

Pacific Whiting Conservation Cooperative
Amendment 20 Catcher/Processor Cooperative
Preliminary Annual Report 2013

Submitted to the
Pacific Fishery Management Council
October 2013

Pacific Whiting Conservation Cooperative Preliminary Annual Report for 2013

Introduction

In 1997, the owners of the catcher/processor (C/P) vessels operating in the Pacific whiting fishery formed a fishing cooperative to coordinate harvesting efforts. This research and harvesting cooperative is the Pacific Whiting Conservation Cooperative (PWCC). A private contract dictates the activities of the PWCC and a harvest agreement facilitates efficient management and accurate accounting of harvest by the PWCC and PWCC member companies.

In 2011, rationalization of the US Pacific coast groundfish trawl fishery was implemented via Amendments 20 and 21 to the Pacific Coast Groundfish Fishery Management Plan. National Marine Fisheries Service (NMFS) summarized the significant effects of Amendment 20 on the shoreside groundfish trawl and mothership whiting fisheries, as well as the effect on the C/P fishery in the September 2, 2011 proposed rule for the Program Improvement and Enhancement (PIE) Rule:

“In January 2011, NMFS and the Pacific Fishery Management Council set up a new management program called the trawl rationalization program. This program significantly changes how two of these groups work. Shore trawlers now fish under their own set of individual species quotas by vessel.... [T]he mothership fishery works as a coop where catcher-vessels and motherships work together collectively. The catcher-processor fleet continues as a single coop.”

Currently, trawl rationalization regulations require a preliminary report be submitted to the Pacific Fishery Management Council in November of the current year and a final report to NMFS in March the following year.

Purpose of Report

This report is intended to disclose all information required or identified in Federal Regulations at 50 CFR 660.113(d)(3). The table in this report is largely self-explanatory. The catch data in this report was provided by Sea State, Inc. and was obtained from the NMFS – At-Sea Hake Observer Program. Prior to trawl rationalization, NMFS provided a similar report, but with catch information at the sector level (rather than individual vessel information). Catch information at the C/P-vessel level was and is known by NMFS. Therefore, production of this more detailed report by the PWCC should reduce NMFS workload and cost burden.

Reporting Requirements

Federal regulations (50CFR660.113(d)(3)) detail the report requirements:

“(3) Annual coop report - (i) The designated coop manager for the C/P coop must submit an annual report to the Council for its November meeting each year. The annual coop report will contain information about the current year's fishery, including:

“(A) The C/P sector's annual allocation of Pacific whiting;

“(B) The C/P coop's actual retained and discarded catch of Pacific whiting, salmon, Pacific halibut, rockfish, groundfish, and other species on a vessel-by-vessel basis;

“(C) A description of the method used by the C/P coop to monitor performance of cooperative vessels that participated in the fishery;

“(D) A description of any actions taken by the C/P coop in response to any vessels that exceed their allowed catch and bycatch; and

“(E) Plans for the next year's C/P coop fishery, including the companies participating in the cooperative, the harvest agreement, and catch monitoring and reporting requirements.”

A. C/P Sector's Annual Allocation of Pacific Whiting

In May 2013, NMFS issued the C/P cooperative permit, which was effective on May 15, 2013. As specified at 50 CFR 660.160(c), the C/P cooperative permit authorized the PWCC to harvest 100 percent of the Pacific whiting and non-whiting groundfish allocated to the C/P sector. For 2013, the C/P sector amounts of Pacific whiting and non-whiting groundfish species with allocations are as follows (per NMFS, :Initial Administrative Determination Notice of Right to Appeal, May 7, 2013):

2013 C/P sector allocations	mt	pounds
Pacific whiting	69,373	152,939,715
Pacific ocean perch	10.2	22,486
Widow rockfish	170.0	374,782
Darkblotched rockfish	8.6	18,959
Canary rockfish	7.4	16,314

In July 2013, Glacier Fish Company LLC transferred permit number GF0030 from the Alaska Ocean (USCG# 637856) to the Northern Glacier (USCG# 663457) for a temporary period to allow harvest of whiting by the Northern Glacier during calendar year 2013. Therefore, the Northern Glacier was added to the list of vessels in the C/P cooperative agreement and the Alaska Ocean was removed from the list for the duration of the temporary period. Permit number GF0030 will be transferred back to the Alaska Ocean prior for the 2014 fishing season. NMFS issued a revised C/P cooperative permit on July 26, 2013 incorporating this action.

On September 16, 2013, NMFS re-apportioned 30,000 mt of whiting from the Tribal Set Aside to the non-tribal fishery sectors. This action increased the 2013 C/P sector allocation from 69,373 to 79,573 mt.

B. C/P Cooperative's Actual Retained and Discarded Catch of Pacific Whiting, Salmon, Pacific Halibut, Rockfish, Groundfish, and Other Species on a Vessel-by-Vessel Basis

See Table 1. Catch data is current to the time this report was produced. A final C/P Cooperative Annual Report, with complete catch data, will be provided to NMFS in March 2014. Species are grouped per the advice of NMFS.

C. Description of the Method Used by the C/P Cooperative to Monitor Performance of Cooperative Vessels that Participated in the Fishery

Each vessel in the C/P Cooperative carries two NMFS-certified observers to monitor and account for the catch of Pacific whiting and non-whiting groundfish allocations (i.e., canary rockfish, widow rockfish, darkblotched rockfish, and Pacific ocean perch), and to monitor and account for the catch of prohibited species. Observers report each vessel's catch on a daily basis to both the NMFS Observer Program in Seattle and to Sea State, Inc. (a private, third-party catch monitoring firm).

For 2013, the C/P Cooperative contracted with Sea State, Inc. to process the catch data provided by the observer program and to provide in-season management support. Sea State regularly provides catch reports to each C/P vessel, the C/P fleet, and the C/P Cooperative. These reports may include cumulative fleet-wide and vessel-level catch data as well as tow-by-tow summaries. Fleet managers are able to reconcile the tow-by-tow catch information provided by Sea State against their own catch records to identify possible data errors and ensure accurate catch accounting throughout the fishing season. Sea State reports also provide a mechanism to identify and avoid fishing areas where incidental catch of overfished species and/or prohibited species is occurring. The C/P Cooperative has authorized Sea State, Inc. to identify specific fishing areas to be avoided as a mechanism to reduce catch of overfished species and/or prohibited species.

Catch aboard C/P vessels is weighed using flow scales and motion-compensated platform scales. The flow scale is tested daily by the vessel to ensure the accuracy of the data collected by the NMFS-certified observer. Regulations at 50 CFR 660.15(b)(3) state that the vessel operator is responsible for ensuring the vessel crew performs daily testing of all at-sea scales (belt and/or platform). The species composition of the catch is determined by the NMFS-certified observer. Because two observers are aboard each vessel the number of hauls sampled are high, at or near 100 percent. C/P vessels endeavor to provide conditions that facilitate large samples of individual hauls. The use of two observers, flow and platform scales, and high rates of sampling leads to very accurate catch accounting for Pacific whiting, non-whiting groundfish, and prohibited species.

The C/P Cooperative acknowledges and agrees that minimizing incidental catch of overfished species to the extent practicable is a primary objective of the C/P Cooperative. In general, incidental catch of overfished species in the C/P sector is very low. For 2013, each C/P Cooperative member agreed to employ bycatch avoidance techniques recommended by the PWCC Board of Directors and Sea State, Inc. Non-whiting groundfish species amounts (functionally, "bycatch limits") allocated by NMFS to the C/P sector were assigned to C/P Cooperative members proportional to their Pacific whiting allocations. These hard caps on

incidental catch, if exceeded, would cause the C/P sector to cease fishing, thereby ensuring that C/P Cooperative catch of overfished species is minimized to the extent practicable.

D. Description of Any Actions Taken by the C/P Cooperative in Response to Any Vessels that Exceed Their Allowed Catch and Bycatch

As of the date this preliminary report was submitted, no vessels exceeded their allowed catch or bycatch amounts. Minor adjustments to the C/P cooperative harvest schedule may be made to accommodate the inseason needs of member vessels.

E. Plans for the 2014 C/P Cooperative Fishery, Including the Companies Participating in the Cooperative, the Harvest Agreement, and Catch Monitoring and Reporting Requirements

For 2014, companies participating in the C/P Cooperative include:

AMERICAN SEAFOODS COMPANY LLC; GLACIER FISH COMPANY LLC;
TRIDENT SEAFOODS CORPORATION

2014 C/P Cooperative Pacific Whiting Harvest Schedule:

Member	Percentage of Annual Catcher Processor Allocation
American Seafoods Company LLC	49.4%
Trident Seafoods Corporation	29.6%
Glacier Fish Company LLC	21.0%

2014 C/P Cooperative Catch Monitoring and Reporting Requirements:

Each member of the C/P Cooperative carries two NMFS-certified observers aboard each of its vessels to monitor and account for total catch, including catch of prohibited species. Observers report each vessel's daily catch to the NMFS Observer Program in Seattle and to Sea State.

For 2014, the C/P Cooperative will contract with Sea State, Inc. to process the catch data provided by the observer program and to provide in-season management support. Sea State regularly provides catch reports to each C/P vessel, the C/P fleet, and the C/P Cooperative. These reports may include cumulative fleet-wide and vessel-level catch data as well as tow-by-tow summaries. Fleet managers are able to reconcile the tow-by-tow catch information provided by Sea State against their own catch records to identify possible data errors and ensure accurate catch accounting throughout the fishing season.

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Table 1. Preliminary C/P Cooperative 2013 Catch by Vessel, totals as of October 17, 2013

Species	Alaska Ocean	American Dynasty	American Triumph	Island Enterprise	Kodiak Enterprise	Northern Eagle	Northern Jaeger	Pacific Glacier	Seattle Enterprise	Total -- 10/17/2013
ROUNDFISH (mt)										
Whiting	7,154.374	10,185.339	13,210.910	1,006.934	2,377.897	4,776.165	12,477.428	2,522.855	2,889.680	56,601.581
Pacific Cod	0.002									0.002
Lingcod	0.016	0.033	0.013	0.042			0.046			0.150
Sablefish	0.126	2.329	1.219		0.116	0.225	1.093	0.386		5.495
FLATFISH (mt)										
Arrowtooth Flounder	0.076	1.047	2.414	0.062	0.006	0.119	0.594	0.278	0.081	4.676
Dover Sole	0.010	0.133	0.342		0.006	0.009	0.023	0.063		0.586
English Sole		0.002	0.006							0.008
Petrale Sole										
Starry Flounder										
Other Flatfish										
Rex Sole	0.100	2.446	3.037		0.072	0.496	0.758	0.504		7.414
Pacific Sanddab	0.000									0.000
ROCKFISH (mt)										
Pacific Ocean Perch	0.678	0.172	0.029	0.406	1.105	0.047	0.169	0.009	1.324	3.939
Shortbelly Rockfish	0.000				0.000					0.001
Widow Rockfish	0.400	0.241	4.389	3.796	0.231	0.280	2.737		1.239	13.314
Canary Rockfish	0.020	0.003	0.014	0.009	0.026	0.022	0.019		0.064	0.176
Chilipepper										
Splitnose Rockfish	0.096	2.770	4.072		0.006	0.232	0.846	1.098	0.008	9.129
Yellowtail Rockfish	10.453	0.113	7.929	12.682	15.694	7.394	19.052		4.808	78.125
Thornyhead Rockfish Unidentified			0.142					0.142		0.142
Shortspine Thornyhead	0.100	2.867	3.611		0.049	0.342	3.408	0.259	0.054	10.690
Longspine Thornyhead Rockfish		0.000								0.000
Dark Blotched Rockfish	0.228	0.368	0.575	0.002	0.097	0.189	0.032	0.001	0.021	1.512
Yelloweye Rockfish										
Minor Shelf Rockfish North	0.043		0.036	0.001	0.075	0.075	0.137		0.797	1.164
Minor Slope Rockfish North	0.841	0.908	0.663	0.566	0.053	0.789	1.745	0.590	0.627	6.783
REMAINING GROUNDFISH (mt)										
Spiny Dogfish Shark	1.032	0.549	1.281	0.359	0.159	0.826	2.309	0.623	0.554	7.691
Longnose Skate		0.045								0.045
Other Groundfish	2.833	3.213	5.896	0.011	1.534	2.410	2.699	0.428	0.001	19.026
PROHIBITED and PROTECTED SPP										
Chinook Salmon (numbers of fish)	22	8	16	15	0	24	28	4	0	118
Chum Salmon (numbers of fish)	4	0	3	0	9	0	10	0	0	26
Coho Salmon (numbers of fish)	0	0	0	0	0	0	2	0	0	2
Pink Salmon (numbers of fish)	0	0	16	2	1	12	3	0	0	34
Sockeye Salmon (numbers of fish)	0	0	0	0	0	0	0	0	0	0
Steelhead (numbers of fish)	0	0	0	0	0	0	0	0	0	0
Salmon Unidentified (numbers of fish)							0			0
Pacific Halibut (mt)	0.175	0.000	0.154	0.000	0.000	0.166	0.208	0.000	0.000	0.703
Dungeness Crab (numbers of fish)										
Eulachon (mt)	0.001			0.000			0.001			0.002
NON-GROUNDFISH SPP (mt)										
American Shad	0.003					0.008	0.000		0.004	0.015
Pacific Herring	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Humboldt Squid				0.002						0.002
Squid Unidentified	4.221	29.732	58.335	2.463	2.668	2.616	31.369	3.962	3.947	139.313
Jack Mackerel		0.921	0.090		0.002		1.830	0.061	0.290	3.193
Pacific Mackerel			0.001				0.002			0.003
Pacific Sardine		0.001								0.001
All Other Non-Groundfish	0.195	0.204	0.432	0.035	0.268	0.126	0.409	0.093	0.068	1.828

Whiting Mothership Cooperative

An Amendment 20 Mothership Catcher Vessel Cooperative

Preliminary Report on the 2013 Pacific Whiting Fishery

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Submitted to the NMFS: October 2013

WMC Report on the 2013 Year Pacific Whiting Fishery

Introduction

In March of 2011, the owners of the thirty seven trawl limited entry catcher vessel permits (MS/CV LEPs) endorsed for operation in the Mothership sector of the Pacific whiting fishery formed a fishing cooperative to coordinate harvesting efforts. This cooperative is the Whiting Mothership Cooperative (WMC). The owners of all of the MS/CV LEPs remain members in good standing of the WMC for the 2013 fishing year.

