

NWFSC Processed Report 2018-02



Fisheries Observation Science Program Coverage Rates, 2002–17

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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
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Northwest Fisheries Science Center

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Introduction

The Fisheries Observation Science (FOS) Program at the Northwest Fishery Science Center consists of two programs, the At-Sea Hake Observer Program (A-SHOP) and the West Coast Groundfish Observer Program (WCGOP). The A-SHOP observes the hake fleet that processes catch at sea, while the WCGOP observes a number of fleets that deliver catch shoreside for processing, including sectors that target and incidentally impact groundfish. Both programs place trained scientists on board commercial fishing vessels to observe and sample all catch; the WCGOP specifically focuses on at-sea discard estimates. This report also includes fish ticket landings data from the Pacific Fishery Information Network (PacFIN).

This processed report describes the level of observer coverage, as the proportion of targeted landings associated with observed trips to the total targeted landings across all trips in the fleet, for 2002 to 2017. The species considered to be targeted are defined based on the fishery and described in the header of each table. The total targeted landings by each fleet are reported even in years when the FOS did not observe any trips. In some cases, fewer than three active vessels in a stratum result in confidential data, which are masked using asterisks. The level of observer coverage and sampling can vary greatly between fisheries, years, and spatial strata. This report quantifies the magnitude of expansions required to use observer data to estimate fleetwide levels of discard and can highlight areas where estimates are less certain.

Every year this report is updated to include the newest year of data, the most current data from the FOS and PacFIN for previous years, and the most recent data processing procedures. This report includes the three new sectors which WCGOP observed for the first time in 2017: Sea Cucumber Trawl, Pacific Halibut Derby, and Ridgeback Prawn. All updates are described in the Groundfish Mortality report, which is available in draft form annually in the Pacific Fishery Management Council September Briefing Book and later in the year in final form via a Technical Memorandum. The tables in this processed report are also available as [spreadsheets](#).¹

¹ http://www.nwfsc.noaa.gov/research/divisions/fram/observation/data_products/sector_products.cfm#ob

Table 1. Limited entry bottom trawl coverage rates, 2002–10. Total trips, tows, vessels, and groundfish landings (mt) observed in the limited entry groundfish bottom trawl fishery. Coverage rates are computed as the observed proportion of total FMP groundfish landings (excluding Pacific hake), summarized from fish ticket landing receipts. Note that number of vessels and trips in each stratum may sum to a greater amount than reported total by year, because a vessel can fish in more than one area.

Coastwide Total						
Year	Observed				Fleet Total	Coverage Rate
	# of vessels	# of trips	# of tows	Groundfish landings (mt)	Groundfish landings (mt)	% landings observed
2002	132	570	3186	2496.3	17314.0	14%
2003	125	465	2315	2433.5	17385.8	14%
2004	103	616	3483	4175.6	17081.1	24%
2005	105	524	3504	4042.8	18420.8	22%
2006	87	476	3025	3247.0	16773.5	19%
2007	88	374	2550	3308.6	19575.5	17%
2008	100	438	3224	4670.5	22922.3	20%
2009	101	590	4455	5947.3	25584.8	23%
2010	83	348	2640	4042.4	22133.8	18%

Management Area Stratified Total						
Year	Observed				Fleet Total	Coverage Rate
	# of vessels	# of trips	# of tows	Groundfish landings (mt)	Groundfish landings (mt)	% landings observed
Management area: north of lat 40°10'N						
2002	94	438	2606	1833.8	12689.3	14%
2003	95	319	1814	1914.7	13191.3	15%
2004	76	447	2737	3185.1	13394.4	24%
2005	83	398	2917	3378.0	15363.8	22%
2006	70	365	2556	2793.6	14371.8	19%
2007	73	285	2083	2760.2	16994.1	16%
2008	83	356	2761	4198.9	20031.0	21%
2009	85	485	3875	5325.2	22892.3	23%
2010	71	287	2277	3681.5	19652.0	19%
Management area: south of lat 40°10'N						
2002	45	134	580	662.4	4624.8	14%
2003	40	156	501	518.8	4194.5	12%
2004	34	175	746	990.5	3686.8	27%
2005	25	128	587	664.8	3057.0	22%
2006	20	117	469	453.4	2401.7	19%
2007	18	92	467	548.5	2581.4	21%
2008	21	89	463	471.7	2891.3	16%
2009	18	107	580	622.1	2692.5	23%
2010	13	63	363	360.9	2481.8	15%

Table 2. California halibut trawl coverage rates, 2002–17. Total trips, tows, vessels, and California halibut landings (mt) observed in the California halibut trawl fishery. Coverage rates are computed as the observed proportion of total California halibut landings, summarized from fish ticket landing receipts.

Sector Stratified Total						
	Observed				Fleet Total	Coverage Rate
Year	# of vessels	# of trips	# of tows	California halibut landings (mt)	California halibut landings (mt)	% California halibut landings observed
Limited Entry Sector						
2002	7	19	52	3.6	105.2	3%
2003	12	73	207	19.1	105.5	18%
2004	8	46	171	31.5	136.3	23%
2005	10	74	235	30.5	188.9	16%
2006	9	78	224	14.3	119.5	12%
2007	5	40	81	5.4	18.6	29%
2008	6	40	118	9.6	36.4	26%
2009	3	12	29	2.9	47.2	6%
2010	Combined with OA, below.					
2011 ^a	3	63	157	11.9	11.9	100%
2012 ^a	See Table 4.					
2013 ^{a,b}	See Table 4.					
2014	No effort occurred.					
2015	No effort occurred.					
2016	No effort occurred.					
2017	No effort occurred.					
Open Access Sector						
2002	0	0	0	0.0	35.9	0%
2003	5	18	110	2.0	25.8	8%
2004	4	53	244	5.1	70.8	7%
2005	6	59	362	7.4	64.5	12%
2006	0	0	0	0.0	54.8	0%
2007	8	48	227	2.7	39.2	7%
2008	7	49	199	2.7	51.9	5%
2009	3	9	30	0.6	82.4	1%
2010	8	43	153	8.8	123.6	7%
2011	13	48	204	12.4	79.9	16%
2012	7	27	78	3.5	55.8	6%
2013	5	29	81	4.3	69.2	6%
2014	7	51	145	18.1	81.4	22%
2015	8	100	339	30.6	92.1	33%
2016	11	114	500	27.3	89.6	30%
2017	13	130	555	28.4	96.4	29%

^a Beginning in 2011, limited entry California halibut fishing was covered under IFQ groundfish fishery regulations.

^b Beginning in 2013, limited entry California halibut fishing was included in the IFQ bottom trawl coverage table.

Table 3. Sea cucumber trawl coverage rates, 2017. Total trips, tows, vessels, and sea cucumber landings (mt) observed in the sea cucumber trawl fishery, which occurs only in California. In 2017, WCGOP initiated a pilot study to estimate incidental groundfish catch in the fishery. Coverage rates are computed as the observed proportion of total sea cucumber landings, summarized from fish ticket landing receipts.

California Total						
Year	Observed			Sea cucumber landings (mt)	Fleet Total	Coverage Rate
	# of vessels	# of trips	# of tows		Sea cucumber landings (mt)	% Sea cucumber landings observed
2002	0	0	0	0.0	128.2	0%
2003	0	0	0	0.0	132.5	0%
2004	0	0	0	0.0	125.4	0%
2005	0	0	0	0.0	103.5	0%
2006	0	0	0	0.0	65.3	0%
2007	0	0	0	0.0	51.5	0%
2008	0	0	0	0.0	112.9	0%
2009	0	0	0	0.0	99.9	0%
2010	0	0	0	0.0	86.9	0%
2011	0	0	0	0.0	137.2	0%
2012	0	0	0	0.0	86.4	0%
2013	0	0	0	0.0	64.8	0%
2014	0	0	0	0.0	47.3	0%
2015	0	0	0	0.0	46.7	0%
2016	0	0	0	0.0	29.5	0%
2017	3	22	51	2.0	13.8	14%

Table 4. IFQ non-hake shoreside fishery coverage and sampling rates, 2011–17. Total trips, tows/sets, vessels, and groundfish landings (mt) observed and sampled in the non-EM portion of the IFQ fishery by gear type fished. 100% of trips in the IFQ sector are covered by an observer. However, on rare occasions (e.g., observer illness), tows or sets are not sampled (unsampled). In some cases, tows or sets may have some portion of the discarded catch recorded in very broad or mixed (unsampled) categories. Sampling rates are computed as the proportion of total groundfish landings (excluding Pacific hake) from the sampled catch versus total catch (sampled + unsampled). Landed weights were adjusted to fish ticket landing receipts for each trip. All participating vessels were observed for all fishing trips under IFQ management. Note that number of vessels and trips in each stratum may sum to a greater amount than reported total by year, because a vessel can fish in more than one area or season or using more than one gear.

