OREGON DEPARTMENT OF FISH AND WILDLIFE REPORT ON THE INDIVIDUAL FISHING QUOTA (IFQ) PROGRAM OFF OREGON

The Oregon Department of Fish and Wildlife (ODFW) examined components of the Individual Fishing Quota (IFQ) Program in Oregon during 2011. Changes in fishing behavior were expected as the west coast groundfish trawl fishery made the transition from a fishery managed using bimonthly trip limits to one managed using IFQ. Changes in fishing behavior and landing statistics were analyzed since the inception of the Shorebased IFQ Program. Some of the potential impacts analyzed include: geographic consolidation of fleets, changes in landings and infrastructure, effort shifts to other fisheries, and changes in gear types used. The purpose of this report is to compare the IFQ fishery off Oregon during 2011 with the limited entry shorebased-trawl fisheries off Oregon during 2006 to 2010 (i.e., pre-IFQ). Note that the 2011 IFQ fishery began January 11th.

This report is intended to supplement IFQ updates that have recently been provided by the National Marine Fisheries Service (NMFS) and the Groundfish Management Team (e.g. Agenda Item F.6.b, Supplemental NMFS Report, March 2012; Agenda Item G.7.b, Supplemental ODFW Report, September 2011). Data was obtained from the Pacific Fisheries Information Network (PacFIN) and from Oregon commercial landing receipts (see Data Sources section). Only data associated with Oregon landings are presented herein. This analysis is limited to limited entry groundfish trawlers and their past and present activities within the limited entry shorebased groundfish trawl fishery, and within other federal and state managed fisheries. It should be noted that trends described in this report for Oregon may differ from patterns observed for Washington and California. Additionally, patterns observed during 2011 may change during subsequent years, as the IFQ fishery evolves, regulations change, Annual Catch Limits (ACLs) change, and as catches in alternative fisheries (e.g., crab and shrimp) fluctuate.

LIMITED ENTRY NON-WHITING IFQ FISHERY

The limited entry non-whiting IFQ fishery is defined as vessels taking part in the IFQ fishery, fishing with a limited entry trawl permit and using either trawl or fixed gear. In 2011, the total non-whiting IFQ groundfish landings, total volume, and the number of processors receiving non-whiting groundfish landings exhibited a decline relative to the previous five years (2006 through 2010) by the limited entry non-whiting "trawl" fleet (LET; 2006-2010; Table 1). The most dramatic changes that occurred during 2011 relative to the historical average were the number of vessels making groundfish landings (28% decline), the number of groundfish landings delivered (47% decline), and the number of processors receiving non-whiting groundfish landings (51% decline), all of which were at the lowest levels recorded over the five year period (Table 1; Figure 1). In contrast, the volume of the average non-whiting IFQ landing per trip increased by 45%, and the average annual vessel revenue increased 39% relative to the 2006-2010 LET average. Interestingly, although the total statewide landing volume decreased by 25% from 2010 to 2011, the total Oregon non-whiting groundfish revenue remained approximately the same (<1%change); suggesting overall increased product value between the two years. Even though fewer vessels made fewer landings during the 2011 IFQ fishery, the average landing size and revenue per trip increased relative to the previous five years (Table 1; Figure 1).

Table 1. Oregon landings statistics, by year, of the non-whiting groundfish trawl fishery (2006-2010) and the non-whiting IFQ fishery (2011). For each landing statistic, percent change (% Δ) represents the percentage increase or decrease in 2011, relative to the 2006 to 2010 historical average. Source: Data were obtained from PacFIN.

	2006	2007	2008	2009	2010	2011	% Δ
Vessels (No.)	73	76	75	79	71	54	-28%
Trips (No.)	1,114	1,131	1,272	1,514	1,212	668	-47%
Avg Trip Size (lbs)	21,755	24,870	27,502	24,776	27,285	36,631	45%
se	402	492	506	441	544	918	--
Avg Vessel Revenue ($)	188,095	197,181	265,983	240,028	232,036	312,209	39%
se	13,819	13,923	17,474	16,527	19,215	30,954	--
Processors (No.)	12	11	12	13	13	6	-51%
Total Volume (lbs)	24,235,145	28,127,776	34,982,347	37,511,575	33,069,924	24,469,544	-22.5%
Total Revenue ($)	13,730,931	14,985,729	19,948,777	18,962,235	16,474,552	16,859,299	0.2%

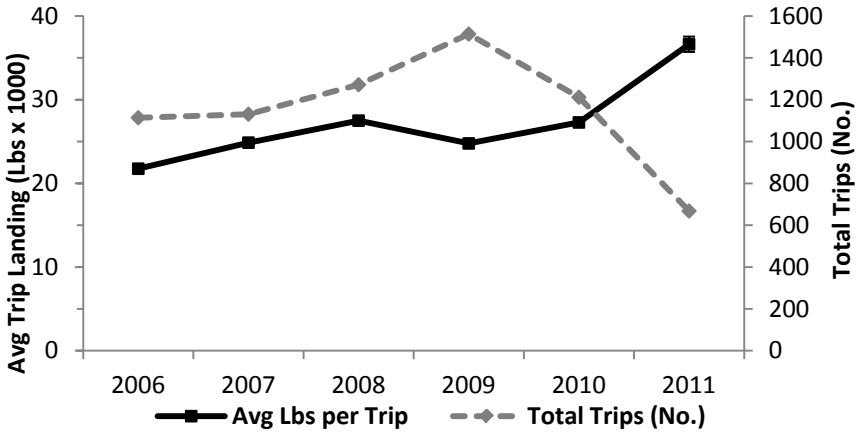

Figure 1. Average (±SE) non-whiting landing volume per trip (pounds) and total number of non-whiting trips per year, in the non-whiting groundfish trawl fishery (2006-2010) and the non-whiting IFQ fishery (2011) off Oregon. Source: Data were obtained from PacFIN.