The WMC receives an allocation of whiting based on the cumulative catch histories of the members of the cooperative. The WMC operates under the WMC Membership Agreement contract which allocates whiting to members proportionate to the contribution to the cooperative's allocation made by NMFS on the basis of the whiting catch history assigned to the Cooperative by the members.

One of the primary purposes of the WMC cooperative is the management of bycatch of the four allocated overfished rockfish species and Chinook salmon. To that end the members of the WMC have all signed a WMC Bycatch Agreement that sets out the rules for modification of fishing behaviour with which members are obligated to comply.

Purpose of Report

This report is intended to disclose all information required or identified in Federal Regulations at 50 CFR 660.113(d)(3). The catch data in this report is for the 2013 fishing year beginning May 15th and ending October 19th. The catch data was provided by Sea State, Inc. and was obtained from the NMFS - At-Sea Hake Observer Program.

Reporting Requirements

The required Annual Report elements (A-E) are found in the 50 CFR 660.113(d)(3)

(3) Annual coop report – (i) The designated coop manager for the mothership coop must submit an annual report to the Pacific Fishery Management Council for their November meeting each year. The annual coop report will contain information about the current year's fishery, including:

- (A) The mothership sector's annual allocation of Pacific whiting and the permitted mothership coop allocation;*
- (B) The mothership coop's actual retained and discarded catch of Pacific whiting, salmon, Pacific halibut, rockfish, groundfish, and other species on a vessel-by-vessel basis;*
- (C) A description of the method used by the mothership coop to monitor performance of coop vessels that participated in the fishery;*
- (D) A description of any actions taken by the mothership coop in response to any vessels that exceed their allowed catch and bycatch; and*
- (E) Plans for the next year's mothership coop fishery, including the companies participating in the cooperative, the harvest agreement, and catch monitoring and reporting requirements.*

(A) Annual allocation of Pacific whiting to the WMC coop

The Mothership sector of the Pacific Whiting fishery was initially allocated 48,970 tons of whiting, followed by a re-apportionment in September of 7,200 tons. 100% of the Mothership sector whiting was allocated to the Whiting Mothership Cooperative.

(B) The Mothership coop's actual retained and discarded catch of Pacific whiting, salmon, Pacific halibut, rockfish, groundfish, and other species on a vessel-by-vessel basis

All thirty seven of the MS/CV endorsed trawl limited entry permit holders joined the Whiting Mothership Cooperative (WMC).

As of October 19th, 2013, seventeen MS/CVs fished in the MS sector of the whiting fishery.

Data on the catch, as of October 19, 2013, of Whiting, Salmon, Halibut, Rockfish, Groundfish and Other Species, is shown in the tables attached tables #1 & 2(a-f) (Attachment 1). The table #1 shows the aggregate fleet catch, with a breakdown of each species category. The following tables #2(a-f) show the vessel by vessel catch for each species category. In interpreting the tables a cell with "0.000 mt" indicates at least a trace amount of this species was caught; a blank cell indicates no amount of that species was caught.

(C) A description of the method used by the mothership coop to monitor performance of coop vessels that participated in the fishery

The WMC retained Sea State, Inc. Inc. as the Monitoring Agent for the coop. All WMC members provide NMFS and the VMS providers with the needed

confidentiality waivers to allow Sea State, Inc. to access both Observer data and VMS data in real time.

The WMC provided Sea State, Inc. with a harvest schedule of each MS/CVs share of whiting and pro-rata portion of the allocated bycatch species. Sea State, Inc. queries the NORPAC observer database to obtain the Mothership observer reports on a daily basis. Sea State, Inc. uses this data to produce daily reports which are distributed by email to all WMC members, the Coop manager, and to the Mothership processors.

The Sea State, Inc. report shows several tables of information, including:

- the daily catch and bycatch amounts for the fleet as a whole for most recent 10 days
- the overall YTD rates and percent of whiting quota and bycatch harvested for the fleet in aggregate
- the YTD bycatch rates for each Mothership's fleet
- the YTD bycatch rates and amounts for each vessel
- the percent and amounts of whiting quota and bycatch allocations harvested by each seasonal pool
- the balance of whiting available in each seasonal pool by vessel

As MS/CV observers are debriefed, their data is incorporated into NORPAC and Sea State, Inc. updates its accounting accordingly. On the basis of the Sea State, Inc. data, the Coop manger audits vessel harvest amounts relative to the individual members' share of the quota and transfers between members to see that the coop's allocations are not exceeded.

A copy of a recent daily report of the season is included as Attachment 2.

(D) A description of any actions taken by the mothership coop in response to any vessels that exceed their allowed catch and bycatch

To date, no vessels have exceeded their allowed catch amounts under the Coop Agreement. The coop makes vessel specific whiting allocations, however, the bycatch allocations are managed as a common pool resource. This is not to say that vessels are not subject to individual accountability for bycatch performance.

To date no pool has exceeded its pro-rata share of the bycatch allocated to its seasonal pool.

The Coop agreement includes a variety of measures that serve to mitigate against the possibility of exceeding allowed catch and bycatch limits. These include:

- Precautionary closures of past bycatch hotspots.

- Night fishing restrictions
- Fleet relocation triggers and fleet to fleet reporting
- In season “hot spot” closure authority
- Seasonal apportionments (“pools”) of whiting and bycatch allowances
- Sanctions against vessels that have exceeded a bycatch rate within a seasonal pool.

Precautionary Closures of Past Bycatch Hotspots

Prior to the beginning of the 2011 whiting fishery, the WMC created a “Bycatch Committee” which met several times to develop proposed closures that would apply seasonally. The committee reviewed GIS analysis of 10 years of at-sea observer data overlaid on fine scale bathymetry. The analysis included bycatch rates and amounts as well as amounts of whiting. VMS tracklines of high bycatch tows were also incorporated in the review. Additionally, the committee reviewed logbook information from individual captains’ historic directed rockfish experience, which provided insight into habitat associations for rockfish species.

The committee ended up recommending closure of 9 areas, totaling nearly 2000 km² which were adopted by the WMC board. The board also identified several other “cautionary” areas.

The bycatch committee met again prior to the 2013 fishing season and recommended retaining the bycatch avoidance measures from the previous seasons. The recommendations were adopted by the board. The bycatch committee met during the season to review whether to modify or maintain the closures. Two additional closed areas and one cautionary area were adopted by the board during the 2013 season in response to a Darkblotched rockfish “hotspot.”

Night Fishing

Based on the recommendations of the bycatch committee the board adopted a restriction on night fishing between 10:00 PM and 5:30 AM prior to September 1st. The board modified the night fishing restriction for the fall, restricting night fishing inside 100 fathoms between 7:00 PM and 7:00 AM.

Fleet Relocation and Real Time Fleet to Fleet Reporting

The Coop established Base Rates which were based on the pro-rata amounts of bycatch allocations relative to whiting allocations to the MS sector. Each Mothership processor maintains a spreadsheet reporting its fleet performance,

measured against the Base Rates. The spreadsheet reports are shared each day between all the processing ships.

Each fleet's performance relative to the Base Rates constitutes a trigger requiring the fleet to relocate if they encounter a bycatch "hotspot". Relocation is required in the event of any of the following situations:

- If a fleet's three day rolling average rate of exceeds the Base Rate for any bycatch species, and that Fleet's cumulative year to date bycatch rate exceeds half of the Base Rate for that species,
- If a fleet's three day rolling average rate of exceeds 125% of the Base Rate for a bycatch species
- If a fleet's bycatch rate during any single day exceeds twice the Base Rate for a bycatch species,

This real time mechanism for response to bycatch encounters coupled with a requirement for test tows upon entering a new area, has served to avoid using up bycatch allocations.

In-season Hot Spot Closures

The WMC board delegated authority to Sea State, Inc. to impose In-season Hot Spot closures if they perceive a problem. This authority was used once during the 2013 season.

Seasonal Pools

The Coop agreement provides for dividing the whiting allocation into as many as 4 pools with various start dates. During the 2013 season the whiting was divided into 4 pools. Each pool received a share of the bycatch allocations pro-rata to whiting. The Coop Agreement provides that if a pool reaches its share of the bycatch prior to harvesting its whiting allocation, the members of the pool must cease fishing.

Sanctions Against Member Vessels

In the event that a pool closes because of bycatch, members of that pool whose cumulative bycatch rate exceeded their pro-rata share by 25%, that vessel is restricted from harvesting additional whiting in a subsequent seasonal pool.

During the 2013 season no pools have yet been closed due to bycatch. There have not been any violations of the WMC Bycatch Agreement.

(E) Plans for the next year's mothership coop fishery, including the companies participating in the cooperative, the harvest agreement, and catch monitoring and reporting requirements

The WMC provides that membership in the Coop continues in the following year unless a member provides notice of intent to withdraw before November 1st. No members have filed notice of intent to withdraw. No changes in membership between 2013 and 2014 are anticipated at this time. Therefore the member permits will continue as in 2014, as shown in Exhibit A of the WMC Membership Agreement (Attachment 3) filed with the MS cooperative permit application NMFS for the 2013 season.

No changes to the 2013 harvest agreement, catch monitoring, or reporting requirements are anticipated at this time. The board will review the Membership Agreement and consider modifications prior to the Coop Permit Renewal deadline in 2014.

Attachment 1
Table 1 (part 1)

Species Name	Code	WMC FLEET TOTALS		
ROUND FISH	Code	Retained mt	Discard mt	Total
Whiting	206	38,849.7	152.4	39,002.2
Sablefish	203	1.357	1.458	2.814
Lingcod	603	0.276	0.700	0.976
FLATFISH	Code	Retained mt	Discard mt	Total
Rex Sole	105	0.530	0.253	0.783
Dover Sole	107	0.006	0.011	0.016
Slender Sole	111	0.000	0.001	0.001
Pacific Sanddab	120	0.000	0.005	0.005
Arrowtooth Flounder	141	1.747	1.353	3.100
ROCKFISH	Code	Retained mt	Discard mt	Total
Pacific Ocean Perch	301	0.443	0.577	1.020
Widow Rockfish	320	5.266	8.182	13.448
Dark Blotched Rockfish	311	1.004	2.366	3.370
Canary Rockfish	314	0.164	0.301	0.465
Greenstriped Rockfish	135	0.001	0.001	0.002
Harlequin Rockfish	176	0.000	0.001	0.001
Stripetail Rockfish	183	0.002	0.001	0.002
Bocaccio	302	0.053	0.116	0.169
Sharpchin Rockfish	304	0.000	0.008	0.008
Rougheye Rockfish	307	4.843	1.388	6.231
Silvergray Rockfish	310	0.009	0.022	0.031
Splitnose Rockfish	315	1.334	1.123	2.456
Shortbelly Rockfish	318	0.015	0.650	0.664
Blackgill Rockfish	319	0.000	0.004	0.004
Yellowtail Rockfish	321	1.818	189.040	190.859
Redstripe Rockfish	324	0.002	0.003	0.005
Shortraker Rockfish	326	0.010	0.000	0.010
Aurora Rockfish	334	0.000	0.001	0.001
Bank Rockfish	337	0.004	0.000	0.004
Shortspine Thornyhead	350	4.065	1.677	5.742
REMAINING GROUND FISH SPECIES	Code	Retained mt	Discard mt	Total
Squid Unidentified	50	22.526	27.822	50.348
Octopus Unidentified	60	0.016	0.000	0.016
Pacific Sleeper Shark	62	0.003	0.008	0.010
Soupin Shark	64	0.000	0.231	0.231
Spiny Dogfish Shark	66	1.818	8.927	10.745
Salmon Shark	67	0.000	4.338	4.338
Brown Cat Shark	68	0.641	0.637	1.277
Blue Shark	69	0.000	0.073	0.073
Lamprey Unidentified	75	0.006	0.007	0.013
Pacific Electric Ray	93	0.000	0.005	0.005
Big Skate	94	0.000	0.100	0.100
Longnose Skate	95	0.035	0.059	0.094
Sandpaper Skate		0.000	0.001	0.001