Bottom Trawl Gears: Coastwide total

Year	# of vessels	# of trips	# tows sampled	Sampled groundfish landings (mt)	# tows unsampled	Unsampled groundfish landings (mt)	Sampling Rate	
							% tows sampled	% groundfish landings sampled
2011 ^a	72	1134	9197	16981.3	56	95.2	99.4%	99.4%
2012 ^b	67	1089	8968	16949.4	52	104.8	99.4%	99.4%
2013 ^b	68	1193	10017	18537.6	24	50.5	99.8%	99.7%
2014	64	1033	8323	15759.2	42	85.2	99.5%	99.5%
2015	60	904	7480	15589.5	13	52.4	99.8%	99.7%
2016 ^c	53	802	6623	14957.2	16	42.7	99.8%	99.7%
2017 ^{c,d}	54	839	6398	15377.6	8	13.5	99.9%	99.9%

Bottom Trawl Gears: Management area stratified total

Year	# of vessels	# of trips	# tows sampled	Sampled groundfish landings (mt)	# tows unsampled	Unsampled groundfish landings (mt)	Sampling Rate	
							% tows sampled	% groundfish landings sampled
Management area: north of lat 40°10'N								
2011 ^a	63	888	7738	14822.3	53	89.9	99.3%	99.4%
2012 ^b	58	826	7242	14485.1	49	99.8	99.3%	99.3%
2013 ^b	56	901	8190	15869.4	22	49.3	99.7%	99.7%
2014	56	752	6368	13200.4	29	63.1	99.5%	99.5%
2015	51	715	6160	13752.8	10	49.7	99.8%	99.6%
2016 ^c	46	696	5922	14128.2	16	42.7	99.7%	99.7%
2017 ^{c,d}	47	766	5987	14599.2	7	11.4	99.9%	99.9%

^a Bottom and midwater trawl gears were combined to maintain confidentiality.

^b 2012 and 2013 include limited entry California halibut fishing in the IFQ bottom trawl coverage table. No effort has occurred since 2014.

^c In 2016 and 2017, all PSMFC Discard Handling Research trips were 100% monitored by both EM and WCGOP. These trips are included in the 100% observed IFQ fishery.

^d 2017 includes trips participating in the gear modification fishery with 100% observer coverage using bottom trawl non-pelagically.

Table 4 (continued). IFQ non-hake shoreside fishery coverage and sampling rates, 2011–17.

Bottom Trawl Gears: Management area stratified total								
Year	# of vessels	# of trips	# tows sampled	Sampled groundfish landings (mt)	# tows unsampled	Unsampled groundfish landings (mt)	Sampling Rate	
							% tows sampled	% groundfish landings sampled
Management area: south of lat 40°10'N								
2011 ^a	15	247	1459	2158.9	3	5.3	99.8%	99.8%
2012 ^b	15	263	1727	2464.3	3	5.0	99.8%	99.8%
2013 ^b	16	292	1828	2668.2	2	1.2	99.9%	100.0%
2014	16	281	1956	2558.8	13	22.1	99.3%	99.1%
2015	13	189	1321	1836.7	3	2.7	99.8%	99.9%
2016 ^c	11	106	702	829.0	0	0.0	100.0%	100.0%
2017 ^{c,d}	8	73	411	778.3	1	2.1	99.8%	99.7%

Midwater Trawl Gears: Coastwide total

Year	# of vessels	# of trips	# tows sampled	Sampled groundfish landings (mt)	# tows unsampled	Unsampled groundfish landings (mt)	Sampling Rate	
							% tows sampled	% groundfish landings sampled
2011 ^a	See Bottom Trawl Gears, above.							
2012	5	10	36	197.6	0	0.0	100.0%	100.0%
2013	8	26	79	404.7	0	0.0	100.0%	100.0%
2014	9	34	133	873.7	0	0.0	100.0%	100.0%
2015	See Tables 7 and 8.							
2016	See Tables 7 and 8.							
2017	See Tables 7 and 8.							

Hook-and-Line Gears: Coastwide total

Year	# of vessels	# of trips	# sets sampled	Sampled groundfish landings (mt)	# sets unsampled	Unsampled groundfish landings (mt)	Sampling Rate	
							% sets sampled	% groundfish landings sampled
2011	11	94	630	335.5	1	0.0	99.8%	100.0%
2012	8	32	506	241.3	0	0.0	100.0%	100.0%
2013	8	29	215	79.4	0	0.0	100.0%	100.0%
2014	8	31	227	88.6	32	9.8	87.6%	90.0%
2015	5	16	185	137.8	0	0.0	100.0%	100.0%
2016	5	30	351	192.7	0	0.0	100.0%	100.0%
2017	4	13	148	115.9	4	0.4	97.4%	99.6%

^a Bottom and midwater trawl gears were combined to maintain confidentiality.^b 2012 and 2013 include limited entry California halibut fishing in the IFQ bottom trawl coverage table. No effort has occurred since 2014.^c In 2016 and 2017, all PSMFC Discard Handling Research trips were 100% monitored by both EM and WCGOP. These trips are included in the 100% observed IFQ fishery.^d 2017 includes trips participating in the gear modification fishery with 100% observer coverage using bottom trawl non-pelagically.

Table 4 (continued). IFQ non-hake shoreside fishery coverage and sampling rates, 2011–17.

Pot Gears: Coastwide total

Year	# of vessels	# of trips	# sets sampled	Sampled groundfish landings (mt)	# sets unsampled	Unsampled groundfish landings (mt)	Sampling Rate	
							% sets sampled	% groundfish landings sampled
2011	17	233	1536	813.8	18	3.4	98.8%	99.6%
2012	19	278	1709	740.7	0	0.0	100.0%	100.0%
2013	10	100	1086	470.8	0	0.0	100.0%	100.0%
2014	14	118	1288	681.2	0	0.0	100.0%	100.0%
2015	8	62	584	405.3	0	0.0	100.0%	100.0%
2016	8	61	584	387.0	0	0.0	100.0%	100.0%
2017	6	44	574	367.3	0	0.0	100.0%	100.0%

Pot Gears: Management area stratified total

Year	# of vessels	# of trips	# sets sampled	Sampled groundfish landings (mt)	# sets unsampled	Unsampled groundfish landings (mt)	Sampling Rate	
							% sets sampled	% groundfish landings sampled
Management area: north of lat 40°10'N								
2011	11	85	797	420.1	18	3.4	97.8%	99.2%
2012	12	109	896	470.5	0	0.0	100.0%	100.0%
2013	7	54	675	362.8	0	0.0	100.0%	100.0%
2014	9	66	660	352.8	0	0.0	100.0%	100.0%
2015	6	39	363	328.4	0	0.0	100.0%	100.0%
2016	*	*	*	*	*	*	*	*
2017	4	37	487	342.7	0	0.0	100.0%	100.0%
Management area: south of lat 40°10'N								
2011	11	148	739	393.7	0	0.0	100.0%	100.0%
2012	14	169	814	270.2	0	0.0	100.0%	100.0%
2013	6	46	412	108.1	0	0.0	100.0%	100.0%
2014	8	52	628	328.4	0	0.0	100.0%	100.0%
2015	5	23	221	76.9	0	0.0	100.0%	100.0%
2016	*	*	*	*	*	*	*	*
2017	3	7	87	24.7	0	0.0	100.0%	100.0%

Table 5. EM IFQ shoreside fishery coverage and sampling rates, 2015–17. Total trips, tows, vessels, and groundfish landings (mt) observed in the EM IFQ shoreside fishery, which is observed for scientific purposes. Coverage rates are computed as the observed proportion of total FMP groundfish landings (excluding Pacific hake), summarized from fish ticket landing receipts. Note that number of vessels and trips in each stratum may sum to a greater amount than reported total by year, because a vessel can fish in more than one area.

