network analysis, and the analysis of return respondents. Additional data collection to observe later year trends will occur in late 2015/early 2016. Results will inform the 5-year review of the program.

**Changing Social Relationships**  
The data show that some changes are occurring in social relationships, however as the data were collected only a year or so after implementation, additional relationship changes are expected to occur with time. Initial changes were noted between fishermen and observers. The results indicated most relationships were positive; however an increase in negative

relationships was identified. Where information was provided to describe these changing relationships with observers, fishermen indicated that 1. they were new and developing relationships, 2. they have to pay for observers, 3. observers are required 100% of the time, 4. there were inconsistencies between the observers assigned to a vessel (different ones each time), and 5. some observers made mistakes and were viewed as inexperienced. Difficulties for processors focused on the ability to keep plant laborers working year-round. Improvements include relationships between processors and permit holders who had to work together to make the catch shares system successful.

**Catch Share Program Perceptions**  
Findings show more support of the program following implementation from all surveyed participants. Differences of how they perceived the program are based on what people expected versus their actual experiences. Data also suggest more informed individuals are more likely to support the program. The top reason to support the program in both years of data collection was the benefit of reducing bycatch, while the top reason not to support the program in 2010 was the negative impact to the community from boats leaving the fishery. Post-implementation, the top reason reported not to support the program shifted

to concerns with required, for-cost observer coverage. Some fishermen also felt the cost for the observers was disproportionate for smaller vessels, as they have to pay the same costs as larger vessels, which are perceived to have a larger profit margin to absorb the costs.

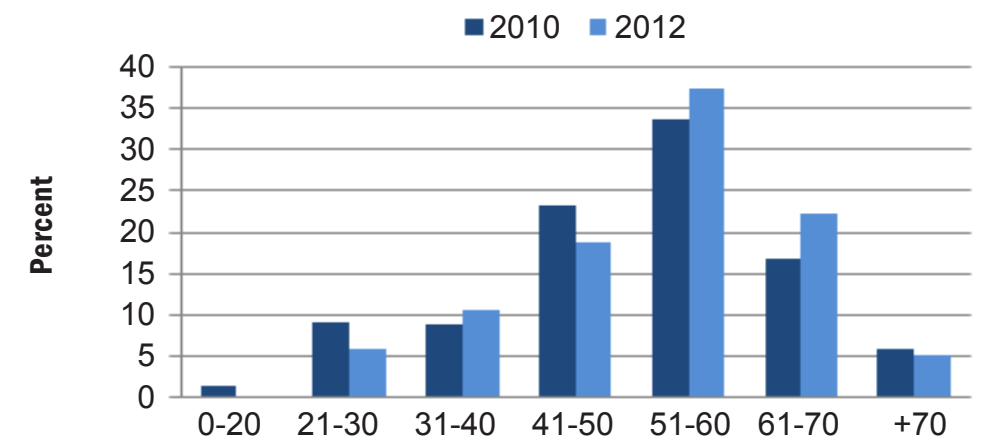
**Participation in Other Fisheries**  
West Coast Catch Share groundfish fishermen are participating in other profitable fisheries including crab and pink shrimp. Interview data show fisherman are concerned with changing ocean cycles that could alter the availability of species and ultimately change the markets.



## 2014 INITIAL RESULTS: GRAYING OF THE FLEET

Initial findings support the perception that the fleet is aging, showing that over half of harvesters in the trawl fishery in both years of data collection are over 50 years old. This is also supported by semi-structured interview data.