Table 1 (part 2)

REMAINING GROUND FISH SPECIES	Code		Retained #s	Discard #s	Total
Chinook Salmon	222		2	537	539
Coho Salmon	223		0	6	6
Pink Salmon	440		0	3	3
PROHIBITED SPECIES Other	Code		Retained mt	Discard mt	Total
Pacific Halibut	101		0.000	0.372	0.372
Dungeness Crab	910		0.000	0.038	0.038
NON-GROUND FISH SPECIES	Code		Retained mt	Discard mt	Total
Jellyfish	35		0.054	1.170	1.223
Ascidian - Sea Squirt	43		0.000	0.003	0.003
Pacific Mackerel	199		0.001	0.003	0.005
Jack Mackerel	207		10.372	57.517	67.888
Lightfishes Unidentified	209		0.000	0.000	0.000
Pacific Saury	220		0.000	0.000	0.000
Pacific Herring	235		0.000	0.002	0.002
Pollock	270		0.000	0.002	0.002
Ragfish	280		0.002	0.328	0.330
Eulachon	511		0.003	0.008	0.011
Humboldt Squid	511		0.034	0.004	0.037
Surf Smelt	515		0.012	0.000	0.012
Rainbow Smelt			0.000	0.006	0.006
Northern Anchovy			0.000	0.001	0.001
Ribbonfish Unidentified	563		0.018	0.000	0.018
Pacific Lamprey	600		0.001	0.025	0.026
American Shad	606		0.073	0.171	0.244
King-of-the-Salmon	608		0.012	0.042	0.054
Pacific Sardine	614		0.000	0.000	0.001
Thresher Shark	689		0.000	0.107	0.107
Lanternfish Unidentified	700		0.003	0.003	0.006
Duckbill Barracudina	769		0.004	0.001	0.005
Medusafish	776		0.000	0.001	0.001
Tubeshoulder Unidentified	807		0.000	0.001	0.001
Ocean Sunfish	810		0.025	0.027	0.052
Fish Waste	899		0.003	0.004	0.007
Miscellaneous Unidentified	900		0.000	0.004	0.004
Fish Unidentified	901		0.001	0.002	0.003
Invertebrate Unidentified	902		0.000	0.001	0.001

Table 2a (part 1)

Species Name	Arctic Fury		Bay Islander		Lisa Melinda	
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Whiting	1,682.718	2.469	991.551	1.960	4,214.518	1.852
Sablefish	0.000	0.002			0.084	0.000
Lingcod	0.000	0.060	0.013	0.000	0.116	0.003
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Rex Sole					0.076	0.004
Dover Sole					0.003	0.000
Slender Sole						
Pacific Sanddab					0.000	0.002
Arrowtooth Flounder	0.000	0.020	0.114	0.034	0.180	0.082
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Pacific Ocean Perch	0.000	0.002	0.255	0.000	0.042	0.012
Widow Rockfish	0.000	0.399	0.088	0.196	2.447	0.643
Dark Blotched Rockfish	0.000	0.809	0.058	0.058	0.140	0.025
Canary Rockfish			0.072	0.000	0.012	0.067
Greenstriped Rockfish						
Harlequin Rockfish						
Stripetail Rockfish						
Bocaccio			0.027	0.000	0.012	0.000
Sharpchin Rockfish						
Rougheye Rockfish	0.000	0.004	0.402	0.000	1.098	0.112
Silvergray Rockfish			0.009	0.000	0.000	0.006
Splitnose Rockfish	0.000	0.082			0.700	0.133
Shortbelly Rockfish	0.000	0.002			0.008	0.003
Blackgill Rockfish						
Yellowtail Rockfish	0.000	0.026	0.459	59.842	0.046	1.500
Redstripe Rockfish					0.000	0.002
Shortraker Rockfish						
Aurora Rockfish			0.000	0.000		
Bank Rockfish						
Shortspine Thornyhead	0.000	0.001			0.942	0.008
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Squid Unidentified	0.000	0.145	0.149	0.126	3.121	0.208
Octopus Unidentified						
Pacific Sleeper Shark						
Soufin Shark	0.000	0.064			0.000	0.099
Spiny Dogfish Shark	0.000	0.052	0.000	0.214	0.869	0.086
Salmon Shark	0.000	1.103			0.000	1.278
Brown Cat Shark					0.197	0.027
Blue Shark	0.000	0.030			0.000	0.024
Lamprey Unidentified			0.000	0.000	0.002	0.000
Pacific Electric Ray						
Big Skate					0.000	0.036
Longnose Skate					0.000	0.005
Sandpaper Skate						

Table 2a (part 2)

ROUNDFISH	Retained #s	Discard #s	Retained #s	Discard #s	Retained #s	Discard #s
Chinook Salmon	0	16	0	4	0	58
Coho Salmon	0		0		0	
Pink Salmon	0		0		0	
ROUNDFISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Pacific Halibut	0.000	0.011	0.000		0.000	0.051
Dungeness Crab					0.000	0.038
ROUNDFISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Jellyfish	0.000	0.029	0.000	0.001	0.028	0.195
Ascidian - Sea Squirt - Tunicate						
Pacific Mackerel					0.001	0.001
Jack Mackerel	0.000	0.004			0.514	0.065
Lightfishes Unidentified						
Pacific Saury						
Pacific Herring	0.000		0.000		0.000	
Pollock						
Ragfish					0.000	0.000
Eulachon					0.002	0.004
Humboldt Squid			0.034	0.000		
Surf Smelt					0.009	0.000
Rainbow Smelt						
Northern Anchovy					0.000	0.001
Ribbonfish Unidentified						
Pacific Lamprey	0.000		0.000	0.000	0.000	0.013
American Shad					0.013	0.040
King-of-the-Salmon						
Pacific Sardine					0.000	0.000
Thresher Shark						
Lanternfish Unidentified					0.000	0.002
Duckbill Barracudina						
Medusafish						
Tubeshoulder Unidentified					0.000	0.000
Ocean Sunfish					0.014	0.000
Fish Waste					0.001	0.000
Miscellaneous Unidentified					0.000	0.001
Fish Unidentified					0.000	
Invertebrate Unidentified					0.000	0.001

Table 2b (part 1)

Species Name	Marathon		Mark I		Miss Berdie	
	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
ROUND FISH						
Whiting	1,537.845	13.013	2,563.786	15.217	3,124.730	11.590
Sablefish	0.094	0.000	0.000	0.001	0.000	0.007
Lingcod	0.012	0.000	0.000	0.103	0.000	0.178
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Rex Sole	0.035	0.005			0.000	0.016
Dover Sole					0.000	0.004
Slender Sole						
Pacific Sanddab						
Arrowtooth Flounder	0.155	0.044	0.000	0.042	0.000	0.186
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Pacific Ocean Perch	0.115	0.119	0.000	0.011	0.000	0.155
Widow Rockfish	1.770	0.064	0.000	1.004	0.000	1.142
Dark Blotched Rockfish	0.182	0.152	0.000	0.630	0.000	0.479
Canary Rockfish	0.053	0.000	0.000	0.035	0.000	0.049
Greenstriped Rockfish						
Harlequin Rockfish						
Stripetail Rockfish						
Bocaccio	0.014	0.000	0.000	0.016	0.000	0.049
Sharpchin Rockfish			0.000	0.001	0.000	0.005
Rougheye Rockfish	0.498	0.209	0.000	0.044	0.449	0.189
Silvergray Rockfish					0.000	0.014
Splitnose Rockfish	0.080	0.002	0.000	0.537	0.000	0.020
Shortbelly Rockfish			0.000	0.005	0.000	0.003
Blackgill Rockfish	0.000	0.004				
Yellowtail Rockfish	1.107	23.255	0.000	19.913	0.000	41.282
Redstripe Rockfish	0.001	0.000				
Shortraker Rockfish						
Aurora Rockfish	0.000	0.001				
Bank Rockfish						
Shortspine Thornyhead	0.534	0.146			0.000	0.262
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Squid Unidentified	0.515	0.466	0.000	0.302	0.053	0.721
Octopus Unidentified	0.016	0.000				
Pacific Sleeper Shark						
Soufin Shark			0.000	0.022	0.000	0.047
Spiny Dogfish Shark	0.000	0.835	0.000	0.076	0.000	1.151
Salmon Shark			0.000	0.835	0.000	1.123
Brown Cat Shark	0.000	0.057	0.000	0.004	0.000	0.129
Blue Shark						
Lamprey Unidentified	0.000	0.000			0.000	0.000
Pacific Electric Ray						
Big Skate					0.000	0.025
Longnose Skate	0.000	0.037	0.000	0.017		
Sandpaper Skate						

Table 2b (part 2)

ROUNDFISH	Retained #s	Discard #s	Retained #s	Discard #s	Retained #s	Discard #s
Chinook Salmon	0	53	0	15	0	26
Coho Salmon	0		0	2	0	
Pink Salmon	0	1	0	2	0	
ROUNDFISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Pacific Halibut	0.000	0.008	0.000		0.000	0.101
Dungeness Crab						
ROUNDFISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Jellyfish	0.000	0.031	0.000	0.024	0.000	0.027
Ascidian - Sea Squirt - Tunicate						
Pacific Mackerel						
Jack Mackerel	0.370	0.931	0.000	0.006	4.533	13.871
Lightfishes Unidentified					0.000	0.000
Pacific Saury						
Pacific Herring	0.000		0.000		0.000	0.002
Pollock						
Ragfish					0.000	0.052
Eulachon	0.000	0.000			0.000	0.000
Humboldt Squid	0.000	0.004				
Surf Smelt						
Rainbow Smelt						
Northern Anchovy						
Ribbonfish Unidentified	0.018	0.000				
Pacific Lamprey	0.000				0.000	0.000
American Shad	0.003	0.018	0.000	0.013	0.000	0.006
King-of-the-Salmon						
Pacific Sardine						
Thresher Shark						
Lanternfish Unidentified	0.000	0.000				
Duckbill Barracudina					0.000	0.001
Medusafish					0.000	0.001
Tubeshoulder Unidentified						
Ocean Sunfish						
Fish Waste	0.000	0.001				
Miscellaneous Unidentified	0.000	0.000				
Fish Unidentified						
Invertebrate Unidentified						

Table 2c (part 1)

Species Name	Miss Sarah		Muir Milach		Pacific Challenger	
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Whiting	795.029	22.862	3,565.485	13.943	1,857.249	0.000
Sablefish	0.006	0.000	0.019	0.002	0.042	0.000
Lingcod	0.039	0.021	0.080	0.025		
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Rex Sole			0.007	0.001	0.002	0.008
Dover Sole						
Slender Sole			0.000	0.000		
Pacific Sanddab	0.000	0.003				
Arrowtooth Flounder	0.065	0.005	0.025	0.019	0.007	0.047
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Pacific Ocean Perch	0.002	0.001				
Widow Rockfish	0.042	0.045	0.440	2.619	0.097	0.012
Dark Blotched Rockfish	0.038	0.107	0.000	0.014		
Canary Rockfish	0.000	0.008	0.026	0.004		
Greenstriped Rockfish			0.000	0.001		
Harlequin Rockfish						
Stripetail Rockfish						
Bocaccio						
Sharpchin Rockfish			0.000	0.002		
Rougheye Rockfish			0.403	0.057	0.187	0.665
Silvergray Rockfish						
Splitnose Rockfish	0.009	0.021	0.013	0.006	0.054	0.000
Shortbelly Rockfish			0.005	0.637		
Blackgill Rockfish						
Yellowtail Rockfish	0.000	0.091	0.205	0.053		
Redstripe Rockfish			0.001	0.001		
Shortraker Rockfish					0.010	0.000
Aurora Rockfish						
Bank Rockfish						
Shortspine Thornyhead			0.021	0.019	0.127	0.058
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Squid Unidentified	0.002	0.157	4.855	0.718	1.095	1.141
Octopus Unidentified						
Pacific Sleeper Shark			0.000	0.001		
Soufin Shark						
Spiny Dogfish Shark			0.127	1.560	0.000	1.061
Salmon Shark						
Brown Cat Shark			0.030	0.144	0.000	0.111
Blue Shark						
Lamprey Unidentified	0.000	0.000	0.000	0.000	0.000	0.000
Pacific Electric Ray						
Big Skate						
Longnose Skate						
Sandpaper Skate						