Bottom and Midwater Trawl Gears: Coastwide total						
Year	Observed				Fleet Total	Coverage Rate
	# of vessels	# of trips	# of tows	Groundfish landings (mt)	Groundfish landings (mt)	% landings observed
2015	4	9	57	134.6	404.2	33%
2016 ^a	7	29	182	487.2	1730.9	28%
2017 ^{a,b}	8	25	152	330.3	2052.2	16%

^aIn 2016 and 2017, all PSMFC Discard Handling Research trips were 100% monitored by both EM and WCGOP. These trips are included in the 100% observed IFQ fishery.

^b2017 includes trips participating in the gear modification fishery while using EM.

Pot Gears: Coastwide total						
Year	Observed				Fleet Total	Coverage Rate
	# of vessels	# of trips	# of tows	Groundfish landings (mt)	Groundfish landings (mt)	% landings observed
2015	7	18	184	102.4	339.4	30%
2016	6	19	249	152.0	470.5	32%
2017	7	22	270	184.1	504.5	36%

Pot Gears: Management area stratified total						
Year	Observed				Fleet Total	Coverage Rate
	# of vessels	# of trips	# of tows	Groundfish landings (mt)	Groundfish landings (mt)	% landings observed
Management area: north of lat 40°10'N						
2015	3	11	96	59	185.0	32%
2016	4	12	140	91.1	297.4	31%
2017	4	14	163	106.5	279.4	38%
Management area: south of lat 40°10'N						
2015	4	7	88	43.0	154.4	28%
2016	4	7	109	60.8	173.1	35%
2017	5	8	107	77.6	225.1	34%

Table 6. Shoreside hake coverage and sampling rates, 2011–14. Total trips, tows, vessels, and Pacific hake landed weight (mt) observed and sampled in the shoreside hake sector of the IFQ fishery. 100% of trips in this sector are covered by an observer. However, on rare occasions (e.g., observer illness), tows or sets are not sampled (unsampled). Sampling rates are computed as the proportion of total Pacific hake landings from the sampled catch versus total catch (sampled + unsampled). Landed weights were adjusted to fish ticket landing receipts for each trip. All participating vessels were observed for all fishing trips under IFQ management.

Coastwide Total								
Year	# of vessels	# of trips	Observed			Sampling Rate		
			# tows sampled	Sampled Pacific hake landings (mt)	# tows unsampled	Unsampled Pacific hake landings (mt)	% tows sampled	% Pacific hake landings sampled
2011	27	929	1717	90777.3	0	0.0	100.0%	100.0%
2012	24	744	1601	65396.4	0	0.0	100.0%	100.0%
2013	24	960	1734	96867.8	0	0.0	100.0%	100.0%
2014	25	996	1725	97925.2	1	57.5	99.9%	99.9%
2015	See Tables 7 and 8.							
2016	See Tables 7 and 8.							
2017	See Tables 7 and 8.							

Table 7. Shoreside midwater coverage and sampling rates, 2015–17. Total trips, tows, vessels, and Pacific hake and FMP groundfish landed weight (mt) observed and sampled in the non-EM portion of the shoreside midwater sector of the IFQ fishery. Sector definitions are based on landed weight: more than 50% hake on the vessel's landing date constitutes midwater hake, while less than 50% hake constitutes midwater rockfish. 100% of trips in this sector are covered by an observer. However, on rare occasions (e.g., observer illness), tows or sets are not sampled (unsampled). Sampling rates are computed as the proportion of total Pacific hake landings from the sampled catch versus total catch (sampled + unsampled). Landed weights were adjusted to fish ticket landing receipts for each trip.

Midwater Hake: Coastwide total

Year	# of vessels	# of trips	# tows sampled	Observed			Sampling Rate				
				Sampled Pacific hake landings (mt)	Sampled groundfish landings (mt)	# tows unsampled	Unsampled groundfish landings (mt)	Unsampled Pacific hake landings (mt)	% tows sampled	% groundfish landings sampled	% Pacific hake landings sampled
2015	5	129	289	11461.4	154.2	0	0.0	0.0	100.0%	100.0%	100.0%
2016	4	100	207	8970.0	152.4	0	0.0	0.0	100.0%	100.0%	100.0%
2017	4	136	242	10991.3	211.1	0	0.0	0.0	100.0%	100.0%	100.0%

Midwater Rockfish: Coastwide total

Year	# of vessels	# of trips	# tows sampled	Observed			Sampling Rate				
				Sampled Pacific hake landings (mt)	Sampled groundfish landings (mt)	# tows unsampled	Unsampled groundfish landings (mt)	Unsampled Pacific hake landings (mt)	% tows sampled	% groundfish landings sampled	% Pacific hake landings sampled
2015	7	43	147	15.2	968.5	0	0.0	0.0	100.0%	100.0%	100.0%
2016	4	16	49	29.5	375.3	0	0.0	0.0	100.0%	100.0%	100.0%
2017	11	139	279	123.3	4298.0	0	0.0	0.0	100.0%	100.0%	100.0%

Table 8. EM IFQ shoreside midwater landings, 2015–17. Total vessels, estimated trips (unique landing dates for a vessel), and Pacific hake and FMP-groundfish landed weight (mt) in the EM midwater sector of the IFQ fishery. This sector has no observer coverage. Sector definitions are based on landed weight: more than 50% hake on the vessel's landing date constitutes midwater hake, while less than 50% hake constitutes midwater rockfish.

Midwater Hake: Coastwide total

Fleet Total				
Year	# of vessels	# of estimated trips	Hake landings (mt)	Groundfish landings (mt)
2015	17	454	46439.8	715.5
2016	20	648	76412.2	942.4
2017	22	1104	133134.7	2673.7

Midwater Rockfish: Coastwide total

Fleet Total				
Year	# of vessels	# of estimated trips	Hake landings (mt)	Groundfish landings (mt)
2015	8	26	38.6	794.5
2016	6	30	48.4	768.3
2017	10	53	158.7	1569.8

Table 9. At-Sea hake coverage and sampling rates, 2002–17. Total tows, vessels, and Pacific hake landings (mt) observed and sampled in the at-sea hake fishery. No fishing occurred in the tribal sector from 2013 forward. 100% of trips in this sector are covered by two observers. However, on rare occasions (e.g., observer illness), tows or sets are not sampled (unsampled). Sampling rates are computed as the percent of tows sampled and the percent of total catch weight within those sampled tows.

Catcher Processor At-Sea Total

Observed							Sampling Rate	
Year	# of vessels	# tows sampled	# tows unsampled	Total Pacific hake (mt)	Sampled total catch (mt)	Unsampled total catch (mt)	% tows sampled	% total catch sampled
2002	5	556	1	36332.9	36529.7	89.5	99.8%	99.8%
2003	6	766	1	41468.6	41408.1	25.1	99.9%	99.9%
2004	6	1492	4	72858.7	74589.0	186.5	99.7%	99.8%
2005	6	1332	2	78497.5	79310.6	22.2	99.9%	100.0%
2006	9	1488	2	78246.3	79917.4	28.4	99.9%	100.0%
2007	9	1566	4	72898.1	74214.5	89.1	99.7%	99.9%
2008	8	1864	18	107754.4	109939.8	1086.4	99.0%	99.0%
2009	5	863	0	34590.8	38495.2	0.0	100.0%	100.0%
2010	6	1063	1	54217.3	54750.8	29.2	99.9%	99.9%
2011	9	1530	4	71336.7	72600.8	157.6	99.7%	99.8%
2012	9	1100	2	55522.6	55534.5	133.7	99.8%	99.8%
2013	9	1439	4	78004.8	78216.5	226.7	99.7%	99.7%
2014	9	1683	1	103171.3	103546.8	89.5	99.9%	99.9%
2015	9	1503	4	68435.2	69076.9	129.2	99.7%	99.8%
2016	9	2188	1	108780.6	109679.5	60.4	100.0%	99.9%
2017	9	2143	2	137104.5	138778.5	66.5	99.9%	100.0%

Table 9 (continued). At-Sea hake coverage and sampling rates, 2002–17.