Species Composition of Catches:

As noted in previous reports, the composition of landed species has changed in 2011 (Agenda Item F.6.b, Supplemental NMFS Report, March 2012), relative to the historical 2006 to 2010 average. Eight of the top ten non-whiting species landed showed decreases in 2011 landings (pounds), compared with the historical average (2006-2010; Table 2). Yellowtail landings increased by 2,392% in 2011, while Pacific cod increased by 289%, making up the largest changes in landing volume in the non-whiting fishery (Table 3). Four other species that increased 2011 landings over 100% greater than historical numbers: widow rockfish (173%), spiny dogfish (171 %), greenstriped rockfish (163 %), and lingcod (130 %).

Table 2. The top ten species landings (pounds) in 2011, for the non-whiting IFQ fishery (2011), along with average total landing volume in the non-whiting trawl fishery (2006-2010) off Oregon. For each species, percent change (% Δ) represents the percentage increase or decrease in 2011, relative to the 2006 to 2010 historical average. Source: Data were obtained from PacFIN.

Rank	Species	06-10AVG Lbs	2011 Lbs	%Δ
1	Dover sole	13,519,845	10,374,825	-23.3%
2	Arrowtooth flounder	4,512,321	3,558,295	-21.1%
3	Sablefish	3,852,276	2,766,192	-28.2%
4	Skate (Unspecified)	1,945,234	1,689,107	-13.2%
5	Petrale sole	2,359,722	1,131,812	-52.0%
6	Shortspine thronyheads	1,524,452	840,454	-44.9%
7	Longspine thornyheads	1,095,687	754,905	-31.1%
8	Yellowtail RF	25,484	634,965	2391.6%
9	Rex sole	797,366	587,120	-26.4%
10	Pacific cod	136,961	532,636	288.9%

Table 3. The top ten species with the greatest percent increase (%Δ) in 2011 landings (pounds), relative to the 2006 to 2010 historical average, in the Oregon non-whiting trawl fishery (2006-2010) and the non-whiting IFQ fishery (2011). Only landings greater than, or equal to, 1000 pounds were reported. Source: Data were obtained from PacFIN.

Rank	Species	06-10 AVG (Lbs)	2011 (Lbs)	%Δ
1	Yellowtail RF	25,484	634,965	2391.6%
2	Pacific cod	136,961	532,636	288.9%
3	Widow RF	8,267	22,544	172.7%
4	Spiny dogfish	62,064	168,422	171.4%
5	Greenstriped RF	5,926	15,572	162.8%
6	Lingcod	133,473	307,490	130.4%
7	Sand sole	75,287	142,915	89.8%
8	Canary RF	2,526	4,548	80.1%
9	Aurora RF	14,410	25,424	76.4%
10	Redbanded RF	4,610	6,995	51.7%

Ports

Oregon ports were categorized into four port groups: Astoria (Astoria, Cannon Beach, Gearhart/Seaside, Tillamook/Garibaldi, Pacific City, Nehalem Bay, Netarts, and Salmon River), Newport (Depoe Bay, Newport, Siletz Bay, Waldport, and Yachats), Coos Bay (Bandon, Charleston, Coos Bay, Florence, and Winchester Bay), and Brookings (Brookings, Gold Beach, and Port Orford). Port groupings match those used in the Environmental Impact Statement for Amendment 20 (http://www.pcouncil.org/wp-content/uploads/TRatFEIS_chapter _three_June2010.pdf) to the Groundfish Fishery Management Plan. Not all ports listed have trawl or fixed gear activity. The four Oregon port groups differ markedly in terms of their commercial fisheries overall, and in their trawl and fixed gear activity from 2006 through 2011. In 2011, the most dramatic change occurred in Newport, which saw a 57 % decrease in the total non-whiting groundfish pounds landed, relative to the historical average, but only saw a slight decline in ex-vessel revenues (-3.1 %; Figure 2; Table 4). Coos Bay had the largest revenue decline (-21 %), relative to the historical average, and had a 36 % decline in total volume landed. Astoria and Brookings had the least dramatic changes in landing volume and revenue during 2011 (Table 4).

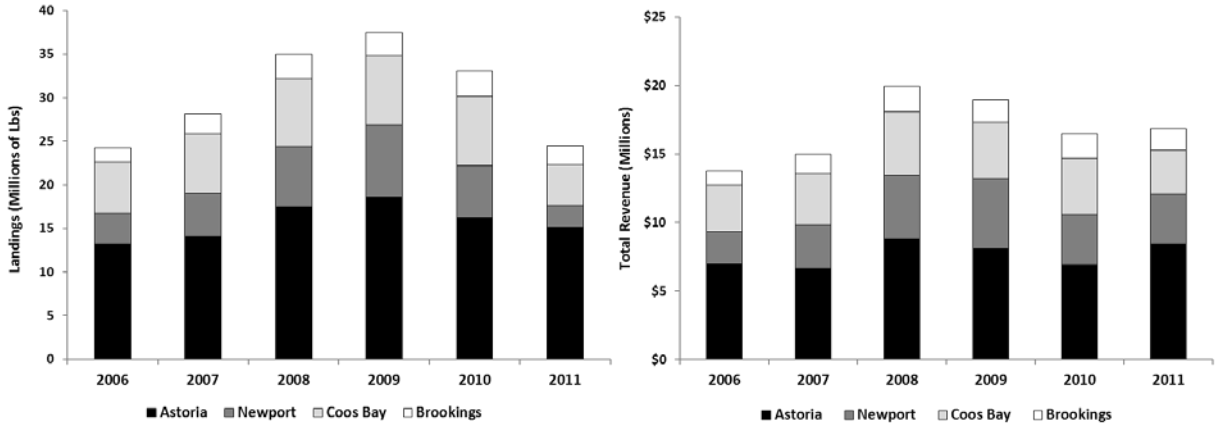

Figure 2. Distribution of landings (pounds) and revenue (dollars), by port group and year, for the non-whiting trawl fishery (2006-2010) and the non-whiting IFQ fishery (2011) off Oregon. Source: Data were obtained from PacFIN.