Table 2c (part 2)

ROUNDFISH	Retained #s	Discard #s	Retained #s	Discard #s	Retained #s	Discard #s
Chinook Salmon	0	23	0	59	0	49
Coho Salmon	0		0		0	
Pink Salmon	0		0		0	
ROUNDFISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Pacific Halibut	0.000	0.016	0.000	0.037	0.000	0.016
Dungeness Crab						
ROUNDFISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Jellyfish	0.000	0.071	0.000	0.229	0.000	0.053
Ascidian - Sea Squirt - Tunicate			0.000	0.003		
Pacific Mackerel	0.000	0.001	0.000	0.000		
Jack Mackerel	0.001	0.003	0.501	1.167	0.082	0.000
Lightfishes Unidentified			0.000	0.000		
Pacific Saury						
Pacific Herring	0.000		0.000		0.000	
Pollock						
Ragfish			0.000	0.060	0.000	0.145
Eulachon	0.000	0.000	0.000	0.002	0.001	0.000
Humboldt Squid						
Surf Smelt						
Rainbow Smelt			0.000	0.001		
Northern Anchovy						
Ribbonfish Unidentified						
Pacific Lamprey	0.000	0.003	0.001	0.008		
American Shad	0.015	0.008	0.003	0.001	0.001	0.000
King-of-the-Salmon						
Pacific Sardine						
Thresher Shark						
Lanternfish Unidentified	0.000	0.000	0.000	0.001	0.000	0.000
Duckbill Barracudina						
Medusafish						
Tubeshoulder Unidentified			0.000	0.000	0.000	0.000
Ocean Sunfish						
Fish Waste			0.001	0.000	0.000	0.000
Miscellaneous Unidentified			0.000	0.001	0.000	0.001
Fish Unidentified						
Invertebrate Unidentified						

Table 2d (part 1)

Species Name	Pacific Prince		Pegasus		Perseverance	
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Whiting	4,563.242	0.000	3,984.304	7.769	129.199	0.000
Sablefish	0.373	0.000	0.540	0.773		
Lingcod	0.003	0.000	0.000	0.085		
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Rex Sole	0.407	0.000	0.004	0.184		
Dover Sole	0.003	0.000	0.000	0.005		
Slender Sole			0.000	0.000		
Pacific Sanddab						
Arrowtooth Flounder	0.700	0.000	0.000	0.493	0.089	0.000
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Pacific Ocean Perch	0.027	0.000	0.000	0.121		
Widow Rockfish	0.342	0.000	0.000	0.496	0.000	0.014
Dark Blotched Rockfish	0.577	0.000	0.000	0.018		
Canary Rockfish			0.000	0.076	0.000	0.011
Greenstriped Rockfish	0.001	0.000				
Harlequin Rockfish						
Stripetail Rockfish	0.002	0.000	0.000	0.001		
Bocaccio			0.000	0.016		
Sharpchin Rockfish						
Rougheye Rockfish	1.589	0.000	0.000	0.041	0.000	0.009
Silvergray Rockfish			0.000	0.001		
Splitnose Rockfish	0.380	0.000	0.000	0.247		
Shortbelly Rockfish	0.001	0.000	0.000	0.000		
Blackgill Rockfish						
Yellowtail Rockfish			0.000	29.218	0.000	0.102
Redstripe Rockfish						
Shortraker Rockfish						
Aurora Rockfish						
Bank Rockfish						
Shortspine Thornyhead	2.334	0.000	0.046	0.966		
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Squid Unidentified	12.016	0.058	0.196	8.272	0.001	0.004
Octopus Unidentified						
Pacific Sleeper Shark	0.003	0.000			0.000	0.006
Soufin Shark						
Spiny Dogfish Shark	0.823	0.000	0.000	0.860	0.000	0.003
Salmon Shark						
Brown Cat Shark	0.414	0.000	0.000	0.052	0.000	0.002
Blue Shark			0.000	0.019		
Lamprey Unidentified	0.003	0.000	0.000	0.002		
Pacific Electric Ray			0.000	0.005		
Big Skate						
Longnose Skate	0.012	0.000				
Sandpaper Skate			0.000	0.001		

Table 2d (part 2)

ROUNDFISH	Retained #s	Discard #s	Retained mt	Discard mt	Retained mt	Discard mt
Chinook Salmon	0	18	0	16	0	
Coho Salmon	0		0		0	
Pink Salmon	0		0		0	
ROUNDFISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Pacific Halibut	0.000	0.012	0.000	0.051	0.000	
Dungeness Crab						
ROUNDFISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Jellyfish	0.026	0.269	0.000	0.038		
Ascidian - Sea Squirt - Tunicate						
Pacific Mackerel						
Jack Mackerel	3.180	0.000	0.000	13.514		
Lightfishes Unidentified						
Pacific Saury						
Pacific Herring	0.000		0.000		0.000	
Pollock			0.000	0.002		
Ragfish	0.001	0.000				
Eulachon			0.000	0.000		
Humboldt Squid						
Surf Smelt	0.002	0.000				
Rainbow Smelt						
Northern Anchovy						
Ribbonfish Unidentified						
Pacific Lamprey	0.000	0.000	0.000	0.000		
American Shad	0.039	0.000	0.000	0.016		
King-of-the-Salmon	0.012	0.000				
Pacific Sardine						
Thresher Shark						
Lanternfish Unidentified	0.002	0.000	0.000	0.000		
Duckbill Barracudina	0.004	0.000				
Medusafish						
Tubeshoulder Unidentified						
Ocean Sunfish	0.000	0.003	0.000	0.012		
Fish Waste	0.001	0.000	0.000	0.002		
Miscellaneous Unidentified	0.000	0.001				
Fish Unidentified			0.000	0.002		
Invertebrate Unidentified						

Table 2e (part 1)

Species Name	Sea Storm		Seadawn		Seeker	
	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
ROUND FISH						
Whiting	158.399	0.000	238.067	0.000	598.605	0.000
Sablefish					0.000	0.020
Lingcod					0.000	0.022
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Rex Sole					0.000	0.001
Dover Sole						
Slender Sole					0.000	0.001
Pacific Sanddab						
Arrowtooth Flounder	0.000	0.001	0.412	0.000	0.000	0.032
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Pacific Ocean Perch						
Widow Rockfish	0.000	0.080	0.000	0.059	0.000	0.208
Dark Blotched Rockfish						
Canary Rockfish						
Greenstriped Rockfish						
Harlequin Rockfish						
Stripetail Rockfish						
Bocaccio						
Sharpchin Rockfish						
Rougheye Rockfish					0.000	0.049
Silvergray Rockfish						
Splitnose Rockfish					0.000	0.010
Shortbelly Rockfish					0.000	0.000
Blackgill Rockfish						
Yellowtail Rockfish			0.000	1.030		
Redstripe Rockfish						
Shortraker Rockfish						
Aurora Rockfish						
Bank Rockfish						
Shortspine Thornyhead					0.000	0.006
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Squid Unidentified	0.000	0.041	0.000	0.006	0.018	0.322
Octopus Unidentified						
Pacific Sleeper Shark						
Soufin Shark						
Spiny Dogfish Shark	0.000	0.068	0.000	0.021	0.000	1.817
Salmon Shark						
Brown Cat Shark	0.000	0.013			0.000	0.080
Blue Shark						
Lamprey Unidentified	0.000	0.000			0.000	0.000
Pacific Electric Ray						
Big Skate						
Longnose Skate						
Sandpaper Skate						

Table 2e (part 2)

ROUNDFISH	Retained #s	Discard #s	Retained #s	Discard #s	Retained #s	Discard #s
Chinook Salmon	0		0	2	0	44
Coho Salmon	0		0		0	
Pink Salmon	0		0		0	
ROUNDFISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Pacific Halibut	0.000		0.000		0.000	
Dungeness Crab						
ROUNDFISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Jellyfish					0.000	0.029
Ascidian - Sea Squirt - Tunicate						
Pacific Mackerel						
Jack Mackerel					0.899	3.997
Lightfishes Unidentified					0.000	0.000
Pacific Saury						
Pacific Herring	0.000		0.000		0.000	
Pollock						
Ragfish					0.000	0.071
Eulachon						
Humboldt Squid						
Surf Smelt						
Rainbow Smelt					0.000	0.004
Northern Anchovy						
Ribbonfish Unidentified						
Pacific Lamprey			0.000	0.000		
American Shad						
King-of-the-Salmon	0.000	0.026				
Pacific Sardine						
Thresher Shark					0.000	0.107
Lanternfish Unidentified						
Duckbill Barracudina						
Medusafish						
Tubeshoulder Unidentified					0.000	0.000
Ocean Sunfish						
Fish Waste					0.000	0.001
Miscellaneous Unidentified						
Fish Unidentified						
Invertebrate Unidentified						

Table 2f (part 1)

Species Name	Traveler		Western Dawn		Total	Total
	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
ROUND FISH						
Whiting	3,303.715	24.656	1,112.727	5.146	38,849.749	152.408
Sablefish	0.144	0.390			1.357	1.458
Lingcod	0.013	0.060	0.000	0.114	0.276	0.700
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Rex Sole	0.000	0.024	0.000	0.000	0.530	0.253
Dover Sole	0.000	0.001			0.006	0.011
Slender Sole					0.000	0.001
Pacific Sanddab					0.000	0.005
Arrowtooth Flounder	0.000	0.042	0.000	0.021	1.747	1.353
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Pacific Ocean Perch					0.443	0.577
Widow Rockfish	0.000	0.346	0.000	0.219	5.266	8.182
Dark Blotched Rockfish	0.000	0.006			1.004	2.366
Canary Rockfish					0.164	0.301
Greenstriped Rockfish					0.001	0.001
Harlequin Rockfish	0.000	0.001			0.000	0.001
Stripetail Rockfish					0.002	0.001
Bocaccio					0.053	0.116
Sharpchin Rockfish					0.000	0.008
Rougheye Rockfish	0.000	0.009			4.843	1.388
Silvergray Rockfish					0.009	0.022
Splitnose Rockfish	0.008	0.053	0.000	0.000	1.334	1.123
Shortbelly Rockfish	0.000	0.001			0.015	0.650
Blackgill Rockfish					0.000	0.004
Yellowtail Rockfish	0.000	0.100			1.818	189.040
Redstripe Rockfish					0.002	0.003
Shortraker Rockfish					0.010	0.000
Aurora Rockfish					0.000	0.001
Bank Rockfish					0.004	0.000
Shortspine Thornyhead	0.000	0.131	0.044	0.046	4.065	1.677
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Squid Unidentified	0.021	7.778	0.031	1.104	22.526	27.822
Octopus Unidentified					0.016	0.000
Pacific Sleeper Shark					0.003	0.008
Soufin Shark					0.000	0.231
Spiny Dogfish Shark	0.000	0.442	0.000	0.082	1.818	8.927
Salmon Shark					0.000	4.338
Brown Cat Shark	0.000	0.006			0.641	0.637
Blue Shark					0.000	0.073
Lamprey Unidentified	0.000	0.001	0.000	0.002	0.006	0.007
Pacific Electric Ray					0.000	0.005
Big Skate	0.000	0.040			0.000	0.100
Longnose Skate					0.035	0.059
Sandpaper Skate					0.000	0.001

Table 2f (part 2)

ROUND FISH	Retained #s	Discard #s	Retained #s	Discard #s	Retained #s	Discard #s
Chinook Salmon	0	24	0	49	2	537
Coho Salmon	0		0		0	6
Pink Salmon	0		0		0	3
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Pacific Halibut	0.000	0.012	0.000		0.000	0.372
Dungeness Crab					0.000	0.038
ROUND FISH	Retained mt	Discard mt	Retained mt	Discard mt	Retained mt	Discard mt
Jellyfish	0.000	0.068	0.000	0.024	0.054	1.170
Ascidian - Sea Squirt - Tunicate					0.000	0.003
Pacific Mackerel	0.000	0.001			0.001	0.003
Jack Mackerel	0.000	2.005	0.052	1.306	10.372	57.517
Lightfishes Unidentified					0.000	0.000
Pacific Saury					0.000	0.000
Pacific Herring	0.000		0.000		0.000	0.002
Pollock					0.000	0.002
Ragfish					0.002	0.328
Eulachon	0.000	0.000			0.003	0.008
Humboldt Squid					0.034	0.004
Surf Smelt					0.012	0.000
Rainbow Smelt					0.000	0.006
Northern Anchovy					0.000	0.001
Ribbonfish Unidentified					0.018	0.000
Pacific Lamprey					0.001	0.025
American Shad	0.000	0.037	0.000	0.001	0.073	0.171
King-of-the-Salmon	0.000	0.016			0.012	0.042
Pacific Sardine					0.000	0.000
Thresher Shark					0.000	0.107
Lanternfish Unidentified			0.000		0.003	0.003
Duckbill Barracudina					0.004	0.001
Medusafish					0.000	0.001
Tubeshoulder Unidentified					0.000	0.001
Ocean Sunfish					0.025	0.027
Fish Waste					0.003	0.004
Miscellaneous Unidentified					0.000	0.004
Fish Unidentified					0.001	0.002
Invertebrate Unidentified					0.000	0.001



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October 18, 2013

Mothership whiting coop – catch and bycatch year to date

Date	Whiting	Canary	Widow	Dark blotched	POP	Chinook
10/10/13	953	0.00	0.02	0.00	0.00	4
10/11/13	496	0.00	0.01	0.00	0.00	4
10/12/13	267	0.00	0.02	0.00	0.00	0
10/13/13	992	0.00	0.43	0.00	0.00	14
10/14/13	965	0.00	0.18	0.00	0.00	81
10/15/13	893	0.00	0.13	0.00	0.00	107
10/16/13	760	0.00	2.09	0.02	0.01	2
Totals year to date	37,646	0.50	13.17	3.35	1.02	524
Rate year to date		0.013	0.350	0.089	0.027	0.014
2013 Allocation for Motherships	56,170	5.20	120.00	6.10	7.20	1,997
Percentage Taken	67.0%	9.7%	11.0%	55.0%	14.1%	26.3%

My apologies for the last report, I assigned a couple of hauls to the wrong pool. I am sorry if this caused any confusion.