Mothership At-Sea Total

Year	# of vessels	Observed			Sampling Rate			
		# sampled tows	# unsampled tows	Total Pacific hake (mt)	Sampled total catch (mt)	Unsampled total catch (mt)	% tows sampled	% total catch sampled
2002	11	573	1	26502.9	26607.6	32.5	99.8%	99.9%
2003	12	522	14	25332.9	25368.3	671.7	97.4%	97.4%
2004	10	569	2	24010.1	24109.6	53.0	99.6%	99.8%
2005	18	1038	1	48600.6	49314.8	20.0	99.9%	100.0%
2006	20	1243	40	54138.8	53873.8	1729.1	96.9%	96.9%
2007	20	1135	11	47276.3	47582.7	402.5	99.0%	99.2%
2008	19	1346	3	57687.4	58083.6	175.1	99.8%	99.7%
2009	19	597	3	24066.4	24249.0	47.5	99.5%	99.8%
2010	21	908	0	35726.9	35935.4	0.0	100.0%	100.0%
2011	18	1246	2	49970.6	50329.7	1.0	99.8%	100.0%
2012	16	931	18	38042.1	37988.7	654.5	98.1%	98.3%
2013	18	1249	7	52348.3	52746.2	141.0	99.4%	99.7%
2014	19	1288	18	61793.7	62178.8	155.1	98.6%	99.8%
2015	14	625	6	27544.5	27805.0	47.2	99.0%	99.8%
2016	17	1550	7	64597.1	65426.7	64.3	99.6%	99.9%
2017	15	1287	15	65358.5	66804.0	286.7	98.8%	99.6%

Tribal At-Sea Total

Year	# of vessels	Observed			Sampling Rate			
		# sampled tows	# unsampled tows	Total Pacific hake (mt)	Sampled total catch (mt)	Unsampled total catch (mt)	% tows sampled	% total catch sampled
2002	4	625	8	21629.0	22829.1	319.2	98.7%	98.6%
2003	4	537	3	19430.8	20562.1	121.9	99.4%	99.4%
2004	5	632	0	23511.4	23949.5	0.0	100.0%	100.0%
2005	4	632	1	23561.6	24304.2	11.7	99.8%	100.0%
2006	4	154	6	5405.4	5412.9	248.1	96.3%	95.6%
2007	5	156	0	5129.4	5275.1	0.0	100.0%	100.0%
2008	5	380	2	14977.3	15349.6	62.0	99.5%	99.6%
2009	5	403	1	13469.4	14099.4	7.8	99.8%	99.9%
2010	5	516	0	16206.2	16529.6	0.0	100.0%	100.0%
2011	5	228	0	6146.9	6437.7	0.0	100.0%	100.0%
2012	*	*	*	*	*	*	*	*

Table 10. Limited entry sablefish-endorsed fixed gear coverage rates, 2002–17. Total trips, sets, vessels, and sablefish and groundfish (including sablefish) landings (mt) observed in the limited entry sablefish-endorsed fixed gear groundfish fishery during the primary season. Coverage rates are computed as the observed proportion of total sablefish or groundfish landings, summarized from fish ticket landing receipts. Note that number of vessels and trips in each strata may sum to a greater amount than reported total by year, because a vessel can fish in more than one area or season or using more than one gear.

Coastwide Total									
Year	# of vessels	# of trips	Observed			Fleet Total		Coverage Rate	
			# of sets	Sablefish landings (mt)	Groundfish landings (mt)	Sablefish landings (mt)	Groundfish landings (mt)	% Sablefish landings observed	% Groundfish landings observed
2002	31	91	638	273.3	297.2	1144.0	1440.3	24%	21%
2003	21	83	713	371.2	387.0	1655.5	1780.7	22%	22%
2004	19	58	465	262.7	270.8	1937.7	2090.0	14%	13%
2005	32	139	1170	762.6	811.3	1956.6	2184.5	39%	37%
2006	24	107	759	496.4	517.0	1983.0	2171.0	25%	24%
2007	26	105	671	388.5	455.7	1532.3	1760.4	25%	26%
2008	24	101	869	583.0	606.3	1536.3	1740.7	38%	35%
2009	11	72	354	164.3	175.7	1930.6	2062.8	9%	9%
2010	27	181	1076	486.2	514.3	1807.7	1932.6	27%	27%
2011	26	120	900	378.2	409.5	1525.4	1652.2	25%	25%
2012	22	107	883	340.4	367.3	1365.1	1509.9	25%	24%
2013	20	66	400	206.9	230.9	1031.1	1169.5	20%	20%
2014	21	101	690	307.2	344.7	1085.2	1193.4	28%	29%
2015	35	133	940	615.2	657.1	1298.0	1409.5	47%	47%
2016	28	149	1267	592.4	632.2	1390.7	1528.8	43%	41%
2017	28	123	887	512.3	566.2	1435.9	1592.3	36%	36%

Table 10 (continued). Limited entry sablefish-endorsed fixed gear coverage rates, 2002–17.

Management Area Stratified Total									
Year	# of vessels	# of trips	Observed			Fleet Total		Coverage Rate	
			# of sets	Sablefish landings (mt)	Groundfish landings (mt)	Sablefish landings (mt)	Groundfish landings (mt)	% Sablefish landings observed	% Groundfish landings observed
Management area: north of lat 40°10'N									
2002	29	88	621	266.6	289.9	1044.3	1321.5	26%	22%
2003	*	*	*	*	*	1519.5	1619.3	*	*
2004	15	43	396	215.1	221.7	1748.3	1875.9	12%	12%
2005	29	125	1135	735.8	783.2	1844.0	2061.1	40%	38%
2006	*	*	*	*	*	1856.5	2030.9	*	*
2007	22	91	616	338.9	402.2	1399.3	1612.7	24%	25%
2008	*	*	*	*	*	1400.1	1591.9	*	*
2009	9	52	310	127.1	137.4	1729.7	1850.0	7%	7%
2010	21	153	1028	458.9	484.3	1565.0	1670.5	29%	29%
2011	*	*	*	*	*	1214.3	1315.7	*	*
2012	20	97	795	297.3	319.9	1054.4	1164.3	28%	27%
2013	15	43	308	138.7	158.1	819.1	933.3	17%	17%
2014	14	49	546	222.1	250.8	827.9	908.4	27%	28%
2015	29	104	809	530.3	565.3	1019.4	1099.7	52%	51%
2016	23	110	1170	555.3	591.2	1108.9	1222.2	50%	48%
2017	*	*	*	*	*	1122.9	1243.1	*	*
Management area: lat 40°10'N to lat 36°N									
2002	4	4	17	6.6	7.3	99.7	118.8	7%	6%
2003	*	*	*	*	*	136.0	161.4	*	*
2004	4	15	69	47.6	49.1	189.4	214.1	25%	23%
2005	4	16	35	26.8	28.1	112.6	123.4	24%	23%
2006	*	*	*	*	*	126.5	140.1	*	*
2007	4	14	55	49.6	53.5	133.0	147.7	37%	36%
2008	*	*	*	*	*	136.2	148.8	*	*
2009	3	21	44	37.2	38.3	196.3	208.0	19%	18%
2010	4	26	39	26.8	29.6	233.5	252.0	11%	12%
2011	*	*	*	*	*	264.0	284.7	*	*
2012	3	14	88	43.1	47.3	247.6	274.9	17%	17%
2013	9	27	92	68.2	72.8	182.2	201.2	37%	36%
2014	8	53	144	85.2	94.0	233.0	254.0	37%	37%
2015	9	31	131	84.9	91.8	262.8	291.4	32%	31%
2016	6	41	97	37.1	41.0	265.1	285.6	14%	14%
2017	*	*	*	*	*	300.2	329.3	*	*

Table 10 (continued). Limited entry sablefish-endorsed fixed gear coverage rates, 2002–17.