Table 4. Distribution of landings (pounds; top) and revenue (dollars; bottom), by port group and year, for the non-whiting trawl fishery (2006-2010) and the non-whiting IFQ fishery (2011) off Oregon. For each landing statistic, percent change (% Δ) represents the percentage increase or decrease in 2011, relative to the 2006 to 2010 historical average. Source: Data were obtained from PacFIN.

Landings (Lbs)

Port	2006	2007	2008	2009	2010	2011	% Δ
Astoria	13,224,114	14,079,818	17,456,961	18,575,470	16,180,179	15,140,046	-4.8%
Newport	3,521,190	4,950,653	6,913,831	8,317,743	6,002,899	2,535,895	-57.3%
Coos Bay	5,894,310	6,778,081	7,794,861	7,976,112	7,973,905	4,661,903	-36.0%
Brookings	1,595,531	2,319,224	2,816,694	2,642,250	2,912,941	2,131,700	-13.3%

Revenue ($)

Port	2006	2007	2008	2009	2010	2011	% Δ
Astoria	$6,958,858	$6,673,146	$8,797,883	$8,078,028	$6,929,717	$8,429,872	12.6%
Newport	$2,332,956	$3,151,896	$4,641,912	$5,104,188	$3,662,963	$3,661,220	-3.1%
Coos Bay	$3,415,723	$3,756,518	$4,635,452	$4,164,098	$4,085,658	$3,175,949	-20.8%
Brookings	$1,023,380	$1,404,169	$1,873,503	$1,615,927	$1,796,214	$1,592,258	3.2%

Gear Switching

In the West Coast Groundfish IFQ Program, the ability to utilize fixed gear to harvest quota pounds, also known as gear switching, has increased participation of IFQ vessels using fixed gear (i.e., both trawl vessels switching to fixed gear for certain trips and traditional fixed gear vessels purchasing "trawl" permits and entering the IFQ fishery). Of the 54 vessels participating in the IFQ fishery in Oregon during 2011, 43 solely used trawl gear to make non-whiting groundfish landings, 9 vessels used only fixed gear to make IFQ landings, and two vessels made IFQ landings using both fixed gear and trawl gear (Table 5). Interestingly, fixed gear landings accounted for 20% of the non-whiting IFQ revenues, but only 3% of the total pounds landed. Furthermore, fixed gear harvested 33% of the total Oregon IFQ sablefish landings and earned 55% of IFQ sablefish revenues. In contrast, trawlers harvested 67% of the Oregon IFQ sablefish

volume, but earned 45% of the revenues (Table 6). High sablefish prices were the driving factor in the large percentage of revenue earned by the IFQ-fixed gear fishermen (Figure 3). Sablefish is a high value species and prices have increased substantially over the past five years (Figure 3). Furthermore, gear type influences the sablefish ex-vessel value. In 2011, fixed gear vessels earned a higher price per pound than did trawl vessels (Figure 3). Sablefish landed by fixed gear are generally larger than those landed by trawlers (Figure 3), and price per pound increases as grade increases (Table 5). Differences in size selectivity between trawl-caught and longline or pot-caught sablefish is described in the sablefish stock assessment (www.pcouncil.org/wp-content/uploads/G4a_ATT9_STATUS_SABLEFISH_SEPT2011BB.pdf).

Table 5. Average price per pound by gear type and sablefish grade, in the limited entry fixed gear and 2011 non-whiting IFQ fishery. Fixed gear includes hook and line and pots. Source: Data were obtained from PacFIN.

Grade	Fixed	Trawl
Extra small	$1.94	$1.29
Small	$2.38	$1.82
Medium	$2.73	$2.13
Large	$3.06	$2.53

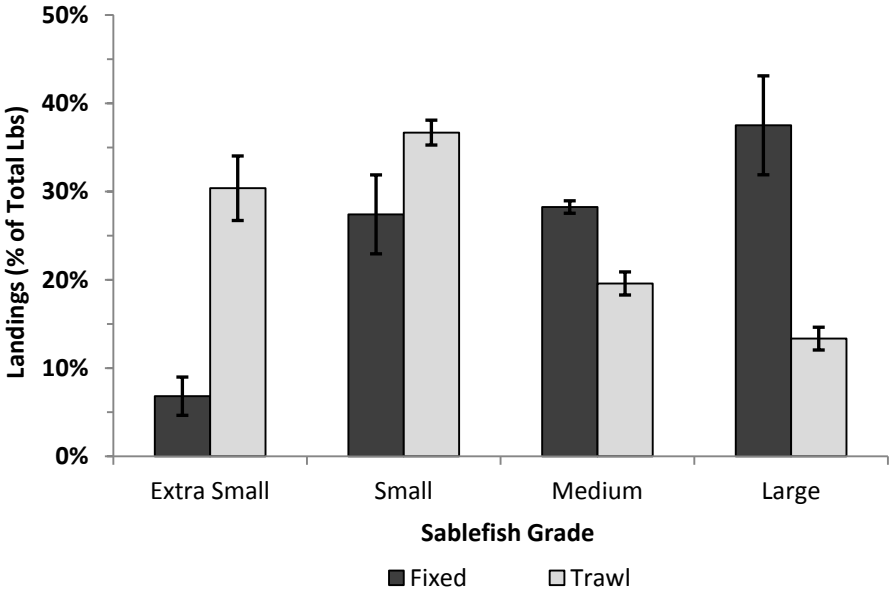

Figure 3. Average (2006-2011) proportion (±SE) of total sablefish landings by gear type and sablefish grade, in the limited entry fixed gear and non-whiting IFQ fishery. Fixed gear includes hook and line and pots. Source: Data were obtained from PacFIN.

The number of IFQ vessels gear switching varies by port group, with Newport having a substantially higher IFQ fixed gear sablefish landing volume, relative to all other Oregon port groups (Figure 4). It should be noted that this is a large shift from historical landing patterns in Newport. From 2006 to 2010, Newport trawlers made roughly half of sablefish landings, while limited entry fixed gear vessels comprised the other 50%. In 2011, vessels using fixed gear (IFQ and non-IFQ) landed 85% of the Newport sablefish, whereas trawlers landed only 15%.