Katherine

	Whiting	Canary	Widow	Dark blotched	POP	Chinook
1st seasonal pool total catch	20,374	0.49	7.64	2.67	0.97	284
1st pool allocation	25,758	2.38	55.03	2.80	3.30	916
Percentage Taken	79.1%	20.7%	13.9%	95.5%	29.3%	31.1%
2nd seasonal pool total catch	10,609	0.01	4.84	0.09	0.02	122
2nd pool allocation	12,536	1.16	26.78	1.36	1.61	446
Percentage Taken	84.6%	1.1%	18.1%	7.0%	1.3%	27.4%

3rd seasonal pool total catch	6,662	0.00	0.69	0.59	0.03	118
3rd pool allocation	13,036	1.21	27.85	1.42	1.67	463
Percentage Taken	51.1%	0.0%	2.5%	41.6%	1.7%	25.5%

4.3 Relocation of Fishing Effort. If

- (i) a Fleet's three (3) day rolling average bycatch rate of Overfished Species or Chinook salmon exceeds the Base Rate for any such species, and that Fleet's cumulative annual bycatch rate for such species exceeds fifty percent (50%) of the Base Rate for such species,
- (ii) a Fleet's three (3) day rolling average bycatch rate for any of such species exceeds one-hundred twenty-five percent (125%) of the Base Rate for such species, or
- (iii) a Fleet's bycatch rate during any single day exceeds two-hundred percent (200%) of the Base Rate for such species, then that Fleet and the Mothership to which it delivers shall relocate their fishing effort to an area where that Fleet could reasonably expect to achieve a lower Overfished Species and Chinook salmon bycatch rate.

Note: No fleet is required to relocate until 50% of the pro-rata share of Chinook for that seasonal pool has been taken. At that point, the 2013 Chinook base rate has two stages:

- a) 0.04 Chinook/mt is the base rate for fleets that have taken more than their pro-rata share Chinook relative to whiting harvested,
- and,
- b) 0.06 Chinook/mt is the base rate for fleets that have taken less than their pro-rata share of Chinook relative to whiting harvested.

Multiples of the base rate and their usage for movement tests.

Base rate multiple	Canary	Widow	Dark blotched	POP	Chinook	Movement test
100% (=base)	0.11	2.45	0.12	0.15	0.040	i
50%	0.05	1.23	0.06	0.08	0.020	i
125%	0.14	3.06	0.15	0.19	0.050	ii
150%	0.16	3.68	0.18	0.23	0.060	iii
200%	0.22	4.90	0.24	0.30	0.080	

Report elevated tow if rate greater than base but less than 150%. Report high tow if rate > 150% of base.

Fleet rates (year to date) – use for test i (red print fails test i)

VesselName	Canary rate	Widow rate	Darkblotched rate	POP rate	Chinook rate
ARCTIC STORM	0.030	0.433	0.013	0.002	0.054
EXCELLENCE	0.011	0.206	0.107	0.024	0.012
GOLDEN ALASKA	0.026	0.458	0.091	0.100	0.019
KATIE ANN	0.023	1.139	0.062	0.009	0.011
OCEAN ROVER	0.000	0.085	0.080	0.005	0.009

Fleet rates (3-day average) – use for test i and ii. (red/yellow means fails test ii)

Fleet	Canary rate	Widow rate	Dark blotched rate	POP rate	Chinook rate
ARCTIC STORM	0.000	0.540	0.038	0.004	0.118
GOLDEN ALASKA	0.000	3.196	0.000	0.000	0.063
OCEAN ROVER	0.000	0.409	0.006	0.022	0.018

Daily Fleet rates - use for test iii. . (red/yellow means fails test iii)

Date	Vessel Name	Canary rate	Widow rate	Dark blotched rate	POP rate	Chinook rate
10/16/13	ARCTIC STORM	0.000	0.913	0.077	0.008	0.007
10/16/13	GOLDEN ALASKA	0.000	7.068	0.000	0.000	0.000
10/16/13	OCEAN ROVER	0.000	0.781	0.011	0.050	0.000

Vessel rates to date

Pool	Harvesting vessel	Canary rate	Widow rate	Dark blotched rate	POP rate	Chinook rate
1	ARCTIC FURY	0.000	0.237	0.480	0.001	0.009
1	BAY ISLANDER	0.073	0.286	0.116	0.257	0.004
1	LISA MELINDA	0.040	0.367	0.050	0.023	0.011
1	MARATHON	0.040	0.248	0.240	0.172	0.029
1	MARK I	0.014	0.389	0.244	0.004	0.006
1	MISS BERDIE	0.019	0.389	0.184	0.059	0.007
1	MISS SARAH	0.010	0.107	0.178	0.003	0.028
1	MUIR MILACH	0.009	0.921	0.003	0.000	0.018
1	PEGASUS	0.052	0.164	0.008	0.082	0.008
1	PERSEVERANCE	0.086	0.106	0.000	0.000	0.000
1	RAVEN	0.014	0.165	0.022	0.045	0.023
1	SEADAWN	0.167	0.145	0.000	0.000	0.004
1	WESTERN DAWN	0.000	0.311	0.000	0.000	0.000
2	LISA MELINDA	0.005	0.979	0.032	0.006	0.016
2	MARATHON	0.000	35.823	0.000	0.000	0.000
2	MISS BERDIE	0.000	0.056	0.008	0.010	0.009
2	PEGASUS	0.000	0.101	0.002	0.000	0.002
2	RAVEN	0.000	0.101	0.000	0.003	0.003
2	TRAVELER	0.000	0.104	0.002	0.000	0.007
2	WESTERN DAWN	0.000	0.185	0.000	0.000	0.048
3	MISS BERDIE	0.000	0.631	0.109	0.021	0.064
3	PACIFIC CHALLENGER	0.000	0.063	0.000	0.000	0.031
3	PACIFIC PRINCE	0.000	0.075	0.126	0.006	0.004
3	SEEKER	0.000	0.440	0.000	0.000	0.111

Vessels catch to date

Pool	Harvesting vessel	Whiting (ytd)	Canary (ytd)	Widow (ytd)	Dark blotched (ytd)	POP (ytd)	Chinook (ytd)
1	ARCTIC FURY	1,685	0.00	0.40	0.81	0.00	16
1	BAY ISLANDER	994	0.07	0.28	0.12	0.26	4
1	LISA MELINDA	1,694	0.07	0.62	0.08	0.04	18
1	MARATHON	1,346	0.05	0.33	0.32	0.23	39
1	MARK I	2,579	0.04	1.00	0.63	0.01	15
1	MISS BERDIE	2,534	0.05	0.98	0.47	0.15	17
1	MISS SARAH	818	0.01	0.09	0.15	0.00	23
1	MUIR MILACH	3,293	0.03	3.03	0.01	0.00	59
1	PEGASUS	1,460	0.08	0.24	0.01	0.12	12
1	PERSEVERANCE	129	0.01	0.01	0.00	0.00	0
1	RAVEN	3,509	0.05	0.58	0.08	0.16	80
1	SEADAWN	239	0.04	0.03	0.00	0.00	1
1	WESTERN DAWN	96	0.00	0.03	0.00	0.00	0
2	LISA MELINDA	2,522	0.01	2.47	0.08	0.01	40
2	MARATHON	41	0.00	1.47	0.00	0.00	0
2	MISS BERDIE	211	0.00	0.01	0.00	0.00	2
2	PEGASUS	2,532	0.00	0.26	0.01	0.00	4
2	RAVEN	952	0.00	0.10	0.00	0.00	3
2	TRAVELER	3,328	0.00	0.35	0.01	0.00	24
2	WESTERN DAWN	1,022	0.00	0.19	0.00	0.00	49
3	MISS BERDIE	109	0.00	0.07	0.01	0.00	7
3	PACIFIC CHALLENGER	1,593	0.00	0.10	0.00	0.00	49
3	PACIFIC PRINCE	4,563	0.00	0.34	0.58	0.03	18
3	SEEKER	397	0.00	0.17	0.00	0.00	44

Remaining quota for 1st Pool

Vessel	Whiting
Arctic Fury	0
Bay Islander	109
Lisa Melinda	-34
Marathon	-39
Mark I	367
Miss Berdie	-11
Miss Sarah	1,116
Muir Milach	2,463
Pegasus	-30
Perseverance	1,472
Raven	-13
Seadawn	0
Western Dawn	-15

Remaining quota for 2nd Pool

Vessel	Whiting
Arctic Fury	0
Lisa Melinda	-104
Miss Berdie	-28
Pegasus	564
Traveler	302
Western Dawn	1,062
Raven	125

Quota amounts for 3rd Pool

Vessel	Whiting
Bay Islander	949
Marathon	715
Miss Berdie	1,656
Pacific Challenger	93
Pacific Prince	484
Sea Storm	2,301
Seeker	176

125% of 1st Seasonal Pool Pro-rata Bycatch Amounts by Vessel –These are the “test” amounts for transferring unharvested whiting to a subsequent pool.

1st Seasonal Pool	CANARY	DKB	POP	WIDOW	CHINOOK
Arctic Fury	0.225	0.264	0.311	5.190	86
Bay Islander	0.128	0.150	0.177	2.944	49
Lisa Melinda	0.192	0.225	0.266	4.434	74
Mark I	0.341	0.400	0.472	7.867	131
Marathon	0.151	0.177	0.209	3.489	58
Miss Berdie	0.292	0.342	0.404	6.736	112
Miss Sarah	0.224	0.262	0.310	5.164	86
Muir Milach	0.666	0.781	0.922	15.369	256
Pegasus	0.165	0.194	0.229	3.818	64
Perserverance	0.185	0.217	0.257	4.277	71
Raven	0.333	0.391	0.461	7.687	128
Sea Dawn	0.069	0.081	0.096	1.596	27
Western Dawn	0.009	0.011	0.013	0.216	4

125% of 2nd Seasonal Pool Pro-rata Bycatch Amounts by Vessel -This is the test amount for transferring unharvested whiting to a subsequent pool					
2nd Seasonal Pool	CANARY	DKB	POP	WIDOW	CHINOOK
Lisa Melinda	0.259	0.303	0.358	5.969	99
Miss Berdie	0.021	0.025	0.029	0.488	8
Pegasus	0.185	0.217	0.256	4.263	71
PPLP	0.047	0.055	0.064	1.075	18
Raven	0.105	0.123	0.145	2.416	40
Traveler	0.258	0.303	0.357	5.955	99
Western Dawn	0.577	0.677	0.799	13.310	222

125% of 3rd Seasonal Pool Pro-rata Bycatch Amounts by Vessel -This is the test amount for transferring unharvested whiting to a subsequent pool					
3rd Seasonal Pool	CANARY	DKB	POP	WIDOW	CHINOOK
Bay Islander	0.110	0.129	0.152	2.533	42
Marathon	0.083	0.097	0.114	1.908	32
Miss Berdie	0.204	0.240	0.283	4.712	78
Pacific Challenger	0.195	0.229	0.270	4.504	75
Pacific Prince	0.584	0.685	0.809	13.479	224
Sea Storm	0.266	0.312	0.369	6.145	102
Seeker	0.066	0.078	0.092	1.532	25

WHITING MOTHERSHIP COOPERATIVE SECOND AMENDED AND RESTATED MEMBERSHIP AGREEMENT

This SECOND AMENDED AND RESTATED MEMBERSHIP AGREEMENT ("Agreement") is entered into as of _____, 2013 by and among the entities listed on Exhibit A hereto and any other members admitted pursuant to this Agreement (together, the "Members") and WHITING MOTHERSHIP COOPERATIVE, a Washington Fish Marketing Act nonprofit corporation (the "Cooperative").