Management Area Stratified Total									
Year	Observed			Fleet Total		Coverage Rate			
	# of vessels	# of trips	# of sets	Sablefish landings (mt)	Groundfish landings (mt)	Sablefish landings (mt)	Groundfish landings (mt)	% Sablefish landings observed	% Groundfish landings observed
Management area: south of lat 36°N									
2002	0	0	0	0.0	0.0	0.0	0.0	0%	0%
2003	0	0	0	0.0	0.0	0.0	0.0	0%	0%
2004	0	0	0	0.0	0.0	0.0	0.0	0%	0%
2005	0	0	0	0.0	0.0	0.0	0.0	0%	0%
2006	0	0	0	0.0	0.0	0.0	0.0	0%	0%
2007	0	0	0	0.0	0.0	0.0	0.0	0%	0%
2008	0	0	0	0.0	0.0	0.0	0.0	0%	0%
2009	0	0	0	0.0	0.0	4.6	4.9	0%	0%
2010	3	4	9	0.5	0.5	9.2	10.2	5%	5%
2011	*	*	*	*	*	47.2	51.8	*	*
2012	0	0	0	0.0	0.0	63.1	70.8	0%	0%
2013	0	0	0	0.0	0.0	29.8	35.1	0%	0%
2014	0	0	0	0.0	0.0	24.3	31.0	0%	0%
2015	0	0	0	0.0	0.0	15.8	18.5	0%	0%
2016	0	0	0	0.0	0.0	16.8	21.0	0%	0%
2017	*	*	*	*	*	12.8	20.0	*	*

Table 10 (continued). Limited entry sablefish-endorsed fixed gear coverage rates, 2002–17.

Gear Type Stratified Total									
Year	# of vessels	# of trips	Observed			Fleet Total		Coverage Rate	
			# of sets	Sablefish landings (mt)	Groundfish landings (mt)	Sablefish landings (mt)	Groundfish landings (mt)	% Sablefish landings observed	% Groundfish landings observed
Longline Gear									
2002	25	68	391	190.8	214.0	791.8	1083.9	24%	20%
2003	15	48	351	222.8	236.9	1051.6	1169.8	21%	20%
2004	17	45	326	180.0	186.0	1318.1	1462.1	14%	13%
2005	26	101	678	481.5	528.4	1341.6	1559.9	36%	34%
2006	19	68	470	295.9	311.9	1401.2	1578.8	21%	20%
2007	22	75	517	298.5	362.3	1103.9	1322.4	27%	27%
2008	18	77	540	338.1	358.4	1103.4	1298.9	31%	28%
2009	8	45	287	97.8	108.6	1441.5	1566.3	7%	7%
2010	21	143	762	345.8	371.5	1304.2	1421.8	27%	26%
2011	23	98	673	240.7	271.1	1153.5	1273.5	21%	21%
2012	17	88	532	239.3	265.2	1079.2	1218.2	22%	22%
2013	18	58	353	166.4	189.6	748.0	883.4	22%	21%
2014	17	85	495	203.2	239.7	747.1	852.6	27%	28%
2015	26	97	632	392.0	431.4	939.8	1046.3	42%	41%
2016	21	94	671	338.1	372.7	1031.7	1161.0	33%	32%
2017	25	109	701	396.9	449.1	1060.4	1212.3	37%	37%
Pot Gear									
2002	6	23	247	82.5	83.2	352.2	356.4	23%	23%
2003	6	35	362	148.3	150.1	604.0	610.9	25%	25%
2004	3	13	139	82.7	84.8	619.6	627.9	13%	14%
2005	7	39	492	281.2	282.9	615.0	624.6	46%	45%
2006	7	39	289	200.5	205.1	581.8	592.2	34%	35%
2007	4	30	154	90.0	93.4	428.4	438.0	21%	21%
2008	6	24	329	244.9	247.9	433.0	441.8	57%	56%
2009	3	27	67	66.5	67.1	489.1	496.5	14%	14%
2010	7	43	314	140.4	142.9	503.5	510.8	28%	28%
2011	3	22	227	137.4	138.5	371.9	378.7	37%	37%
2012	5	19	351	101.1	102.1	286.0	291.7	35%	35%
2013	3	14	47	40.5	41.3	283.1	286.1	14%	14%
2014	4	16	195	104.0	105.1	338.1	340.8	31%	31%
2015	9	36	308	223.2	225.7	358.2	363.1	62%	62%
2016	7	55	596	254.3	259.6	359.0	367.8	71%	71%
2017	3	14	186	115.5	117.1	375.5	380.1	31%	31%

Table 11. Limited entry non-sablefish-endorsed fixed gear coverage rates, 2002–17. Total trips, sets, vessels, and sablefish and groundfish (including sablefish) landings (mt) observed in the limited entry non-sablefish-endorsed fixed gear groundfish fishery. Coverage rates are computed as the observed proportion of total sablefish or groundfish landings, summarized from fish ticket landing receipts. Note that number of vessels and trips in each stratum may sum to a greater amount than reported total by year, because a vessel can fish in more than one area. Note also that we only observe the hook-and-line portion of this fleet.

Coastwide Total									
Year	Observed			Fleet Total		Coverage Rate			
	# of vessels	# of trips	# of sets	Sablefish landings (mt)	Groundfish landings (mt)	Sablefish landings (mt)	Groundfish landings (mt)	% Sablefish landings observed	% Groundfish landings observed
2002	4	11	22	1.7	3.0	144.9	298.1	1%	1%
2003	17	130	219	14.3	32.1	146.3	355.3	10%	9%
2004	14	62	130	3.7	15.8	115.6	313.0	3%	5%
2005	11	35	60	2.4	9.3	134.0	326.9	2%	3%
2006	21	121	201	7.0	23.5	132.2	333.2	5%	7%
2007	36	158	304	16.5	37.6	123.3	311.8	13%	12%
2008	32	122	221	9.3	31.7	146.8	367.8	6%	9%
2009	34	138	273	12.0	30.3	272.2	510.9	4%	6%
2010	38	226	472	33.8	57.8	336.8	584.4	10%	10%
2011	38	201	426	52.5	84.2	534.0	829.5	10%	10%
2012	26	128	252	15.1	27.9	348.4	556.3	4%	5%
2013	22	124	248	17.7	32.1	334.1	486.4	5%	7%
2014	18	77	154	15.7	23.8	327.1	470.6	5%	5%
2015	21	65	144	29.2	38.3	375.5	514.6	8%	7%
2016	16	41	70	19.5	23.8	377.3	547.3	5%	4%
2017	12	34	71	12.4	15.7	319.2	540.6	4%	3%

Table 11 (continued). Limited entry non-sablefish-endorsed fixed gear coverage rates, 2002–17.