Table 6. Groundfish landings, revenue, and number of IFQ trips and vessels, by gear type, in the 2011 non-whiting IFQ fishery. Fixed gear includes hook and line and pots. Note that two vessels used both fixed and trawl gear during 2011. Source: Data were obtained from PacFIN.

Gear Type	Vessels (No.)	Total Volume(Lbs)	Total Revenue($)	Total Trips (No.)	Avg Trip Revenue ($)
Fixed	11	714,692	2,762,955	62	44,564
Trawl	45	23,754,852	14,096,344	606	23,135

Table 7. Sablefish landings, revenue, and number of IFQ trips and vessels, by gear type, in the 2011 non-whiting IFQ fishery. Fixed gear includes hook and line and pots. Note that two vessels used both fixed and trawl gear during 2011. Source: Data were obtained from PacFIN.

Gear Type	Vessels (No.)	Total Volume (Lbs)	Total Revenue($)	Total Trips (No.)	Avg Trip Revenue ($)
Fixed Gear	11	688,497	2,746,884	62	$44,305
Trawl Gear	45	2,078,065	4,959,453	565	$8,778

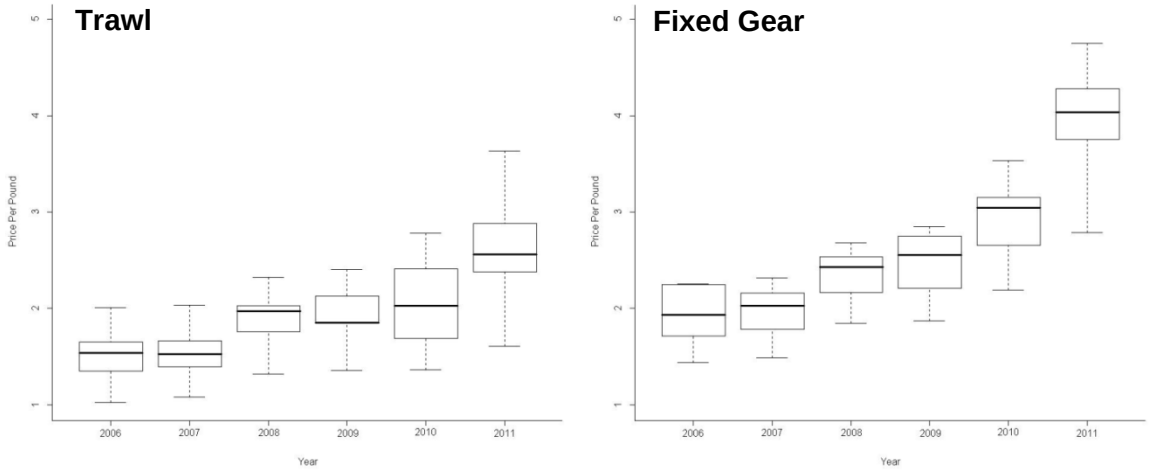

Figure 4. Average price per pound of sablefish, by year, during the limited entry trawl and fixed gear fisheries (2006-2010) and the IFQ fishery (2011) off Oregon. Note that in 2011, the fixed gear fishery includes sablefish from the limited entry fixed gear fishery and from the IFQ fishery. Source: Data were obtained from PacFIN.

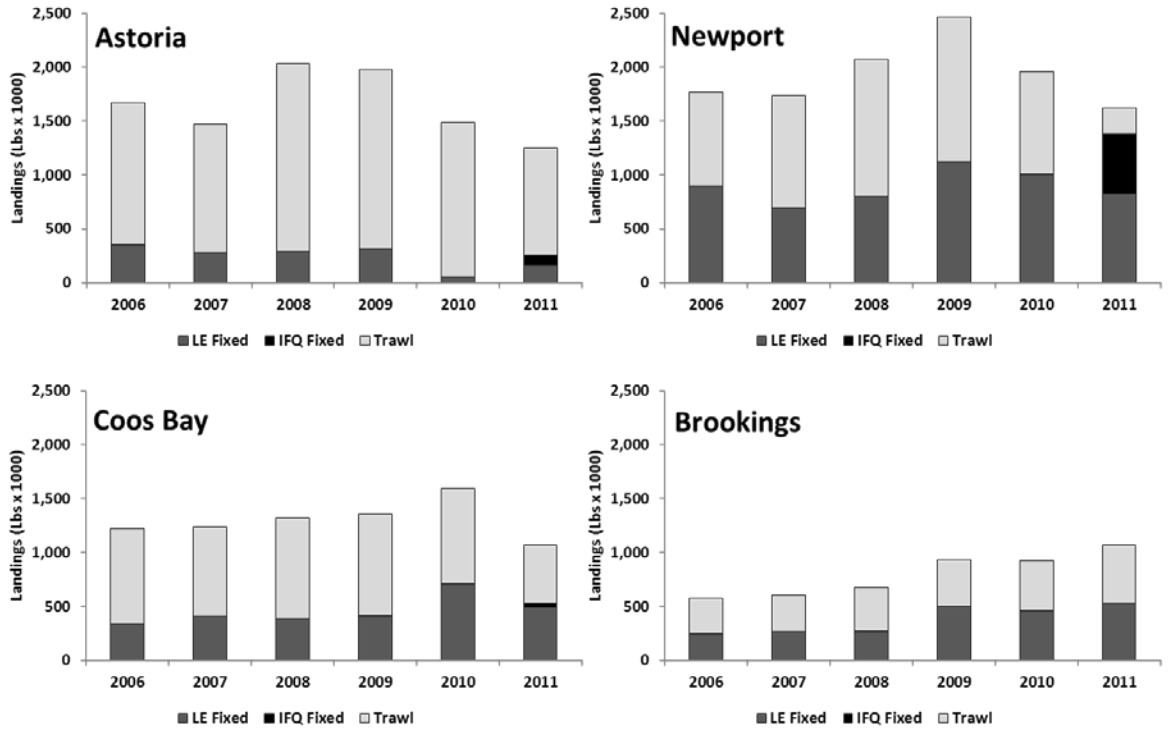

Figure 5. Sablefish landings (pounds), by port and gear type in the limited entry trawl and limited entry fixed gear fisheries from 2006 to 2011, in addition to the IFQ fishery. Note that 2011 includes IFQ landings for trawl and fixed gear, in addition to non-IFQ LE fixed gear landings. Fixed gear includes longline and pot gear. Source: Data were obtained from PacFIN.