*"We've got a major problem with the aging of the crews. In our fleet, for example, most of our guys are close to 50 years old or older. And we don't see young people getting involved in fishery, it's just not happening."*  
- Seattle, 2012



Response Rate 2010: 100%  
Response Rate 2012: 99.2%

## Decreasing Bycatch

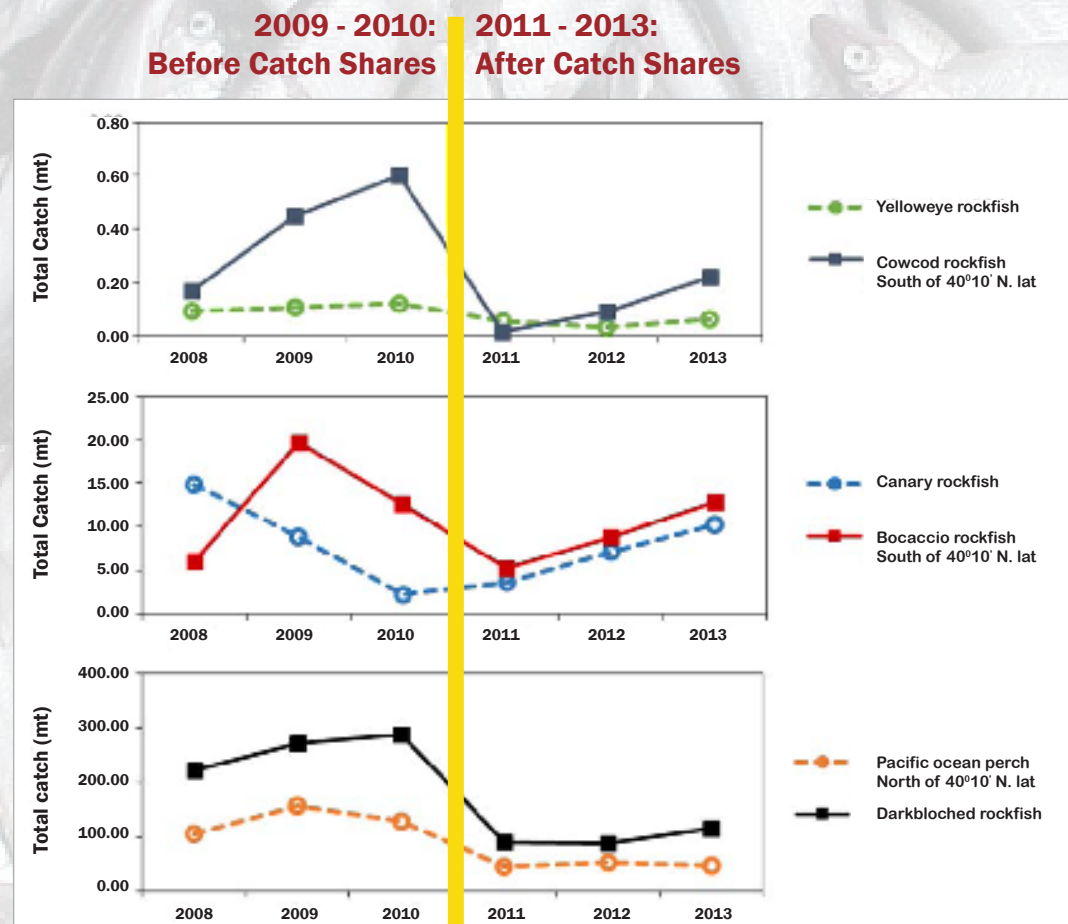
Key catch shares components of individual accountability, flexibility for fishers to manage quota, and real-time data all promote minimizing discard and bycatch, and we see them working in the West Coast Groundfish Catch Shares Program.

Bycatch and discard have dropped substantially. Total catch of rebuilding stocks was much lower (50 percent) in the first three years of catch shares than the previous three years under trip limits (figure at right), and less than 50 percent of the sector allocations.

Discard on non-whiting trips was only five percent in the first three years of catch shares, a three-fold decrease (from 16 percent). For some species the drop has been dramatic; darkblotched rockfish discard dropped more than 20 fold from 51 to just two percent, bocaccio rockfish (another rebuilding stock) discard dropped from 80 to less than one percent.

Petrale sole (a very productive flatfish stock) has been managed as a target species under a rebuilding plan, and has been highly attained throughout the rebuilding period.