Management Area Stratified Total									
Year	Observed			Fleet Total		Coverage Rate			
	# of vessels	# of trips	# of sets	Sablefish landings (mt)	Groundfish landings (mt)	Sablefish landings (mt)	Groundfish landings (mt)	% Sablefish landings observed	% Groundfish landings observed
Management area: north of lat 40°10'N									
2002	0	0	0	0.0	0.0	4.8	5.1	0%	0%
2003	*	*	*	*	*	7.6	8.2	*	*
2004	0	0	0	0.0	0.0	2.5	2.6	0%	0%
2005	0	0	0	0.0	0.0	10.7	10.9	0%	0%
2006	0	0	0	0.0	0.0	14.5	15.7	0%	0%
2007	*	*	*	*	*	11.3	12.6	*	*
2008	*	*	*	*	*	23.0	24.4	*	*
2009	*	*	*	*	*	40.2	43.7	*	*
2010	3	16	19	6.8	7.8	74.2	87.5	9%	9%
2011	7	26	78	19.3	22.5	64.3	71.9	30%	31%
2012	5	17	20	5.2	6.0	37.8	40.5	14%	15%
2013	0	0	0	0.0	0.0	14.1	14.8	0%	0%
2014	0	0	0	0.0	0.0	7.5	7.8	0%	0%
2015	*	*	*	*	*	16.0	16.6	*	*
2016	3	4	8	2.2	2.7	18.9	21.2	12%	13%
2017	*	*	*	*	*	16.6	26.5	*	*
Management area: lat 40°10'N to lat 36°N									
2002	*	*	*	*	*	30.8	66.1	*	*
2003	*	*	*	*	*	32.3	68.3	*	*
2004	*	*	*	*	*	37.0	61.9	*	*
2005	*	*	*	*	*	51.8	86.9	*	*
2006	4	12	31	3.4	4.8	58.7	91.9	6%	5%
2007	*	*	*	*	*	50.1	75.9	*	*
2008	*	*	*	*	*	47.5	71.1	*	*
2009	*	*	*	*	*	65.2	81.4	*	*
2010	4	10	13	5.7	6.2	71.0	82.8	8%	7%
2011	4	8	15	4.1	5.7	47.4	61.9	9%	9%
2012	4	6	9	2.4	2.6	37.1	62.3	7%	4%
2013	4	12	12	3.6	4.3	36.7	46.5	10%	9%
2014	4	9	9	2.7	3.3	24.6	30.8	11%	11%
2015	*	*	*	*	*	27.0	44.4	*	*
2016	5	15	19	6.0	7.0	30.3	43.5	20%	16%
2017	*	*	*	*	*	31.6	43.0	*	*

Table 11 (continued). Limited entry non-sablefish-endorsed fixed gear coverage rates, 2002–17.

Management Area Stratified Total									
Year	Observed			Fleet Total		Coverage Rate			
	# of vessels	# of trips	# of sets	Sablefish landings (mt)	Groundfish landings (mt)	Sablefish landings (mt)	Groundfish landings (mt)	% Sablefish landings observed	% Groundfish landings observed
Management area: south of lat 36°N									
2002	*	*	*	*	*	109.2	226.9	*	*
2003	*	*	*	*	*	106.4	278.7	*	*
2004	*	*	*	*	*	76.0	248.4	*	*
2005	*	*	*	*	*	71.4	229.1	*	*
2006	17	109	170	3.5	18.7	59.0	225.7	6%	8%
2007	*	*	*	*	*	61.8	223.2	*	*
2008	*	*	*	*	*	76.3	272.3	*	*
2009	*	*	*	*	*	166.7	385.7	*	*
2010	31	200	440	21.3	43.8	191.7	414.2	11%	11%
2011	27	167	333	29.1	56.1	422.3	695.6	7%	8%
2012	17	105	223	7.4	19.3	273.4	453.5	3%	4%
2013	18	112	236	14.0	27.9	283.3	425.0	5%	7%
2014	14	68	145	13.0	20.5	295.0	432.0	4%	5%
2015	*	*	*	*	*	332.5	453.6	*	*
2016	8	22	43	11.3	14.1	328.1	482.5	3%	3%
2017	*	*	*	*	*	270.9	471.1	*	*

Table 12. Open access fixed gear coverage rates, 2003–17. Total trips, tows, vessels, and sablefish and groundfish (including sablefish) landings (mt) observed in the open access fixed gear groundfish fishery. Coverage rates are computed as the observed proportion of total sablefish or groundfish landings, summarized from fish ticket landing receipts. Note that number of vessels and trips in each stratum may sum to a greater amount than reported total by year, because a vessel can fish in more than one area or season or using more than one gear.

Coastwide Total									
Year	Observed			Fleet Total		Coverage Rate			
	# of vessels	# of trips	# of sets	Sablefish landings (mt)	Groundfish landings (mt)	Sablefish landings (mt)	Groundfish landings (mt)	% Sablefish landings observed	% Groundfish landings observed
2002	0	0	0	0.0	0.0	376.1	498.6	0%	0%
2003	20	57	99	10.0	19.5	561.9	735.2	2%	3%
2004	30	136	237	24.3	33.2	456.3	659.8	5%	5%
2005	24	77	87	17.1	20.4	897.5	1003.2	2%	2%
2006	22	48	50	10.5	12.4	783.3	928.9	1%	1%
2007	45	97	142	18.6	19.2	449.2	521.3	4%	4%
2008	51	112	143	23.0	26.6	543.1	642.0	4%	4%
2009	49	94	149	26.3	30.6	923.5	1018.8	3%	3%
2010	60	106	176	30.1	33.7	967.7	1074.8	3%	3%
2011	64	123	186	37.4	39.1	579.3	690.1	6%	6%
2012	42	69	123	19.1	20.6	323.2	448.9	6%	5%
2013	30	47	78	10.4	11.0	195.8	265.6	5%	4%
2014	37	64	102	22.3	23.4	279.4	367.2	8%	6%
2015	36	85	118	28.2	32.1	423.6	598.1	7%	5%
2016	55	109	151	28.8	30.9	379.9	498.1	8%	6%
2017	84	145	205	35.8	39.8	421.7	558.7	8%	7%

Table 12 (continued). Open access fixed gear coverage rates, 2003–17.

Management Area Stratified Total									
Year	Observed			Fleet Total		Coverage Rate			
	# of vessels	# of trips	# of sets	Sablefish landings (mt)	Groundfish landings (mt)	Sablefish landings (mt)	Groundfish landings (mt)	% Sablefish landings observed	% Groundfish landings observed
Management area: north of lat 40°10'N									
2002	0	0	0	0.0	0.0	149.8	168.3	0%	0%
2003	*	*	*	*	*	264.9	320.6	*	*
2004	*	*	*	*	*	188.0	286.9	*	*
2005	*	*	*	*	*	510.3	545.6	*	*
2006	*	*	*	*	*	441.7	526.5	*	*
2007	28	54	99	10.6	11.1	191.8	218.3	6%	5%
2008	29	52	81	12.3	14.4	260.5	304.6	5%	5%
2009	27	56	84	14.7	15.4	314.2	350.2	5%	4%
2010	29	57	109	14.2	14.9	226.8	252.3	6%	6%
2011	31	54	89	15.7	16.9	201.8	224.9	8%	8%
2012	*	*	*	*	*	132.4	157.2	*	*
2013	11	15	37	3.7	3.7	58.3	80.0	6%	5%
2014	14	21	40	9.5	9.7	59.8	79.6	16%	12%
2015	14	26	45	9.9	10.4	154.5	218.5	6%	5%
2016	24	45	77	10.7	12.2	153.5	199.8	7%	6%
2017	37	56	99	12.3	15.3	193.7	255.9	6%	6%
Management area: lat 40°10'N to lat 36°N									
2002	0	0	0	0.0	0.0	198.4	255.6	0%	0%
2003	*	*	*	*	*	265.8	335.9	*	*
2004	*	*	*	*	*	242.6	308.2	*	*
2005	*	*	*	*	*	371.0	422.8	*	*
2006	*	*	*	*	*	226.7	255.1	*	*
2007	13	26	26	5.5	5.6	137.9	162.4	4%	3%
2008	18	31	31	7.8	9.0	186.5	217.0	4%	4%
2009	14	22	23	5.8	6.1	175.4	187.9	3%	3%
2010	20	33	35	8.9	9.0	176.1	188.7	5%	5%
2011	29	60	69	19.6	20.0	214.1	227.8	9%	9%
2012	*	*	*	*	*	118.2	131.1	*	*
2013	13	20	22	5.8	6.1	76.5	94.8	8%	6%
2014	17	29	34	11.6	12.3	187.3	224.3	6%	5%
2015	19	41	49	15.4	18.7	236.3	308.4	7%	6%
2016	29	57	61	17.3	17.8	202.9	250.6	9%	7%
2017	46	78	94	22.6	23.6	202.9	242.8	11%	10%

Table 12 (continued). Open access fixed gear coverage rates, 2003–17.