LIMITED ENTRY SHORESIDE WHITING (IFQ)

The number of limited entry shoreside whiting vessels making landings in Oregon declined from 26 in 2010 to 22 in 2011 (Table 8). The average number of vessels from 2006 to 2010 was also 26. Shoreside IFQ whiting vessels made more numerous, larger volume trips during 2011 than shoreside whiting vessels did during 2006-2011 (Table 8). The result is substantially higher revenues per trip in 2011 than during the previous five years (Figure 7). Overall, prices were higher in 2011 ($0.11/pound) relative to the historical average ($0.07/pound). Interestingly, the 2011 trends may mirror patterns observed during 2008, when the whiting price was also high ($0.11/pound), which is correlated with high average trip revenues. Landing volumes per trip remained relatively consistent from 2006 to 2010 (mean = 174,000±2,000 pounds/trip), but spiked in 2011 (mean = 205,000±3,000 pounds/trip). Average trip revenue nearly doubled in 2011 ($22,000±300), relative to the 2006-2010 average ($12,600±150). In conjunction with vessel declines, the number of participants in the processing sector decreased from 10 (2006-2010 average) to seven (2011; Table 8). At the community level, Astoria, Newport, and Coos Bay all had fewer processors in 2011.

The whiting fleet exhibited lower landing volumes at the beginning of the season, but by July 2011, landing volumes had surpassed the five year average (2006-2010; Figure 8). The delayed start is most likely attributed to the new management program. In other words, under the West Coast Groundfish IFQ Program, participants may catch their quota at any time during the year, rather than race for fish in the derby-style fishery that had occurred for this fleet prior to IFQ.

The flexibility of the IFQ program allows fishermen the opportunity to fish during more optimal weather conditions, to fish in other fisheries during early summer, and/or delay their whiting season until later in the season when larger fish will be caught. In addition, it allows these fishermen to work with processors, and deliver catches over a longer period of time without saturating the markets. This flexibility may impact the price paid for the product. Only 12% was harvested during the second quarter of 2011, compared with 32% ± 11 on average, from 2006-2010. Nearly 80 % of total volume was landed from July through September (Q3) 2011, compared with 59 % ± 8 during Q3 of 2006-2010 (average; Figure 9). Additionally, 2011 had the most active fishing days in the past 17 years.

Table 8. Number of participating vessels, trips, average landing, and revenue per trip, in the directed shoreside whiting fishery (2006-2010) and the IFQ whiting fishery (2011). Source: Data were obtained from PacFIN.

Year	Vessels	# trips	avg lbs/trip	se	revenue/trip	se	Processors
2006	24	757	178,932	3,118	10,649	186	10
2007	25	561	169,040	3,929	11,774	288	9
2008	27	344	181,010	4,622	19,993	521	9
2009	26	345	183,385	4,416	11,157	355	11
2010	26	445	157,975	3,640	12,615	361	10
2011	22	736	204,791	2,718	22,922	332	7

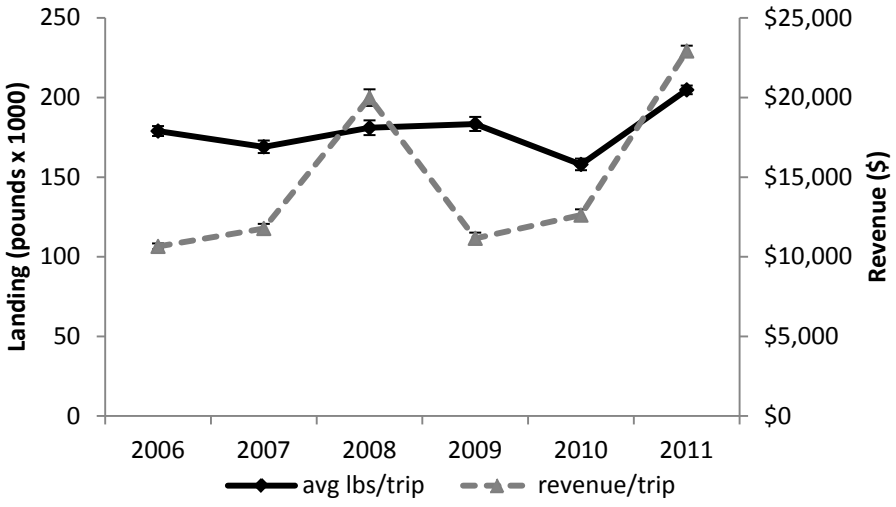

Figure 6. Average landing volume (±SE) and revenue per trip (±SE) of the directed shoreside whiting fleet (2006-2010), and the IFQ whiting fishery (2011). Source: Data were obtained from PacFIN.