## TOTAL ANNUAL CATCH OF REBUILDING SPECIES BEFORE & AFTER CATCH SHARES



Above: Total annual catch of rebuilding species from 2008 through 2010 in the limited entry trawl and shoreside whiting fisheries, as well as 2011 through 2013 in the Shorebased Catch Shares Program, in metric tons. The yellow vertical line separates years before and after the Catch Shares Program was established. Source = WCGOP Groundfish Mortality Report (2008-2010) and the Shorebased IFQ Vessel Accounts System (2011-2013).

## Rebuilding Overfished Species

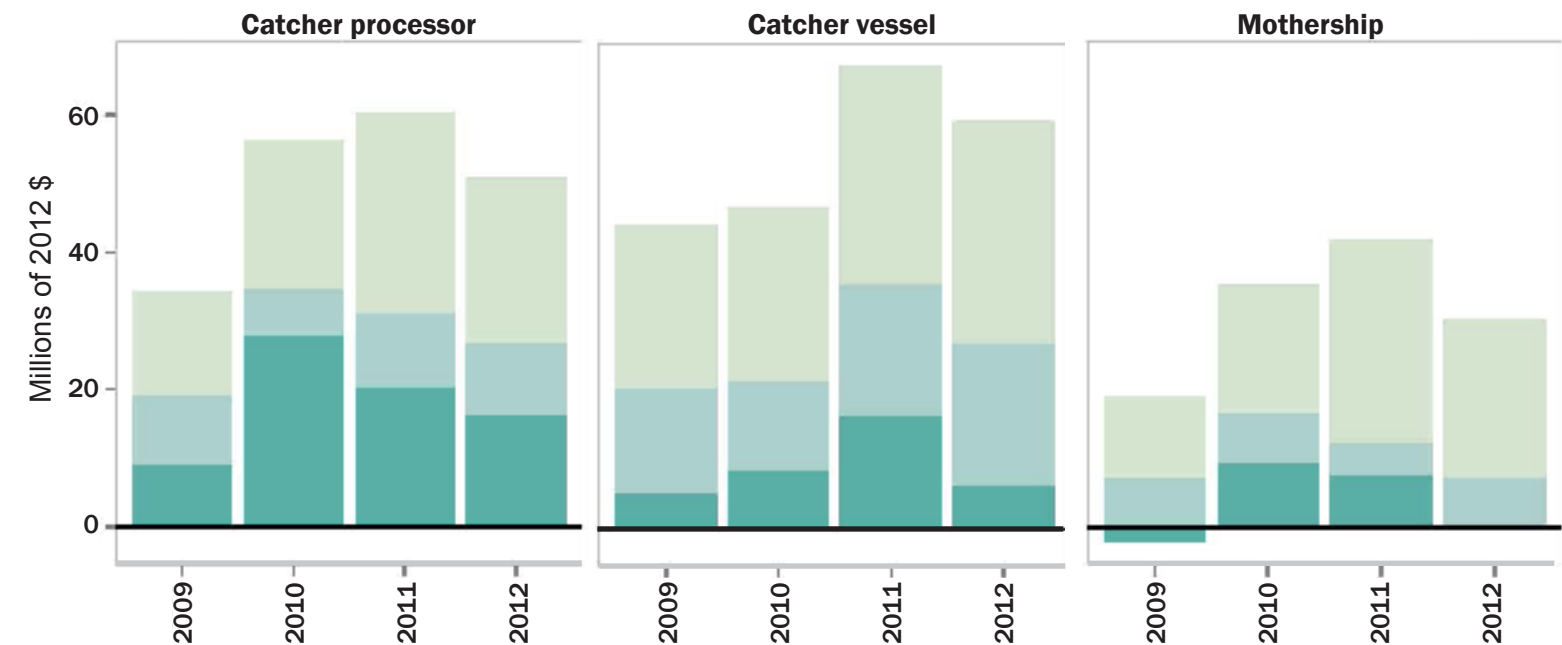
The biological benefits of the shift to catch shares have become increasingly evident over the first three years of the program. The catch of overfished species dropped starkly in the first two years of the program as fishermen exercised caution to avoid hitting very limited quotas for those species; hitting one would require them to stop fishing until they obtained more quota pounds through purchase or trade. In 2014, that trend began to change as expanding populations of some of the species allowed for higher quotas and vessels began to catch more of them.