Management Area Stratified Total									
Year	Observed			Fleet Total		Coverage Rate			
	# of vessels	# of trips	# of sets	Sablefish landings (mt)	Groundfish landings (mt)	Sablefish landings (mt)	Groundfish landings (mt)	% Sablefish landings observed	% Groundfish landings observed
Management area: south of lat 36°N									
2002	0	0	0	0.0	0.0	27.8	74.7	0%	0%
2003	*	*	*	*	*	31.2	78.7	*	*
2004	*	*	*	*	*	25.7	64.7	*	*
2005	*	*	*	*	*	16.2	34.9	*	*
2006	*	*	*	*	*	114.9	147.3	*	*
2007	4	17	17	2.5	2.5	119.5	140.5	2%	2%
2008	4	29	31	2.9	3.2	96.1	120.4	3%	3%
2009	8	16	42	5.8	9.1	433.9	480.7	1%	2%
2010	11	16	32	6.9	9.8	564.7	633.8	1%	2%
2011	4	9	28	2.1	2.2	163.4	237.5	1%	1%
2012	*	*	*	*	*	72.6	160.7	*	*
2013	6	12	19	0.9	1.2	61.0	90.8	1%	1%
2014	6	14	28	1.1	1.5	32.3	63.3	3%	2%
2015	3	18	24	2.9	3.0	32.8	71.3	9%	4%
2016	3	7	13	0.8	0.9	23.4	47.8	3%	2%
2017	3	11	12	0.8	0.9	25.0	60.0	3%	2%

Table 12 (continued). Open access fixed gear coverage rates, 2003–17.

Gear Type Stratified Total									
Year	Observed			Fleet Total		Coverage Rate			
	# of vessels	# of trips	# of sets	Sablefish landings (mt)	Groundfish landings (mt)	Sablefish landings (mt)	Groundfish landings (mt)	% Sablefish landings observed	% Groundfish landings observed
Longline Gear									
2002	0	0	0	0.0	0.0	266.4	387.6	0%	0%
2003	13	41	49	7.0	16.5	374.6	544.9	2%	3%
2004	14	42	52	7.5	16.2	272.1	473.8	3%	3%
2005	10	34	37	6.6	9.8	520.2	623.9	1%	2%
2006	7	10	11	2.8	4.5	343.5	485.9	1%	1%
2007	25	51	67	9.9	10.4	195.8	263.4	5%	4%
2008	33	58	68	12.8	16.2	305.2	401.2	4%	4%
2009	34	69	104	17.8	21.8	558.3	646.3	3%	3%
2010	37	70	105	19.4	23.1	651.3	756.5	3%	3%
2011	40	69	101	18.5	20.1	325.6	434.3	6%	5%
2012	24	34	53	10.0	11.5	198.6	323.1	5%	4%
2013	14	23	30	4.1	4.7	124.5	193.4	3%	2%
2014	21	28	39	10.7	11.8	133.3	219.5	8%	5%
2015	20	38	54	13.7	17.5	203.3	363.9	7%	5%
2016	31	57	78	13.5	15.6	175.2	291.4	8%	5%
2017	43	62	79	11.7	14.9	219.6	348.0	5%	4%
Pot Gear									
2002	0	0	0	0.0	0.0	109.7	111.1	0%	0%
2003	7	16	50	2.9	2.9	187.2	190.3	2%	2%
2004	17	96	185	16.9	17.0	184.2	186.0	9%	9%
2005	14	43	50	10.5	10.7	377.3	379.3	3%	3%
2006	15	38	39	7.8	7.9	439.8	442.9	2%	2%
2007	21	46	75	8.7	8.8	253.4	257.9	3%	3%
2008	20	55	75	10.3	10.4	237.9	240.8	4%	4%
2009	18	30	45	8.5	8.8	365.2	372.6	2%	2%
2010	26	40	71	10.6	10.7	316.4	318.3	3%	3%
2011	29	61	85	18.9	18.9	253.6	255.8	7%	7%
2012	19	35	70	9.1	9.1	124.6	125.8	7%	7%
2013	17	25	48	6.3	6.3	71.3	72.2	9%	9%
2014	21	41	63	11.6	11.7	146.1	147.7	8%	8%
2015	17	49	64	14.5	14.6	220.3	234.2	7%	6%
2016	27	55	73	15.3	15.3	204.7	206.8	7%	7%
2017	44	87	126	24.1	24.9	202.0	210.6	12%	12%

Table 13. Pacific halibut derby coverage rates, 2017. Total trips, tows, vessels, and sea cucumber landings (mt) observed in the Pacific halibut derby fishery. In 2017, WCGOP initiated a pilot study to estimate bycatch in the fishery. Coverage rates are computed as the observed proportion of total Pacific halibut landings, summarized from fish ticket landing receipts.

Coastwide Total						
Year	Observed			Pacific halibut landings (mt)	Fleet Total	Coverage Rate
	# of vessels	# of trips	# of sets		Pacific halibut landings (mt)	% Pacific halibut landings observed
2002	0	0	0	0.0	154.0	0%
2003	0	0	0	0.0	131.1	0%
2004	0	0	0	0.0	132.3	0%
2005	0	0	0	0.0	131.3	0%
2006	0	0	0	0.0	135.9	0%
2007	0	0	0	0.0	129.4	0%
2008	0	0	0	0.0	122.9	0%
2009	0	0	0	0.0	98.2	0%
2010	0	0	0	0.0	75.3	0%
2011	0	0	0	0.0	102.2	0%
2012	0	0	0	0.0	97.9	0%
2013	0	0	0	0.0	98.3	0%
2014	0	0	0	0.0	93.9	0%
2015	0	0	0	0.0	116.9	0%
2016	0	0	0	0.0	131.2	0%
2017	13	22	62	10.2	137.1	7%

Table 14. Nearshore fixed gear coverage rates, 2003–17. Total trips, sets, vessels, and nearshore species landings (mt) observed in the nearshore fixed gear groundfish fishery. Coverage rates are computed as the observed proportion of total nearshore species landings, summarized from fish ticket landing receipts. Note that number of vessels and trips in each stratum may sum to a greater amount than reported total by year, because a vessel can fish in more than one area.

Coastwide Total						
Year	Observed			Nearshore species landings (mt)	Fleet Total Nearshore species landings (mt)	Coverage Rate % Nearshore landings observed
	# of vessels	# of trips	# of sets			
2002	0	0	0	0.0	659.9	0%
2003	32	108	208	8.1	463.9	2%
2004	98	368	644	33.5	500.0	7%
2005	97	309	389	24.9	458.5	5%
2006	96	342	546	28.0	421.9	7%
2007	77	303	475	28.1	453.8	6%
2008	70	226	274	21.3	482.0	4%
2009	73	240	348	20.7	482.5	4%
2010	82	253	330	20.5	390.0	5%
2011	89	350	458	24.3	409.8	6%
2012	98	386	529	32.6	395.7	8%
2013	104	355	457	27.7	425.6	7%
2014	98	313	378	28.1	445.9	6%
2015	100	402	514	41.3	547.1	8%
2016	90	334	420	35.1	426.6	8%
2017	97	322	399	37.0	409.1	9%

State Stratified Total

Year	Observed			Nearshore species landings (mt)	Fleet Total	Coverage Rate
	# of vessels	# of trips	# of sets		Nearshore species landings (mt)	% Nearshore landings observed
Oregon						
2002	0	0	0	0.0	278.7	0%
2003	0	0	0	0.0	207.8	0%
2004	31	109	210	10.3	209.4	5%
2005	48	138	170	11.8	179.0	7%
2006	55	239	385	19.6	164.4	12%
2007	36	164	248	16.2	180.2	9%
2008	44	151	185	14.6	188.2	8%
2009	45	151	225	13.9	222.8	6%
2010	56	162	213	13.5	171.2	8%
2011	57	205	244	15.9	193.8	8%
2012	60	235	290	20.7	195.6	11%
2013	66	212	264	16.1	206.1	8%
2014	58	176	196	16.6	201.4	8%
2015	58	190	237	18.4	216.0	9%
2016	53	215	264	21.9	178.9	12%
2017	59	197	237	24.8	200.9	12%

Table 14 (continued). Nearshore fixed gear coverage rates, 2003–17.