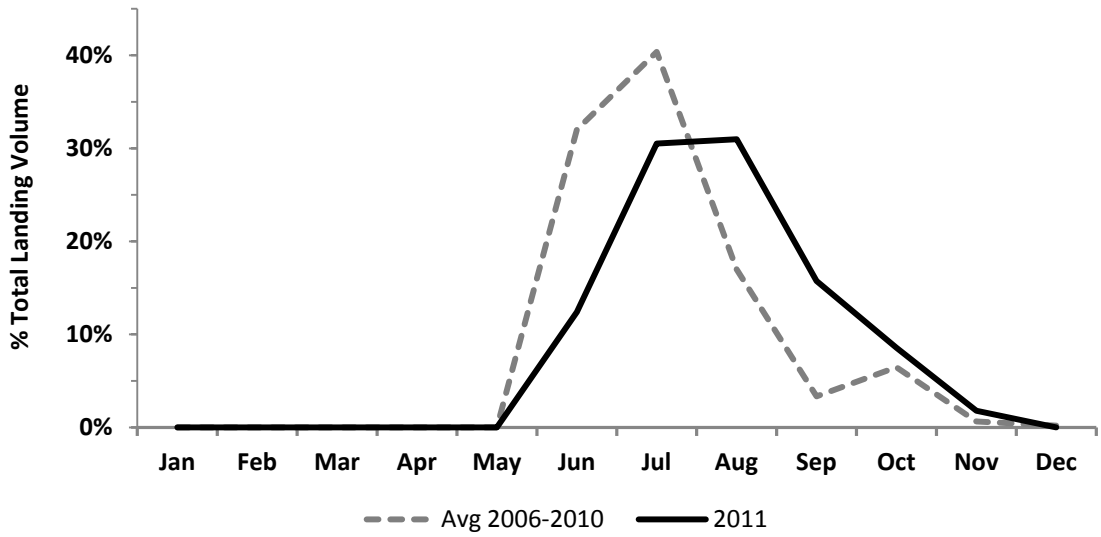

Figure 7. Monthly landings (% of total) by the shoreside, directed whiting fishery, for 2006-2010 and 2011. Source: Data were obtained from PacFIN.

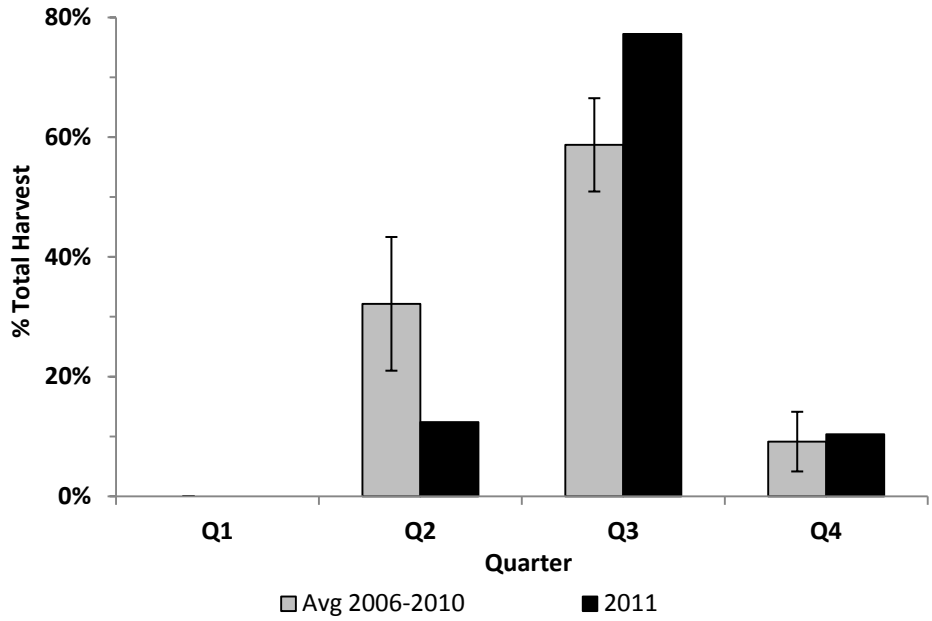

Figure 8. Quarterly landings as a percentage of total annual harvest by the shoreside, directed whiting fleet in the West Coast Groundfish IFQ Fishery in 2011, compared with the historical average (±SE) of the Limited Entry Trawl fleet in 2006-2010. Source: Data were obtained from PacFIN.

Overall, there has not been a huge shift in whiting delivery patterns among Oregon ports. However, note that smaller ports will be differentially impacted by slight delivery pattern shifts, than will larger ports. In 2011, Astoria and Newport showed an increased in number of vessels making directed whiting landings, relative to the historical mean (mean=13 vessels for both) while Coos Bay saw a decline (average = 3; Table 9). Astoria saw increased revenues in 2011, while Newport saw a decline (Figure 10).

Table 9. Vessel participation, by year and port, for the shoreside, directed whiting fleet during 2006-2011. Note that vessels may have landed in multiple ports. Source: Data were obtained from PacFIN.

Year	Astoria	Newport	Coos Bay
2006	11	10	3
2007	10	14	3
2008	15	15	3
2009	12	11	3
2010	15	14	4
2011	17	15	2

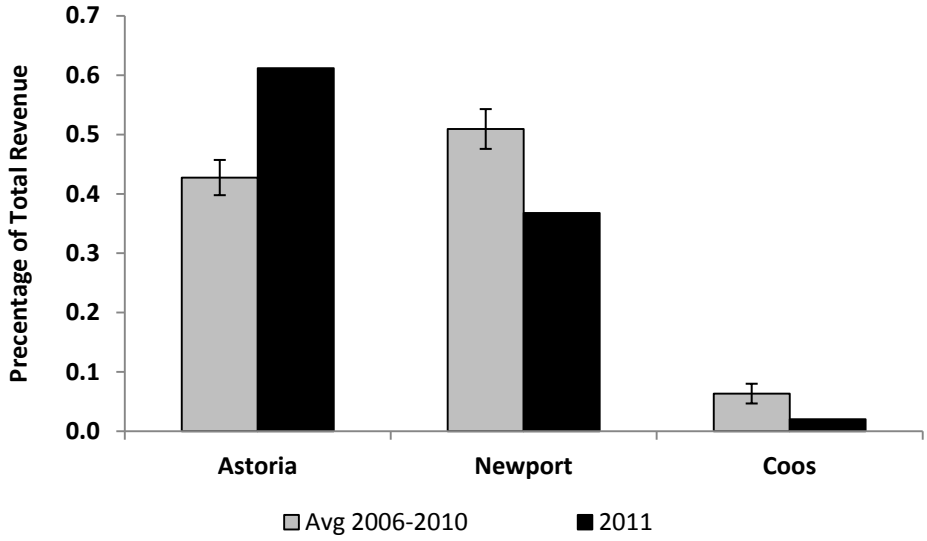

Figure 9. Port landings as a percentage of total annual Oregon harvest by the shoreside, directed whiting fleet in the West Coast Groundfish IFQ Fishery in 2011, compared with the historical average (±SE) of the Limited Entry Trawl fleet in 2006-2010. Source: Data were obtained from PacFIN.