Fishermen are exercising their flexibility under catch shares to increasingly target some underutilized species. For instance, more fishermen are turning to quota trading and risk pools to provide an additional margin in case they catch more than their quotas. Before catch shares, large proportions of the catch of many non-target species were discarded as bycatch; now, whether in a fishing net or in the ocean, they are treated as the valuable resource they are. That is a sign of success for both fish and fishermen. Vessels are retaining 95 percent of their catch of non-whiting species. NOAA Fisheries is discussing options with the fleet to make more complete use of quotas.

## Economic Data Collection Program

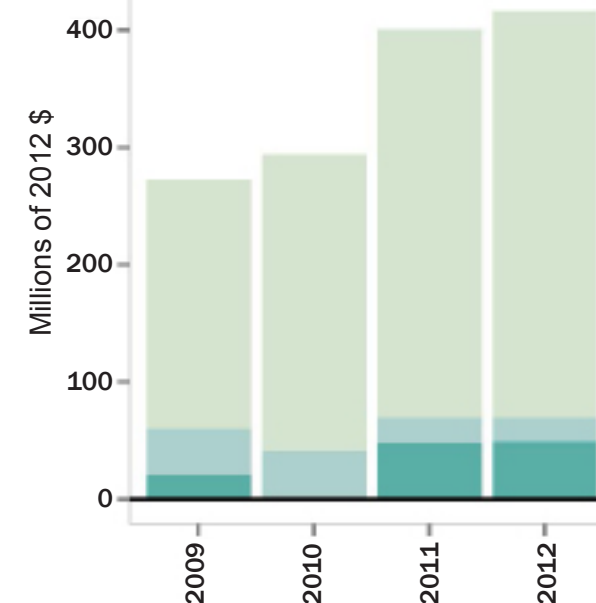
When the West Coast Groundfish Trawl Catch Share Program was put in place in 2011, the Pacific Fishery Management Council required the collection of economic data to monitor the changes and distribution of economic benefits. Using data collected from industry members, the Economic Data Collection (EDC) program provides information on whether the goals of the Catch Share Program have been met and helps meet requirements of the Magnuson-Stevens Act for catch share program evaluation.

In early 2015, NOAA released reports summarizing economic information collected from 2009 to 2012 in each of the four catch share sectors. The program collected 2009 and 2010 data to provide a baseline of pre-catch share information and 2011 and 2012 data following its implementation. The following pages provide graphical and written summaries of the findings. The full reports are available online at [www.nwfsc.noaa.gov/edc](http://www.nwfsc.noaa.gov/edc)



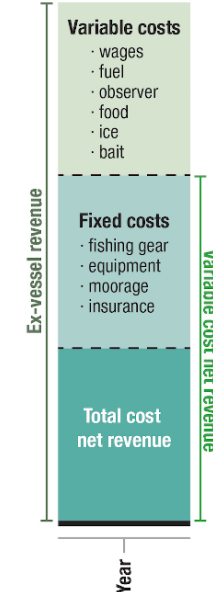
The graphs above show fleet-wide catch share revenue for catcher processors, catcher vessels, and motherships was highest in 2011. However, total cost net revenue (see Key for Economic Terms, below) was only highest for catcher vessels in 2011. The highest total cost net revenue for catcher processors and motherships occurred in 2010, before implementation of the Catch Share Program.

### First receiver or shorebased processor



Left: The revenue displayed in the first receiver and shorebased processor graph includes all sources of revenue (catch share fisheries as well as non-catch share fisheries and non-production revenue such as offload fees and custom processing).

### KEY FOR ECONOMIC TERMS



These graphs use several economic terms including variable cost net revenue and total cost net revenue. Variable cost net revenue is revenue minus variable costs (e.g., wages and fuel). Total cost net revenue is revenue minus variable and fixed costs (e.g., gear and equipment). The next two pages provide graphical and written summaries of the findings.