State Stratified Total						
	Observed				Fleet Total	Coverage Rate
Year	# of vessels	# of trips	# of sets	Nearshore species landings (mt)	Nearshore species landings (mt)	% Nearshore landings observed
California						
2002	0	0	0	0.0	381.3	0%
2003	32	108	208	8.1	256.1	3%
2004	67	259	434	23.3	290.6	8%
2005	49	171	219	13.0	279.5	5%
2006	41	103	161	8.3	257.5	3%
2007	41	139	227	11.8	273.6	4%
2008	26	75	89	6.7	293.8	2%
2009	28	89	123	6.7	259.7	3%
2010	26	91	117	7.1	218.8	3%
2011	32	145	214	8.5	216.0	4%
2012	38	151	239	11.9	200.2	6%
2013	38	143	193	11.7	219.5	5%
2014	40	137	182	11.5	244.5	5%
2015	42	212	277	22.9	331.0	7%
2016	37	119	156	13.2	247.6	5%
2017	38	125	162	12.2	208.1	6%
Management Area Stratified Total						
	Observed				Fleet Total	Coverage Rate
Year	# of vessels	# of trips	# of sets	Nearshore species landings (mt)	Nearshore species landings (mt)	% Nearshore landings observed
Management area: north of lat 40°10'N						
2002	0	0	0	0.0	410.4	0%
2003	8	24	54	3.3	282.5	1%
2004	46	218	362	23.6	292.3	8%
2005	59	198	248	20.6	281.5	7%
2006	68	274	425	25.5	251.2	10%
2007	47	232	346	25.3	291.4	9%
2008	54	198	237	20.1	313.5	6%
2009	55	190	268	19.0	324.1	6%
2010	64	196	249	17.8	230.5	8%
2011	66	254	316	21.6	229.1	9%
2012	64	264	339	26.7	226.6	12%
2013	73	243	302	21.8	241.9	9%
2014	66	208	234	21.9	242.7	9%
2015	65	264	324	32.9	326.1	10%
2016	60	251	305	29.4	248.0	12%
2017	67	231	279	31.5	254.0	12%

Table 14 (continued). Nearshore fixed gear coverage rates, 2003–17.

Management Area Stratified Total						
Year	Observed			Fleet Total		Coverage Rate
	# of vessels	# of trips	# of sets	Nearshore species landings (mt)	Nearshore species landings (mt)	% Nearshore landings observed
Management area: south of lat 40°10'N						
2002	0	0	0	0.0	249.5	0%
2003	24	84	154	4.8	181.4	3%
2004	52	150	282	10.0	207.8	5%
2005	38	111	141	4.3	177.1	2%
2006	28	68	121	2.4	170.7	1%
2007	30	71	129	2.8	162.4	2%
2008	16	28	37	1.3	168.5	1%
2009	18	50	80	1.7	158.4	1%
2010	18	57	81	2.7	159.5	2%
2011	23	96	142	2.7	180.7	2%
2012	34	122	190	6.0	169.2	4%
2013	32	112	155	6.0	183.7	3%
2014	33	105	144	6.2	203.2	3%
2015	35	138	190	8.4	221.0	4%
2016	31	83	115	5.7	178.6	3%
2017	32	91	120	5.5	155.0	4%

Table 15. Pink shrimp trawl coverage rates, 2004–05 and 2007–17. Total trips, tows, vessels, and pink shrimp landings (mt) observed in the pink shrimp trawl fishery. Coverage rates are computed as the observed proportion of total pink shrimp landings, summarized from fish ticket landing receipts. Note that number of vessels and trips in each stratum may sum to a greater amount than reported total by year, because a vessel can fish in more than one area or season or using more than one gear.

State Stratified Total						
	Observed				Fleet Total	Coverage Rate
Year	# of vessels	# of trips	# of tows	Pink shrimp landings (mt)	Pink shrimp landings (mt)	% Pink shrimp landings observed
Washington						
2002	0	0	0	0.0	4569.4	0%
2003	0	0	0	0.0	3580.6	0%
2004	0	0	0	0.0	2440.5	0%
2005	0	0	0	0.0	2841.8	0%
2006	0	0	0	0.0	2804.4	0%
2007	0	0	0	0.0	1517.4	0%
2008	0	0	0	0.0	2853.3	0%
2009	0	0	0	0.0	3180.0	0%
2010	7	18	341	399.5	4295.6	9%
2011	11	35	578	697.2	4312.1	16%
2012	10	31	522	626.0	4239.4	15%
2013	13	29	386	626.8	6157.9	10%
2014	17	44	400	976.2	13876.2	7%
2015	24	100	1454	2139.8	18814.3	11%
2016	17	59	973	1107.9	6395.9	17%
2017	17	49	914	592.6	3040.6	19%
Oregon						
2002	0	0	0	0.0	18896.3	0%
2003	0	0	0	0.0	9321.5	0%
2004	18	43	765	427.2	5537.0	8%
2005	22	36	533	402.9	7159.4	6%
2006	0	0	0	0.0	5531.8	0%
2007	28	61	929	650.0	9128.6	7%
2008	30	49	785	672.5	11575.9	6%
2009	34	52	672	751.2	10048.7	7%
2010	39	94	1233	1706.8	14290.4	12%
2011	41	132	1892	2986.0	21915.1	14%
2012	52	154	2122	3014.2	22291.6	14%
2013	46	107	1403	2313.2	21537.8	11%
2014	38	106	1445	2272.0	23573.3	10%
2015	42	131	1983	2275.8	24273.6	9%
2016	54	157	2468	2309.4	16115.6	14%
2017	45	113	1622	1454.9	10458.6	14%

Table 15 (continued). Pink shrimp trawl coverage rates, 2004–05 and 2007–17.

State Stratified Total						
	Observed				Fleet Total	Coverage Rate
Year	# of vessels	# of trips	# of tows	Pink shrimp landings (mt)	Pink shrimp landings (mt)	% Pink shrimp landings observed
California						
2002	0	0	0	0.0	1849.3	0%
2003	0	0	0	0.0	974.3	0%
2004	*	*	*	*	992.3	*
2005	*	*	*	*	859.1	*
2006					63.5	
2007	*	*	*	*	288.9	*
2008	*	*	*	*	945.5	*
2009	*	*	*	*	1183.5	*
2010	8	14	134	265.5	1770.9	15%
2011	8	19	203	420.6	3332.9	13%
2012	7	15	175	347.6	2790.6	12%
2013	10	17	188	359.8	3915.3	9%
2014	11	26	337	597.5	3845.0	16%
2015	9	23	335	334.7	3452.9	10%
2016	11	28	405	311.7	1370.2	23%
2017	11	18	257	241.8	1484.4	16%

Table 16. Ridgeback prawn trawl coverage rates, 2017. Total trips, tows, vessels, and ridgeback prawn landings (mt) observed in the ridgeback prawn trawl fishery, which occurs only in California. In 2017, WCGOP initiated a pilot study to estimate incidental groundfish catch in the fishery. Coverage rates are computed as the observed proportion of total ridgeback prawn landings, summarized from fish ticket landing receipts.

California Total						
Year	Observed			Fleet Total		Coverage Rate
	# of vessels	# of trips	# of tows	Ridgeback prawn landings (mt)	Ridgeback prawn landings (mt)	% Ridgeback prawn landings observed
2002	0	0	0	0.0	209.7	0%
2003	0	0	0	0.0	225.3	0%
2004	0	0	0	0.0	25.3	0%
2005	0	0	0	0.0	25.5	0%
2006	0	0	0	0.0	72.4	0%
2007	0	0	0	0.0	121.8	0%
2008	0	0	0	0.0	228.2	0%
2009	0	0	0	0.0	228.1	0%
2010	0	0	0	0.0	93.4	0%
2011	0	0	0	0.0	87.6	0%
2012	0	0	0	0.0	99.1	0%
2013	0	0	0	0.0	60.2	0%
2014	0	0	0	0.0	252.4	0%
2015	0	0	0	0.0	383.3	0%
2016	0	0	0	0.0	206.9	0%
2017	9	67	296	17.0	160.7	11%