SPILLOVER FROM IFQ TO STATE FISHERIES

One key component of the IFQ fishery is the added flexibility that allows participants to fish during optimal conditions (e.g. ideal weather or high market prices), no longer constraining them to bimonthly trip limits; ultimately ending what was once a derby style fishery. When constrained by trip limits, participants were required to fish during specific management windows, otherwise the catch was forgone. This limited the amount of effort that could be put towards harvesting in other fisheries. The IFQ program allows more flexibility for participants to fish in other fisheries, which may result in an effort shift, or spillover.

One specific example is the spillover of vessels holding limited entry trawl permits into state managed fisheries, specifically pink shrimp and Dungeness crab. Historically, many limited entry trawl permit holders participated in a combination of groundfish, pink shrimp, and/or crab

fisheries, although groundfish trip limits limited the amount of time that these trawlers could spend to change gear and participate in state managed fisheries. With the inception of the IFQ program, participants are no longer as constrained by the opportunity costs associated with switching from one fishery to another. For example, IFQ participants are able to operate in the Dungeness crab fishery when crab season peaks during the first quarter, without forgoing any groundfish landings. In the same respect, IFQ participants are able to shrimp during the peak season (second and third quarter) and wait to harvest IFQ quota pounds until after shrimping subsides. Additionally, if it is more economically beneficial to harvest groundfish, IFQ fishermen can leave state fisheries and return to harvesting IFQ quota pounds. There is also the opportunity to sell quota pounds of groundfish to other IFQ permit holders, and choose not to fish groundfish at all, but rather participate in other fisheries or ventures (e.g., state fisheries, Alaska fisheries, research, etc.).

Pink Shrimp

In 2011, the Oregon pink shrimp fishery had the highest landing volume (48.3 million pounds) since 1989 (http://www.dfw.state.or.us/MRP/publications/docs/shrimp_newsletter2012.pdf), which coincided with the increase in shrimp volume landed by IFQ participants (Figure 6). The total number of participants in the shrimp fishery increased from 54 (2010) to 62 vessels (2011), although the number of IFQ/LET vessels that participated in the pink shrimp fishery decreased from 29 (2010) to 24(2011), while the number of non-IFQ/LET vessels increased by 13 vessels between 2010 and 2011 (Table 10). Furthermore, even though 2011 was an exceptional pink shrimp year, LET/IFQ participants landed the lowest proportion of total shrimp volume since 2007, which comprised 54% of the landing volume. This spillover behavior contrasts with what was anticipated at the inception of the IFQ program. Because of the exceptional 2011 shrimp harvest, it was expected that the number of LET/IFQ participants in the shrimp fishery would show a proportional increase, relative to the number of non-LET/IFQ participants. Even though this result is surprising, it must be pointed out that this analysis is based on one shrimp season and patterns that have emerged during 2011 may change in future seasons.

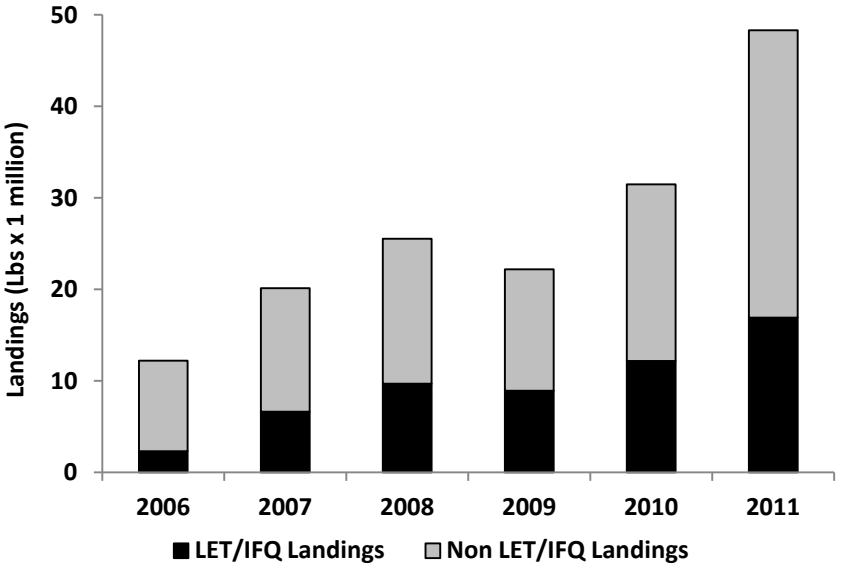

Figure 10. Shrimp landings (pounds) by participants in the Oregon Pink Shrimp fishery with and without limited entry trawl (2006-2010) and IFQ (2011) permits. Source: Data were obtained from PacFIN and from Oregon state commercial landing receipts (ODFW).

Table 10. Oregon pink shrimp landings statistics, by year, of the non-whiting groundfish trawl fishery (2006-2010) and the non-whiting shoreside IFQ fishery (2011). Source: Data were obtained from PacFIN and from Oregon state commercial landing receipts (ODFW).

Year	LET/IFQ Vessels	Non LET/IFQ Vessels	LET/IFQ Trips (No.)	Non LET/IFQ Trips (No.)	LET/IFQ Landings	Non LET/IFQ Landings	% LET/IFQ of Non LET/IFQ Landings
2006	12	25	92	384	2,313,501	9,881,954	23%
2007	22	23	244	471	6,620,229	13,504,720	49%
2008	29	29	312	508	9,678,734	15,841,872	61%
2009	23	27	214	372	8,919,990	13,258,365	67%
2010	29	25	288	446	12,174,336	19,288,570	63%
2011	24	38	349	681	16,904,719	31,409,316	54%

Dungeness Crab

IFQ participants in the Dungeness crab fishery exhibited a similar pattern to shrimp. The 2011-2012 crab season (December to May 31) had the fewest LET/IFQ participants and the lowest landing volumes in the past six seasons. Furthermore, among IFQ/LET participants there was a 34% decline in the number of vessels and the number of landings, along with a 57% decline in revenues from the 2010-11 season to the 2011-12 season (Table 11). However, the overall Dungeness crab fishery price per pound increased from $2.30 to $2.93 per pound during the same time period. The non-IFQ crab fleet participation decreased by 6%, landings decreased by 29%, and revenues by 7%. This is a stark contrast to the behavior exhibited during the 2010-2011 season, which had the most IFQ participants in the Dungeness crab fishery and the largest landing volumes since the 2005-2006 season. The increased effort during the 2010-2011 season may be attributed to the unfamiliarity with the new IFQ program and the delayed start (January 11th, 2011), combined with an exceptional Dungeness crab season. The patterns observed during the most recent season (2011-12) suggest an economic threshold for when to fish in the Dungeness crab fishery, or when to catch IFQ groundfish.