## CATCHER VESSELS

FISHERY PARTICIPATION	Vessels	Days at Sea	Landings (1000 mt)
CATCH SHARE	At-sea Pacific whiting	16	37.2
	Shoreside Pacific whiting	24	56.0
FISHERIES	DTS trawl	59	41.1
	Non-whiting, non-DTS trawl	52	24.1
	Fixed gear with trawl endorsement	27	35.2
	Fixed gear with fixed gear endorsement	7	25.3
	Crab	61	36.3
	Shrimp	39	46.1
	Halibut	5	34.4
	Salmon	12	23.8
	Tuna	15	11.8
	Alaska	30	108.5

### ECONOMIC SUMMARY\*

**Vessel Average**  
\$528K revenue  
\$288K variable cost  
\$240K variable cost net revenue  
\$185K fixed cost  
\$55K total cost net revenue

\$4K variable cost net revenue per day

**Fleet-wide Totals**  
112 vessels  
\$59M revenue  
\$27M variable cost net revenue  
\$6M total cost net revenue

### ALASKA PARTICIPATION

Alaska: \$57M  
30 vessels, typically 24 trips to AK per year

### SHORESIDE PARTICIPATION

Total value of catch share groundfish landings  
Vessel homeports

Washington: \$9.7M  
15 vessels

### AT-SEA PARTICIPATION

At-sea: \$9.3M  
16 vessels

Astoria: \$17.0M  
37 vessels

Newport: \$10.0M  
23 vessels

Coos Bay: \$2.8M  
18 vessels

Brookings: \$4.6M  
15 vessels

Crecent City: \$4.6M  
15 vessels

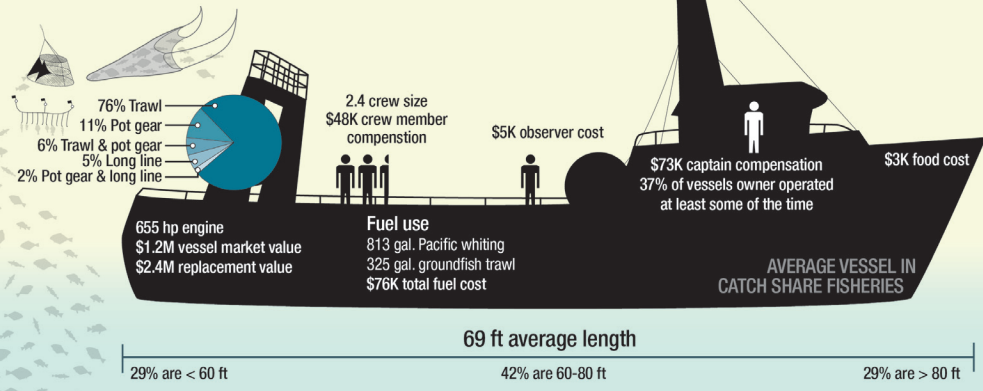
Eureka: \$4.6M  
15 vessels

Fort Bragg: \$1.9M  
8 vessels

San Francisco: \$0.5M  
4 vessels

Monterey: \$0.6M  
4 vessels

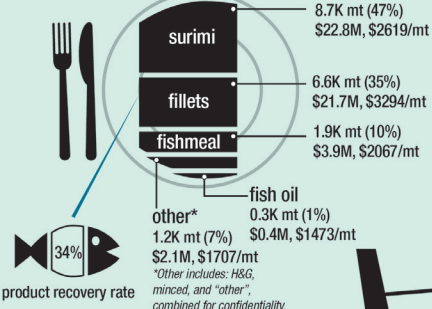
Morro Bay: \$1.8M  
10 vessels



\*Note that some off-board costs are not collected. Therefore reported net revenue is an overestimate of actual net revenue.