RECITALS

A. Amendment 20 to the Pacific Coast Groundfish Fishery Management Plan ("Amendment 20") adopts a cooperative-based rationalization system for the mothership sector of the Pacific whiting fishery.

B. The Members have formed a fishery cooperative that qualifies to receive annual mothership whiting allocations under the regulations implementing Amendment 20.

C. The Members have executed that certain Membership Agreement dated as of March 8, 2011 (the "Membership Agreement") and that certain Amended and Restated Membership Agreement dated as of March 1, 2012. The Members wish to further amend and restate the Membership Agreement to address issues identified during the Cooperative's 2012 fishing year.

Now, therefore, the parties agree as follows:

1. Cooperative Membership and Assignment of Whiting Catch History. To be qualified to join the Cooperative, a person must own a Pacific Coast trawl limited entry groundfish permit with a "catcher vessel mothership" or "MS/CV" endorsement, and such person must not have incurred legal sanctions that prevent that person from fishing groundfish in the region under Pacific Fishery Management Council (the "Council") jurisdiction. Upon being admitted to the Cooperative, and for so long as each Member remains a Member, each Member shall assign all of the mothership sector Pacific whiting catch history assignment for at least one of such Member's MS/CV permits to the Cooperative. Each Member acknowledges that upon such assignment, all mothership sector whiting catch history assignment related to such MS/CV permit remains with the Cooperative for the calendar year of such assignment, unless otherwise provided herein. A schedule that identifies the Members and

the permit(s) each of them has assigned to the Cooperative, that specifies each Member's percentage share of the Cooperative's annual allocation, and that identifies all of the vessels that will harvest under the Cooperative's annual allocation shall be prepared annually by the Cooperative's Manager (as defined in Section 8, below) on or before April 15, and when approved by the Cooperative's Board of Directors, shall be incorporated by reference as Exhibit B (such schedule being referred to hereafter as the "Harvest Schedule").

2. Cooperative Permit and Allocation. Unless and until it is terminated in accordance with Section 7.a, below, the Cooperative shall apply each year for a Pacific whiting fishery mothership sector cooperative permit (the "Cooperative Permit") and a related allocation of whiting.

3. Harvest Shares. Subject to the terms and conditions of the regulations implementing Amendment 20, this Membership Agreement, the Articles of Incorporation and the Bylaws of the Cooperative (as the same may be amended from time to time) and applicable restrictions under U.S. antitrust law, each Member shall have the right to harvest the annual percentage of the Cooperative's annual allocation of Pacific whiting assigned to such Member on the Cooperative Harvest Schedule for that year, and to transfer some or all of such percentage to any person eligible to receive it.

a. Pacific Whiting. Each Member's annual Harvest Schedule percentage for Pacific whiting shall be proportionate to the contribution to the Cooperative's initial allocation for such species made by the National Marine Fisheries Service ("NMFS") on the basis of the whiting catch history assigned to the Cooperative by such Member. Any additional Pacific whiting allocations NMFS may make to the Cooperative during the course of an annual season shall be distributed to the Members pro rata, according to their initial Pacific whiting Harvest Schedule percentages.

b. Non-Whiting Species, Set-Asides and Prohibited Species Management. The Members acknowledge that their mothership sector harvest of all species other than Pacific whiting, including but not limited to non-whiting allocated species such as Canary, Darkblotched, Pacific Ocean Perch and Widow rockfish, non-whiting "set -aside" species such as sablefish, and "prohibited species" such as salmon and halibut (together, the "Non-Whiting Species") will be managed by NMFS through set-asides and fishery management measures taken during the course of each fishing season, as NMFS determines appropriate. The Cooperative's Board of Directors shall have the authority to adopt such rules concerning the management and harvest of Non-Whiting Species by vessels harvesting the Cooperative's Pacific whiting allocation as the Cooperative's Board of Directors deems appropriate from time

to time. The initial rules concerning management and harvest of Non-Whiting Species are set forth in Section 11 of this Agreement and on Exhibit C (the "Whiting Bycatch Agreement").

c. Management Measures. Each Member's mothership sector harvest activities shall be subject to all management measures generally applicable to the mothership sector of the Pacific whiting fishery. Unless a Member receives a transfer or permission from the Cooperative's Board of Directors that permits otherwise, each Member shall be restricted to harvesting such Member's allocation accordingly. Member permit owners that have incurred legal sanctions that prevent them from fishing for groundfish in the Council region are prohibited from fishing in the Cooperative.

d. Vessel Use. To the extent permitted under the regulations implementing Amendment 20 and subject to the provisions of Section 11, below, the Members may arrange to have the allocations and apportionments they receive under this Agreement harvested by any eligible vessel or combination of eligible vessels, provided that if the operator(s) of such vessel(s) are not Members, the eligibility of such vessel(s) to do so shall be conditioned on their owner(s) agreeing in writing to assume all of the obligations of a Member under this Agreement. Such assumption shall not relieve the related Member of its obligations under this Agreement.

e. Pacific Whiting Allocation Transfers. To the extent permitted under the regulations implementing Amendment 20, each Member shall have the right to transfer some or all of the Pacific whiting allocation such Member receives under this Agreement to one or more other Members on any terms such Members may agree upon. Each Member transferring an allocation shall notify the Cooperative's Monitoring Agent (as defined in Section 4, below) and Manager (as defined in Section 8, below) of the transfer as of its effective date.

4. Catch Monitoring. To enable each Member and the Cooperative to monitor other Members' compliance with the regulations implementing Amendment 20 and this Agreement, each Member hereby agrees to cause each vessel harvesting any of its allocations under this Agreement to carry the number and type of NMFS-certified observers required by law aboard each of such vessels, and cause the operator(s) of such vessels to report each vessel's catch on a delivery-by-delivery basis to the Cooperative's quota harvest monitoring service (the "Monitoring Agent"). Each Member hereby authorizes NMFS to release directly to the Monitoring Agent all NMFS observer data and Vessel Monitoring System ("VMS") data related to Pacific whiting mothership sector operations of the vessels such Member owns or operates. Further, each

Member agrees to obtain, and to provide to NMFS, such releases from any vessels owned or operated by non-Members that harvest any of such Member's allocations under this Agreement. Each Member agrees that absent manifest error, the catch data produced for the Cooperative by the Monitoring Agent shall be presumed accurate, and that each Member's obligations under this Agreement and all related documents may be enforced to their fullest extent on the basis of such data.

5. Allocation and Management Measure Enforcement. Each Member acknowledges and agrees that the benefits associated with the Members' mutual harvest agreement will only accrue to the Members if each of them strictly complies with the Harvest Schedule percentages and Non-Whiting Species management and harvest rules set forth in this Agreement, set forth in the Whiting Bycatch Agreement, and that the Cooperative's Board of Directors may adopt from time to time. Further, each Member acknowledges that all other Members will be taking certain significant operational and financial actions in reliance on this Agreement, and that a breach of this Agreement by any Member would have significant adverse consequences. Therefore, to facilitate enforcement of this Agreement, each Member agrees to the procedure set forth in this Section 5.

a. Restrictions on Fishing Activity. The Members acknowledge and agree that one or more Members exceeding their Harvest Schedule allocations or violating the Cooperative's Non-Whiting Species management and harvest rules could subject the Cooperative and its other Members to joint and several liability to NMFS for fishing violations. The Members further acknowledge and agree that monetary penalties could be inadequate recourse under such circumstances. Therefore, the Members acknowledge and agree that each of them will comply with a "stop fishing" order from the Cooperative, and each of the Members further agrees that if any Member fails to comply with such order, the Cooperative shall have the authority to obtain an injunction, restraining order or other equivalent form of equitable relief to give effect to such "stop fishing" order.

b. Overharvest Forfeiture. In the event the Board of Directors determines that a vessel operator or vessel operators harvesting a Member's Pacific whiting allocation unintentionally exceeded that Member's Harvest Share percentage (as adjusted by transfers made in accordance with this Agreement), such Member shall be liable for an amount equal to the Unintentional Forfeiture Amount (as defined in Section 5.d, below) multiplied by the number of metric tons by which such harvest exceeded that Member's allocation or apportionment. In the event that the Board of Directors determines that a vessel operator or vessel operators harvesting a Member's Pacific whiting

allocation intentionally exceeded that Member's Harvest Share percentage (as adjusted by transfers made in accordance with this Agreement), as the result of failing to comply with a "stop fishing" order or otherwise, such Member shall be liable for an amount equal to the Intentional Forfeiture Amount (as defined in Section 5.d, below) multiplied by the number of metric tons by which such harvest exceeded that Member's allocation or apportionment.

c. Failure to Comply with Bycatch Management Measures. In the event that a vessel harvesting a Member's Pacific whiting allocation under this Agreement fails to comply with a fishery management measure specified in Section 11 of this Agreement, as amended from time to time, or in the Whiting Bycatch Agreement, as amended from time to time, such Member shall be liable for an amount determined by the Cooperative's Board of Directors in its sole discretion, which shall not exceed the Management Measure Liquidated Damages amount (as defined below) multiplied by the number of instances of non-compliance.

d. Forfeiture Amounts and Liquidated Damages. The initial forfeiture amount for an unintentional overharvest of an unprocessed metric ton of Pacific whiting shall be equal to one hundred fifty percent (150%) of the ex-vessel value of a metric ton of Pacific whiting (the "Unintentional Forfeiture Amount"). The initial forfeiture amount for an intentional overharvest of an unprocessed metric ton of Pacific whiting shall be equal to three hundred percent (300%) of the ex-vessel value of a metric ton of Pacific whiting (the "Intentional Forfeiture Amount"). The initial liquidated damages amount for a violation of fishery management measures specified in Section 11 of this Agreement, as amended from time to time, and in the Whiting Bycatch Agreement, as amended from time to time (the "Management Measure Liquidated Damages") shall be Two Thousand Five Hundred Dollars (\$2,500). The Cooperative's Board of Directors may adjust the Unintentional Forfeiture Amount, the Intentional Forfeiture Amount and the Management Measure Liquidated Damages as the Board of Directors deems appropriate, including during a fishing year.

e. Voluntary Compliance. The Members and the Cooperative agree that upon the Cooperative's Board of Directors determining that a Member's allocation has been overharvested or a vessel has failed to comply with management measures in effect under this Agreement or the Whiting Bycatch Agreement, the Cooperative shall not enforce its rights to collect against the party liable for the related forfeiture amount or liquidated damages without first providing the liable party with fifteen (15) days advance notice of its intent to exercise its rights of collection, during which period the liable party may request reconsideration of the enforcement action or (if applicable) may

obtain an amount of mothership sector Pacific whiting to cover the overharvest. The Board of Directors may grant or deny any request for reconsideration in their sole discretion. Notwithstanding the 15 day grace period provided under this Section, any amount assessed that is not paid or for which the payment obligation is not otherwise satisfied within thirty (30) days of assessment shall accrue interest at the rate of twelve percent (12%) per annum until paid.

f. Enforcement Procedure. The Monitoring Agent shall monitor the fishing activities of all vessels harvesting Member allocations, and shall promptly report all apparent violations of this Agreement or the Whiting Bycatch Agreement to the Cooperative's Board of Directors. In addition, any Member or any master of any vessel harvesting a Member's Pacific whiting allocation may report any suspected violation of this Agreement. Upon receiving notice of an apparent violation, the Board of Directors shall notify the party who allegedly violated this Agreement or the Whiting Bycatch Agreement, and in all cases other than those in connection with which the Board of Directors elects to pursue specific performance or injunctive relief, the Board of Directors shall provide such party with not less than sixty (60) days to respond before taking action. Following the expiration of such 60 day period, the Board of Directors shall take action in connection with the apparent violation, and provide a report of the action taken and a copy of the record supporting that action to the party who is the subject of the Board of Director's action and to each Member. For purposes of this Section 5, state and federal landing reports, observer data, VMS tracking data, vessel log books and plotter data and Cooperative catch data produced by the Monitoring Agent in conformance with NMFS catch accounting and bycatch estimation procedures shall be presumed accurate and sufficient for determining whether a vessel breached this Agreement or the Whiting Bycatch Agreement, absent a clear and compelling demonstration of manifest error. Further, each Member agrees to take all actions and execute all documents necessary or convenient to give effect to the enforcement procedure contemplated under this Section 5.

g. Distribution of Proceeds and Damages. The amount of all overharvest forfeitures to the Cooperative in excess of the costs of enforcement shall be promptly distributed pro-rata among the Members who harvested less than their allocation or apportionment of the relevant species, with each such party receiving a fraction of such funds the numerator of which is the amount by which such party's catch or opportunity to harvest the relevant species was less than such party's allocation or apportionment, and the denominator of which is the sum of all parties' catch or opportunity losses. All Management Measure Liquidated Damages shall be paid to the Cooperative and shall be expended as the Board of Directors determines appropriate in its sole discretion.