Table 11. Oregon Dungeness Crab landings statistics, by year, of the non-whiting groundfish trawl fishery (2005-2010) and the non-whiting shoreside IFQ fishery (2011-2012). Source: Data were obtained from PacFIN and from Oregon state commercial landing receipts (ODFW). Note that the crab seasons in this report run from December to May 31).

Crab Season	IFQ/LET Vessels (No)	Non IFQ/LET (No)	IFQ/LET Landings (Lbs)	Non IFQ/LET Landings (Lbs)	%IFQ/LET of Non-IFQ/LET Landings	Total IFQ/LET Crab Revenue ($)	Avg Price/ Pound ($)
2005-06	32	285	4,082,576	22,832,639	18%	$6,136,001	$1.57
2006-07	32	300	2,132,564	12,789,448	17%	$4,249,637	$2.18
2007-08	30	282	1,847,183	10,288,589	18%	$4,093,118	$2.39
2008-09	30	278	1,564,438	11,170,965	14%	$2,699,109	$2.01
2009-10	37	284	3,491,930	19,521,607	18%	$6,272,121	$1.93

2010-11	38	303	3,304,457	17,641,649	19%	$6,906,049	$2.30
2011-12	25	284	1,164,044	12,613,230	9%	$2,964,461	$2.93

DISCUSSION AND POTENTIAL MANAGEMENT IMPLICATIONS

In 2011, both the non-whiting and directed whiting West Coast Groundfish IFQ fleets exhibited declines in vessel participation and processing sector participation. Whiting vessels made more frequent, larger volume trips while the non-whiting IFQ fleet made less frequent, albeit larger landing trips. In 2011, the non-whiting sector had the highest average ex-vessel revenues in the past five years, although statewide groundfish revenues are approximately the same as the historical average (2006-2010). One possible reason for high average ex-vessel revenues is the increased value of some IFQ species, such as sablefish. High sablefish prices may be a function of increased international demand, combined with curtailed production in Japan, due to tsunami effects. One key component of the IFQ program is the use of fixed gear to fish IFQ species quota, also referred to as gear switching. Sablefish caught with fixed gear earns a higher price per size category for fixed gear, relative to trawl caught sablefish. In 2011, there were 11 vessels in Oregon that solely utilized fixed gear to fish IFQ quota pounds. Ports were differentially impacted by this influx in fixed gear fish with the most dramatic change occurring in Newport. Newport was historically a trawl dominated port, and has now shifted to a fixed gear dominated port. In addition to the opportunity for fixed gear use, IFQ participants may also choose to participate, or spillover, into other fisheries, as they are no longer constrained by trip limits and thus, the opportunity costs associated with switching from one fishery to another.

One specific example is the spillover into state managed fisheries, specifically pink shrimp and Dungeness crab. Interestingly, even though 2011 was an exceptional pink shrimp year, LET/IFQ participants landed the lowest proportion of total shrimp volume since 2007. This spillover behavior contrasts with what was anticipated at the inception of the IFQ program. IFQ participants in the Dungeness crab fishery exhibited a similar pattern to shrimp. The 2011-2012 crab season had the fewest LET/IFQ participants and the lowest landing volumes in the past six seasons. This is a stark contrast to the behavior exhibited during the 2010-2011 season, which had the most participants and the largest landing volumes since the 2005-2006 season. The increased effort during the 2010-2011 may be attributed to the unfamiliarity with the new IFQ program and the delayed start (January 11th, 2011), combined with an exceptional Dungeness crab season. The drop in IFQ participants in both the shrimp and crab fisheries indicate that there is an economic threshold for when to fish in the state managed fisheries, or when to fish IFQ groundfish.

DATA SOURCES

Data in this report were derived from multiple sources: groundfish landings data for 2011 through March 2012 were obtained from the Pacific Fisheries Information Network (PacFIN) data base. Data from 2006 through 2010. State managed fisheries data, which includes Dungeness crab and pink shrimp, were obtained from Oregon commercial paper landing receipts. The revenue described in this report refers to ex-vessel revenue and is not adjusted for inflation. Shoreside whiting and non-whiting IFQ trips were delineated by two factors: gear type and proportion of Pacific whiting catch on a given landing. In other words, if trawl gear was used to catch greater than 50 percent Pacific whiting, then that trip was designated as a shoreside whiting trip and that data is summarized in the Pacific whiting section of this report. All other landings by vessels using trawl gear with a limited entry permit were considered part of the shoreside non-

whiting fleet from 2006 to 2010. In 2011 and 2012, shoreside whiting and non-whiting IFQ landings were identified via electronic landing receipts a. It should be noted that 2011 IFQ landings were made using trawl gear and fixed gear (which includes longline and pot gear). Fixed gear landings were delineated as either limited entry, non-nearshore fixed gear landings or as IFQ fixed gear landings for this analysis. Analysis based on the limited entry, non-nearshore fixed gear fishery (e.g. non-IFQ fixed gear landings) are specified herein, and all other fixed gear landings were made under the IFQ program. Commercial Oregon fish tickets were used to obtain state managed fisheries data (Dungeness crab and pink shrimp). Because the 2011 and 2012 information is recent this data may change slightly as updates are made.