## CATCHER PROCESSOR

### PACIFIC WHITING FLEET-WIDE PRODUCTION SUMMARY



### TOTAL US PACIFIC WHITING TAC

135,480 mt

TOTAL CATCH: 55,263 mt

TOTAL CP PACIFIC WHITING ALLOCATION: 55,584 mt (34% of U.S. TAC)

CP ALLOCATION BY COMPANY\*\*

American Seafoods: 49.4%  
Trident Seafoods Corp: 29.6%  
Glacier Fish: 21.0%

### ECONOMIC SUMMARY\*

**Vessel Average**  
\$5.7M revenue  
\$2.7M variable costs  
\$3M variable cost net revenue  
\$1.2M fixed cost  
\$1.8M total cost net revenue

\$91K variable cost net revenue per day

**Fleet-wide Totals**  
9 vessels  
\$51M revenue  
\$27M variable cost net revenue  
\$16.3M total cost net revenue

### FISHERY PARTICIPATION

Average days fishing, processing, and steaming on the West Coast: 33  
Average days steaming to and from Alaska: 18  
Average days in Alaska: 150

### ALASKA PARTICIPATION

9 WC vessels  
316K mt fleet-wide catch

### WC DELIVERY PORTS

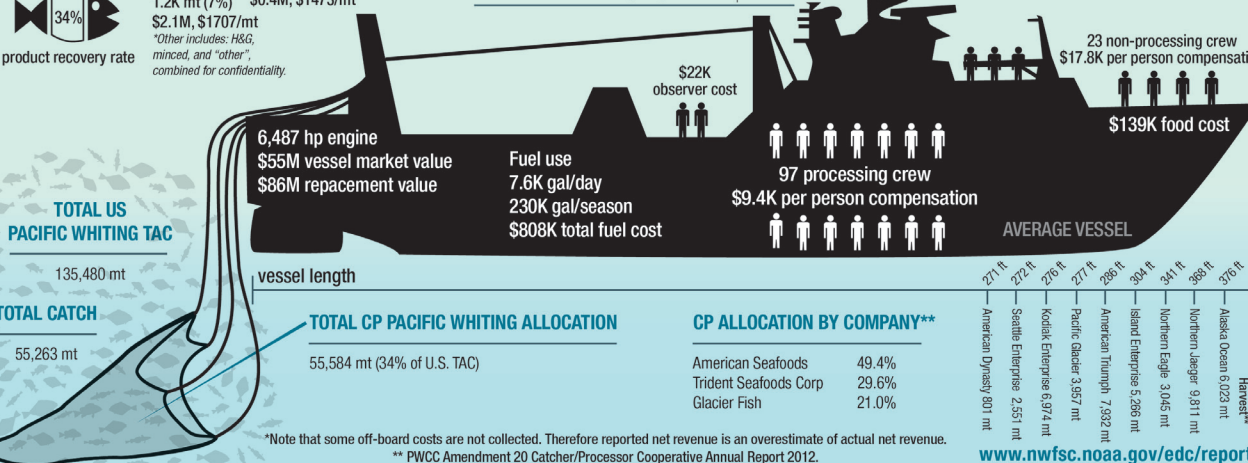
# of vessels offloading in each port

Bellingham (4)

Seattle\* (2)

Tacoma (3)

2.1K mt annual production per vessel



\*Note that some off-board costs are not collected. Therefore reported net revenue is an overestimate of actual net revenue.

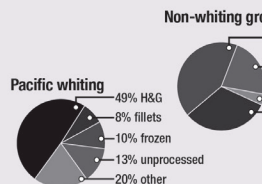
## FIRST RECEIVERS & SHOREBASED PROCESSORS

PRODUCTION	N (companies)	1000 mt	Value
Pacific whiting	10	37.2	\$55M
DTS	19	6.9	\$53M
Other groundfish	20	4.6	\$20M
Crab	19	9.3	\$121M
Shrimp	12	11.5	\$63M
Halibut	13	0.3	\$5M
Salmon	15	1.8	\$19M
Other	19	61.5	\$76M

### ECONOMIC SUMMARY\*

**Company Average**  
20 processors  
\$20.8M revenue  
\$17.3M variable costs  
\$3.5M variable cost net revenue  
\$1M fixed costs  
\$2.5M total cost net revenue