6. MS/CV Permit Transfer Restrictions. Each Member acknowledges that the other Members will make investments in reliance on this Agreement, and that a breach of this Agreement during its term by any of them may cause the remaining Members to suffer substantial adverse economic consequences. Therefore, each Member agrees that so long as it is bound by this Agreement, no Member shall have the authority to sell, charter or transfer operating authority over an MS/CV permit whose Pacific whiting catch history is assigned to the Cooperative to a party not bound by this Agreement, regardless of whether such transfer is temporary or permanent, and regardless of whether such transfer is effected as part of a vessel sale or otherwise, unless the proposed transferee first assumes all of the transferring Member's obligations under this Agreement with regard to the rights transferred, in which case the transferee shall be admitted as a Cooperative Member and the transferor shall be released from Cooperative membership obligations as of the date of the transferee Member's admission. Such obligations include but are not limited to compliance with processor commitment obligations pursuant to Section 10 and responsible fishing practices pursuant to Section 11. Any attempted or purported transfer of an MS/CV permit whose Pacific whiting catch history has been assigned to the Cooperative other than in compliance with this Section shall be void.

7. Term, Termination and Withdrawal.

a. Term and Termination. This Agreement shall take effect as of its execution by the Cooperative's Members. This Agreement shall remain in effect until terminated. This Agreement shall be terminated upon eighty percent (80%) of the Members voting to terminate this Agreement at a duly called, properly noticed membership meeting, provided that notwithstanding the date of such vote, termination shall not be effective until midnight on December 31 of the year during which such vote occurs, and this Agreement shall remain in effect until such date.

b. Withdrawal. No Member may withdraw from the Cooperative other than in accordance with this Section 7. A Member may withdraw from the Cooperative by providing written notice to that effect to all other Members on or before November 1 (the "Withdrawal Notice Date"). A Member that fails to provide such notice by the Withdrawal Notice Date shall be deemed to have automatically renewed its Cooperative membership for the following year, and all other Members shall be entitled to act in reliance on such renewal accordingly. If any Member provides a membership termination notice by the Withdrawal Notice Date, each of the other Members shall have thirty (30) days from the date they receive such notice to terminate their membership as

well, notwithstanding the Withdrawal Notice Date deadline. If a Member provides timely written notice of withdrawal, such Member's Cooperative membership shall terminate as of midnight on December 31 of the year during which withdrawal notice was given. Termination of membership shall not relieve a person or entity of any obligations under this Agreement related to the period during which such person or entity was a Member, including but not limited to liquidated damages obligations for breach of this Agreement and indemnification obligations related to such person or entity's actions as a Member.

8. Cooperative Manager. The Members agree to cause the Cooperative to retain a manager who shall: (i) serve as the contact person for NMFS, the Council and other Pacific whiting mothership sector cooperatives; (ii) be responsible for the annual distribution of catch and bycatch allocations among the Members; (iii) oversee reassignment of catch allocations within the Cooperative; (iv) oversee inter-cooperative catch allocation reassignments; (v) prepare and submit the annual reports that the Cooperative is required to file with the Council and NMFS, pursuant to Section 9, below; (vi) be authorized to receive and respond to any legal process in which the Cooperative is involved; and (vii) notify NMFS if the Cooperative is dissolved.

9. Annual Cooperative Report. The Cooperative's Manager shall annually prepare a report that describes the Cooperative's catch, bycatch, inseason catch history reassignments and all other significant activities undertaken by the Cooperative during the prior year. The Manager shall file the report with the Council and NMFS prior to the deadline for such filing adopted by the Council and NMFS from time to time.

10. Processor Obligation Declaration. Each Member has previously obligated in writing to a mothership operating under a mothership permit ("MS Permit") the Pacific whiting catch history assignment of its MS/CV permits assigned to the Cooperative. Additionally, each Member agrees that the processor obligation for each catch history assignment in the preceding year serves as notification to that mothership of the Member's intent to obligate that catch history assignment in the upcoming year to the same mothership, unless affirmatively rescinded. If a Member elects to rescind such processor obligation, the Member shall so notify the mothership to which its catch history assignment is obligated in writing on or before September 1 of the year prior to the year in which such rescission is to take effect and shall have notified another specific MS permit by September 1 of that year of that MS/CV-endorsed permit's intent to obligate its catch history assignment to that MS permit in the upcoming season; additionally, such Member shall obligate in writing such catch history assignment to a mothership operating under an MS permit on or before

December 15 of such year. Each Member shall provide a copy of every processor obligation and every notice rescinding a processor obligation to the Cooperative's Manager, and shall provide copies to NMFS as may be required in regulations.

11. Responsible Fishing Practices. The Members acknowledge that an objective of the Cooperative is to reduce the incidental catch of Non-Whiting Species. The Members further acknowledge that fishing practices can affect the rates and amounts of incidental catch of Non-Whiting Species. The Members therefore agree to exercise all reasonable efforts to conduct their fishing practices in a manner that reduces their incidental catch of Non-Whiting Species to the lowest commercially reasonable levels, through the methods and means adopted by the Cooperative's Board of Directors from time to time. Such methods and means may include time and area closures, using or not using specific types of gear in specific areas or during specific times, and requiring Members to participate in overfished species risk pools that provide appropriate incentives and disincentives.

a. Initial Management Measures. Notwithstanding the foregoing, the Members hereby adopt the following initial restrictions on their fishing activity, which may be modified by the Cooperative's Board of Directors from time to time, provided that no such modification to the provisions of subsections (i) through (vii), below, shall take effect until January 1 of the year following the year during which the Cooperative's Board of Directors adopts such modification. Notwithstanding the foregoing, amendments to the Whiting Bycatch Agreement shall take effect as of the effective date of such amendments.

i. Each Member shall sign, be bound by the terms and conditions of, and exercise all commercially reasonable efforts to comply with the Whiting Bycatch Agreement, as amended and renewed from time to time. In addition, each Member shall cause the owner and operator of each vessel harvesting any of such Member's Pacific whiting allocation to do so.

ii. Each Member agrees that the Cooperative's mothership sector Pacific whiting allocation shall be divided into four seasonal pools. The first pool shall be available for harvest on May 15; the second pool shall be available for harvest on July 1; the third pool shall be available for harvest on September 15; and the fourth seasonal pool shall be available for harvest on October 15.

iii. Each seasonal pool shall be constituted by Member election. Each Member shall be entitled to apportion their Harvest Share among the seasonal pools in each Member's sole discretion. Not less than

fifteen (15) days prior to the start date for each seasonal pool, each Member shall notify the Manager in writing regarding the amount of such Member's initial Pacific whiting allocation to be apportioned to such seasonal pool, shall identify the vessel or vessels that will harvest such Member's Harvest Share from such seasonal pool, and shall state the amount of tonnage to be harvested by each such vessel from such pool.

iv. Upon the Manager having received the Members' pool apportionment notices, the Manager shall apportion the Non-Whiting Species set-asides and allocations established pursuant to Section 3.b, above, to the seasonal pools, pro rata according to the proportion of Pacific whiting tonnage that the Members have declared their intention to harvest from such seasonal pool. Such Non-Whiting Species set-asides and allocations shall be managed as a common pool resource available to the vessels harvesting the Members' Pacific whiting allocations from such seasonal pool, under the terms and conditions of this Section 11, as amended from time to time, the Whiting Bycatch Agreement as amended from time to time, and such additional management measures that the Cooperative's Board of Directors adopts from time to time.

v. The Manager shall apportion any Pacific whiting allocations the Cooperative may receive in addition to its initial allocation (including, but not limited to, any rollovers of tribal Pacific whiting allocations) among the seasonal pools pro rata, according to the proportion of initial Pacific whiting tonnage that the Members have declared their intention to harvest from such seasonal pool.

vi. As of the earlier of (i) the total amount of Pacific whiting Harvest Share allocated to a seasonal pool being harvested, or (ii) the aggregate amount of one or more Non-Whiting Species apportioned to that seasonal pool being caught, the Manager shall close such seasonal pool, and all harvesting from that pool shall cease. If a seasonal pool is closed because the total amount of Pacific whiting allocated to that seasonal pool has been harvested, all vessels that harvested Pacific whiting from such pool shall be eligible to harvest Pacific whiting from subsequent seasonal pools during the same fishing year. If a seasonal pool closes because the aggregate amount of one or more Non-Whiting Species apportioned to the seasonal pool has been harvested, the Manager shall evaluate each participating vessel's catch amounts of each Non-Whiting Species apportionment that was fully harvested from such seasonal pool. If the amount of any such Non-Whiting Species harvested by a vessel participating in the pool exceeds one hundred and twenty five percent (125%) of the amount of such Non-Whiting Species allocated to such pool on the basis of the Pacific whiting tonnage assigned to such seasonal pool for harvesting

by such vessel, such vessel shall not be eligible to harvest any Pacific whiting transferred from a closed pool to a subsequent pool, and shall not be eligible to harvest any Pacific whiting Harvest Share apportioned to a subsequent seasonal pool other than that assigned to such vessel at the time of initial Member election pursuant to Section 11(a)(iii), above, unless and until all other vessels operating in compliance with such 125% performance standard have ceased harvesting Pacific whiting for the year, and then only if there is Non-Whiting Species catch available in sufficient amount to support its fishing activity, as determined by the Cooperative's Board of Directors in its sole discretion.

vii. Any Non-Whiting Species set-asides or allocations that are not used before a seasonal pool subsequent to the seasonal pool to which they are apportioned opens shall be available for harvest by vessels participating in subsequent seasonal pools on a species by species basis, when the respective Non-Whiting Species set-aside or allocation originally made to such subsequent seasonal pool is exhausted. In the event that a Member's Pacific whiting Harvest Share tonnage is not fully harvested during a seasonal pool to which it was allocated, such Member may harvest its remaining Harvest Share or have its remaining Harvest Share harvested during a subsequent seasonal pool on the condition that the Non-Whiting Species catch of the vessel(s) harvesting such Member's Harvest Share during the prior seasonal period was no greater than one hundred and twenty five percent (125%) of the amount of such Non-Whiting Species allocated to such pool on the basis of the Pacific whiting tonnage assigned to such seasonal pool for harvesting by such vessel.

viii. For purposes of Sections 11(a)vi and 11(a)vii, above, "subsequent seasonal pool" shall mean the next seasonal pool in calendar order that has quota assigned to it and is open for harvest. If none of the remaining seasonal pools satisfy both of those criteria, then the "subsequent seasonal pool" shall be the first seasonal pool, if it does so, and the next pool following the first seasonal pool that does so, if the first seasonal pool does not.

b. Fishing. For purposes of this Agreement, "fishing" shall mean all activity of a vessel between the time of initial gear deployment and final gear retrieval. For purposes of this Section 11, "gear deployment" and "gear retrieval" shall have the meanings given them in 50 C.F.R. 679.2 or its successor, as the same may be amended from time to time. Initial gear deployment shall mean setting trawl gear with an empty codend, and final gear retrieval shall mean retrieving trawl gear to either pull a codend aboard the vessel or to deliver the codend to another vessel. Notwithstanding the definitions of fishing, gear deployment and gear retrieval set forth in this Section, each Member shall have

an independent obligation to comply with all applicable regulations covering such activities, as they are defined in such regulations.

12. Inter-Cooperative Transfers. No Member may cause the Cooperative to transfer any portion of its annual mothership Pacific whiting allocation other than in strict compliance with this Section 12. The Cooperative's Board of Directors shall establish the conditions to and procedure for inter-cooperative transfers as the Board of Directors deems appropriate. The Manager shall be responsible for monitoring Member compliance with such conditions and procedures, and no inter-cooperative transfer shall take effect unless and until it has been approved by the Manager.