### INDUSTRY-WIDE PRODUCT TYPES



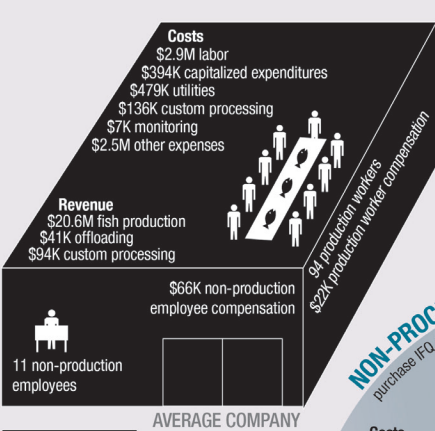
### SHORESIDE PROCESSING

Value & weight of processed fish  
# of processing facilities

Washington: 4 facilities  
Groundfish: 13,236 mt, \$24M  
Other Species: 37,743 mt, \$57M

Oregon: 9 facilities  
Groundfish: 25,573 mt, \$78M  
Other Species: 25,023 mt, \$130M

California: 11 facilities  
Groundfish: 2,126 mt, \$19M  
Other Species: 4,923 mt, \$56M



### PROCESSORS

purchase IFQ groundfish & process fish

**FISH PURCHASES**  
Groundfish: 4093 mt, \$2.9M  
Other species: 4305 mt, \$6.5M

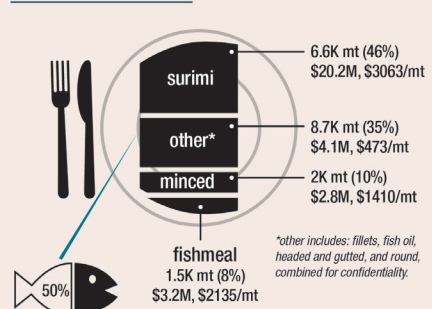
**Non-vessel Sources**  
Groundfish: 312 mt, \$0.4M  
Other species: 657 mt, \$2.3M

\$20K variable cost net revenue

\*Note that some off-site costs are not collected. Therefore reported net revenue is an overestimate of actual net revenue.

## MOTHERSHIP

### PACIFIC WHITING FLEET-WIDE PRODUCTION SUMMARY



### TOTAL US PACIFIC WHITING TAC

135,480 mt

TOTAL PURCHASES: 37,507 mt, \$246/mt

TOTAL US PACIFIC WHITING TAC MS ALLOCATION: 39,235 mt (24% of total U.S. TAC)

### ECONOMIC SUMMARY\*

**Vessel Average**  
\$6.1M revenue  
\$4.6M variable costs  
\$1.5M variable cost net revenue  
\$1.5M fixed costs  
\$-0.6M total cost net revenue

\$23.6K variable cost net revenue per day

**Fleet-wide Totals**  
5 vessels  
\$30.3M revenue  
\$7.4M variable cost net revenue  
\$-1.1M total cost net revenue

### FISHERY PARTICIPATION

Average days processing, and steaming on the West Coast: 46  
Average days steaming to and from Alaska: 21  
Average days in Alaska: 141

### ALASKA PARTICIPATION

5 WC vessels  
138K mt fleet-wide catch

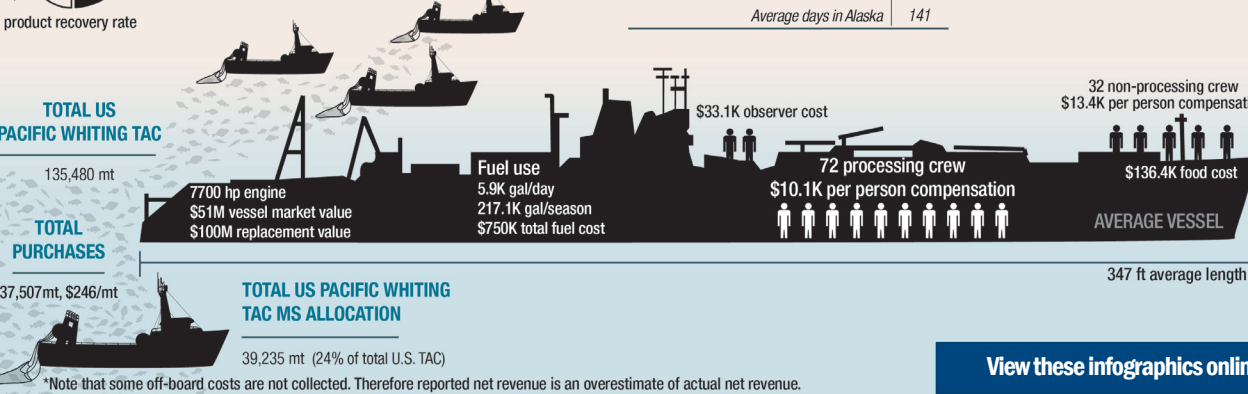
### WC DELIVERY PORTS

# of vessels offloading in each port

Bellingham (3)

Seattle\* (2)

3.7K mt annual production per vessel



\*Note that some off-board costs are not collected. Therefore reported net revenue is an overestimate of actual net revenue.

## CATCHER VESSELS (top left)

In 2012, there were 112 catcher vessels that participated in the West Coast Groundfish Trawl Catch Share program.

- Catcher vessels generated \$92.4 million in West Coast income and 1,082 jobs from deliveries of fish caught in the catch share program.
- Catcher vessels spent an average of 60 days fishing in the catch share program.
- Catcher vessels spent an average of 74 additional days fishing in non-catch share fisheries.
- 37 percent of vessels are owner-operated at least some of the time.
- Average variable cost net-revenue per vessel was \$240,000 from participation in the catch share program, which was a decrease from \$310,000 in 2011, but an increase from both 2009 (\$162,000) and 2010 (\$177,000).

## CATCHER PROCESSOR (top right)

In 2012, the West Coast at-sea catcher-processor fleet consisted of nine catcher-processors, owned by three companies that harvest Pacific whiting on the West Coast.

- The catcher-processor sector generated \$75 million in West Coast income and 1,431 jobs from Pacific whiting caught in the catch share program.
- The majority of the fleet's time (80%) is spent fishing Alaska Pollock in the Bering Sea and Aleutian Islands off Alaska.
- The average first-wholesale revenue per vessel was close to \$5.7 million. Fillet and surimi production made up 87% of the total production value.
- Average variable cost net revenue was \$3.0 million in 2012, which was a decrease from \$3.5 million in 2011 and \$3.8 million in 2009.

## FIRST RECEIVERS & SHOREBASED PROCESSORS (bottom left)

In 2012, there were twenty Processor and six Non-Processor companies that received IFQ groundfish.

- The first receivers and shorebased processors generated \$72 million in West Coast income and 1,460 jobs from purchases of fish caught in the trawl catch share program.
- Processors and Non-Processors received about 44% of all fish caught commercially on the West Coast in 2012, which was 33% of the total dollar value of all fish purchased.
- Processors employed the most production workers in the month of August, with an average of 124 production workers per company. The fewest production workers were employed in March, with an average of 65 per company. Processors on average had 11 non-production employees per company.
- Average variable cost net revenue (revenue minus variable costs) was \$3.5 million in 2011 and 2012, which was an increase from \$3.17 million in 2009.

## MOTHERSHIP (bottom right)

In 2012, five motherships, owned by four companies, processed Pacific whiting on the West Coast.

- The mothership fleet generated \$34 million in West Coast income and 755 jobs from purchases of Pacific whiting caught in the catch share program.
- The fleet spends a majority of its time (70%) processing Alaska Pollock in the Bering Sea and Aleutian Islands.
- West Coast motherships deliver to two ports: Blaine/Bellingham and Seattle.
- The fleet's annual price paid to catcher vessels has increased from \$177 per metric ton in 2009 to \$246 in 2012.
- Surimi generally makes up the largest share of revenue, with an average first-wholesale price of \$3,100 per metric ton in 2012.
- Average variable cost net revenue fell to \$1.5 million in 2012 from \$2.4 million in 2011, but still represented an increase over the \$1.1 million in 2009.