13. Election of Remedies and Attorneys' Fees.

a. Damages in any way related to the performance or breach of obligations under this Agreement shall be limited to liquidated damages calculated in accordance with Section 5.b., above, and all costs, fees and expenses, including attorneys' fees, for which a party is entitled to reimbursement under this Agreement. Damages in any way related to the performance or breach of obligations under the Non-Whiting Species management and harvest rules set forth in Section 11 of this Agreement (as amended from time to time), set forth in the Whiting Bycatch Agreement (as amended from time to time) and that the Board of Directors may adopt from time to time shall be limited to the liquidated damages amounts established by the Board of Directors in compliance with this Agreement or as otherwise provided in the Whiting Bycatch Agreement, as levied in connection with the failure to comply. Each Member and the Cooperative hereby waive any claims to actual, direct, indirect or consequential damages in connection with any performance or breach of obligations under this Agreement and the Whiting Bycatch Agreement, and instead agree that payment of liquidated damages calculated and levied in accordance with this Agreement or the Whiting Bycatch Agreement shall be their sole damages.

b. Limitation of Remedies. As a substitute for the actual, direct, indirect and consequential monetary damages waived and released under this Agreement, the Members hereby limit their remedies for breach to the following:

i. Specific Performance. The Cooperative, the Members, the Manager and the Monitoring Agent shall individually and collectively have the right to demand and receive immediate specific performance of each and every obligation that each Member has under this Agreement.

ii. Injunctive Relief. If a Member is in breach of any obligation whatsoever he, she or it may have under this Agreement, and if such Member in breach fails to immediately comply with each and every obligation it has under this Agreement upon receiving a written demand to that effect from the Manager, the Monitoring Agent, the Cooperative or one or more Members, the Manager, the Monitoring Agent, the Cooperative and each Member shall individually and collectively have the right to seek and obtain injunctive relief requiring the Member in breach to immediately and fully comply with each and every obligation it has under this Agreement.

c. Indemnification Against All Governmental Fines, Penalties and Forfeitures. Notwithstanding any provision of this Agreement to the contrary, each Member that breaches this Agreement shall indemnify, defend and hold the Manager, the Monitoring Agent, the Cooperative and each of the other Members harmless from and against all claims, liabilities, fines, penalties, forfeitures and fees of any nature and amount whatsoever asserted or obtained by NMFS, the U.S. Department of Justice or any other U.S. governmental agency with jurisdiction over the Pacific whiting fishery in connection with the Cooperative's or a Member's breach of this Agreement. This indemnification, defense and hold harmless shall extend to all attorneys' fees and all other costs and fees of any nature or amount whatsoever incurred in relation to such action, regardless of whether such cost is deemed reasonable in nature or amount.

d. Reimbursement of Fees and Costs. In connection with any legal proceeding related to this Agreement other than governmental proceedings addressed in Section 13(c), above, the non-prevailing party shall pay the prevailing party's reasonable costs and fees associated with the proceeding. For purposes of this Agreement, "legal proceedings" shall include arbitration, administrative, bankruptcy and judicial proceedings, including appeals therefrom. For purposes of this Agreement, "costs and fees" shall include all attorneys' fees, arbitration costs, court costs, costs of bonds or other financial security posted or pledged in connection with such action, expert witness costs, costs of receivers or special masters, and each and every other cost or fee of any nature or amount whatsoever incurred in connection with such action.

14. Release and Waiver of All Claims Against Manager and Monitoring Agent; Indemnification and Hold Harmless. The parties acknowledge that the effectiveness of this Agreement depends to a significant extent on the Manager and Monitoring Agent exercising their independent responsibility and judgment in fulfilling its terms. The parties further acknowledge that if the Manager or the Monitoring Agent were potentially liable for simple negligence in connection with such actions, the Manager and/or the

Monitoring Agent would not accept the responsibilities they assume under this Agreement. It is therefore in the parties' interest to reduce the Manager's and the Monitoring Agent's potential liability under this Agreement. Therefore, the Cooperative and each of the Members hereby waive and release any and all claims against Manager and Monitoring Agent in connection with this Agreement, other than those arising out of gross negligence or willful misconduct by Manager and/or Monitoring Agent. Further, the Cooperative and each Member jointly and severally agree to indemnify, defend and hold the Manager and the Monitoring Agent harmless against any third party claims asserted against the Manager or the Monitoring Agent in connection with this Agreement, other than those arising out of gross negligence or willful misconduct by Manager or Monitoring Agent.

15. Miscellaneous.

a. This Agreement contains the entire understanding of the parties as to the matters addressed herein, and supersedes all prior agreements related to the same, including but not limited to the Membership Agreement. No amendment to this Agreement shall be effective against a party hereto unless in writing and duly executed by such party. The Members agree to amend this Agreement as reasonably necessary to comply with changes in law, and policies and regulations implementing Amendment 20.

b. Each Member hereby represents and warrants that: (i) it is duly organized, validly existing and in good standing; and (ii) it has all authority, corporate and otherwise, to enter into this Agreement on its own behalf and on behalf of all other owners of each of the MS/CV permits whose Pacific whiting catch history it has assigned to the Cooperative, and that this Agreement constitutes a valid, binding obligation of all such owners, enforceable against such permits and all such owners according to its terms.

c. This Agreement shall be governed by and construed in accordance with applicable federal law and the laws of the State of Washington.

d. This Agreement may be executed in counterparts which, when taken together, shall have the same effect as a fully executed original. Delivery of a signed copy of this Agreement by telefacsimile or electronic mail shall have the same effect as delivering a signed original.

e. The parties agree to execute any documents necessary or convenient to give effect to the intents and purposes of this Agreement.

f. All notices required to be given under this Agreement shall be deemed given when transmitted to the recipient by email or telefacsimile transmission, or when deposited in certified first class U.S. mail, postage prepaid, with the correct address. All notices required to be given to Cooperative Directors or Members under this Agreement shall be addressed to such Directors or Members at their record addresses as maintained by the Cooperative.

The address of the Cooperative is as follows:

Whiting Mothership Cooperative
4005 20th Avenue West, Suite 116
Seattle, WA 98199

The addresses of the Members are listed on Exhibit A attached hereto. The parties may from time to time change their address for notice purposes by written notice to the Cooperative, and Exhibit A shall be updated accordingly.

g. Except for the transfers pursuant to Section 3.e or Section 6 hereof, which transfers shall be governed by such Sections, no party may assign any of its rights hereunder without the prior written consent of the other parties hereto, which consent shall not be unreasonably withheld. Such consent may be conditioned upon execution of an adherence agreement by the party to whom such rights are proposed to be assigned. This Agreement shall be binding on the successors and assigns of all parties hereto.

h. This Agreement shall be construed as a whole according to its fair meaning, without a presumption that it shall be more strictly construed against the person who drafted it, as each party has participated in its preparation with the opportunity for assistance of counsel.

i. In the event that any provision of this Agreement is held to be invalid or unenforceable, such provision shall be deemed to be severed from this Agreement, and such holding shall not affect in any respect whatsoever the validity of the remainder of this Agreement.

j. Each Member agrees to use its best efforts to resolve any disputes arising under this Agreement through direct negotiations. Other than disputes in connection with which the Cooperative or its Members seek an injunction, a restraining order or some other form of equitable relief, all disputes not resolved through direct negotiation shall be submitted to binding arbitration in Seattle, Washington upon the request of any party. The party's written request will include the name of the arbitrator selected by the party requesting

arbitration. The other party will have ten (10) days to provide written notice of the name of the arbitrator it has selected, if any. If the other party timely selects a second arbitrator, the two arbitrators will select a third arbitrator within ten (10) days. If the other party does not timely select the second arbitrator, there shall be only the one arbitrator. The single arbitrator or the three (3) arbitrators so selected will schedule the arbitration hearing as soon as possible thereafter. Every arbitrator, however chosen, must have no material ties to any Member or the Cooperative. The decision of the arbitrator (or in the case of a three (3) arbitrator panel, the decision of the majority) will be final and binding. The arbitration will be conducted under the rules of (but not by) the American Arbitration Association. The parties will be entitled to limited discovery as determined by the arbitrator(s) in his/her or their sole discretion. The arbitrator(s) will also determine the "prevailing party" and that party will be entitled to its reasonable costs, fees and expenses, including attorneys' and arbitrator fees, incurred in the action by said party. In no event will arbitration be available pursuant to this Section 15.j after the date when commencement of such legal or equitable proceedings based on such claim, dispute, or other matter in question would be barred by the applicable statute of limitations.

Dated as of the date first set forth above.

**EACH MEMBER SIGNING BELOW MUST DELIVER A COPY OF THE
2013 PACIFIC COAST GROUND FISH PERMIT ALONG WITH HIS/HER/ITS
SIGNATURE.**

[SIGNATURE PAGES FOLLOW]

<p>AMERICAN SEAFOODS COMPANY LLC</p> <p>By: American Seafoods Group LLC</p> <p>Its: Managing Member</p> <p>By _____</p> <p>Its _____</p>	<p>BAY ISLANDER FISHERIES INC.</p> <p>By _____</p> <p>Its _____</p>
<p>CALAMARI LLC</p> <p>By _____</p> <p>Its _____</p>	<p>_____</p> <p>MARK E. COOPER</p>
<p>EX-1 CORPORATION</p> <p>By _____</p> <p>Its _____</p>	<p>FURY GROUP, INC.</p> <p>By _____</p> <p>Its _____</p>
<p>F/V LESLIE LEE, INC.</p> <p>By _____</p> <p>Its _____</p>	<p>F/V NEAHKAHNIE LLC</p> <p>By _____</p> <p>Its _____</p>
<p>F/V SEEKER, INC.</p> <p>By _____</p> <p>Its _____</p>	<p>FY FISHERIES, INC.</p> <p>BLUE DAWN FISHERIES, INC.</p> <p>HARVEST MOON FISHERIES, INC.</p> <p>YAQUINA SEA DAWN, INC.</p> <p>JINCKS, INC.</p> <p>By _____</p> <p>Its _____</p>

<p>ISABELLA FISHERIES, LLC</p> <p>By _____</p> <p>Its _____</p>	<p>_____</p> <p>MARION JEAN LARKIN</p>
<p>LISA MELINDA FISHERIES, INC.</p> <p>By _____</p> <p>Its _____</p>	<p>MARATHON FISHERIES, INC.</p> <p>By _____</p> <p>Its _____</p>
<p>MAR-GUN FISHERIES, INC.</p> <p>By _____</p> <p>Its _____</p>	<p>MARK I, INC.</p> <p>By _____</p> <p>Its _____</p>
<p>MISS BERDIE, INC. TS FISHERIES, INC.</p> <p>By _____</p> <p>Its _____</p>	<p>MUIR MILACH, INC.</p> <p>By _____</p> <p>Its _____</p>
<p>NEW LIFE FISHERIES, INC.</p> <p>By _____</p> <p>Its _____</p>	<p>NICOLE FISHERIES LLC</p> <p>By _____</p> <p>Its _____</p>

<p>NORTH SEA, INC.</p> <p>By _____</p> <p>Its _____</p>	<p>OCEAN BALLAD, INC.</p> <p>By _____</p> <p>Its _____</p>
<p>PACIFIC DAWN LLC</p> <p>By _____</p> <p>Its _____</p>	<p>PACIFIC DRAGGERS, INC. HB LEE, INC.</p> <p>By _____</p> <p>Its _____</p>
<p>PATIENCE FISHERIES, INC.</p> <p>By _____</p> <p>Its _____</p>	<p>PHOENIX PROCESSOR LIMITED PARTNERSHIP</p> <p>By _____</p> <p>Its _____</p>
<p>_____ MICHAEL RETHERFORD</p> <p>_____ KELLEY RETHERFORD</p>	<p>SEA CLIPPER LLC (OCEAN GOLD)</p> <p>By _____</p> <p>Its _____</p>
<p>SEA STORM FISHERIES, INC. ARCTIC STORM, INC.</p> <p>By _____</p> <p>Its _____</p>	<p>TRAVELER FISHERIES LLC</p> <p>By _____</p> <p>Its _____</p>

<p>TRIDENT SEAFOODS CORPORATION</p> <p>By _____</p> <p>Its _____</p>	<p>WEST COAST FISHERY INVESTMENTS LLC (ALEUTIAN SPRAY)</p> <p>By _____</p> <p>Its _____</p>
<p>_____ TODD L. WHALEY</p>	<p>YAQUINA TRAWLERS, INC. RAVEN ENTERPRISES, INC. DASL, INC.</p> <p>By _____</p> <p>Its _____</p>

WHITING MOTHERSHIP COOPERATIVE

By _____

Its _____

Exhibit A

WHITING MOTHERSHIP COOPERATIVE

Members as of March 4, 2013

<i>Permit Owner and Contact</i>	<i>Permit Number</i>	<i>Mailing Address</i>
American Seafoods Company LLC Mike Hyde Jan Jacobs	GF0351	2025 First Avenue West Suite 900 Seattle, WA 98121
Bay Islander Fisheries Inc. Kurt Cochran	GF0320	P.O. Box 290 Siletz, OR 97380
Calamari LLC Craig Urness	GF0272	P.O. Box 5583 Charleston, OR 97420
Cooper, Mark E. Mark Cooper	GF0254	P.O. Box 428 Newport, OR 97365
EX-1 Corporation Michael Retherford	GF0810	880 N.E. Sturdevant Road Toledo, OR 97391
Fury Group, Inc. Michael Stone	GF0051 GF0675	4005 20 th Avenue West Suite 207 Seattle, WA 98199
F/V Leslie Lee, Inc. Raymond Hall Danny Hall Skip Woodard	GF0144	P.O. Box 2276 Newport, OR 97365
F/V Neahkahnie LLC Dale Myer Donna Parker	GF0374	2727 Alaskan Way, Pier 69 Seattle, WA 98121
Isabella Fisheries LLC Marion Larkin	GF0013	1900 W Nickerson St. Suite 213 Seattle, WA 98199

<i>Permit Owner and Contact</i>	<i>Permit Number</i>	<i>Mailing Address</i>
F/V Seeker, Inc. Jim Seavers	GF0109	P.O. Box 1010 Newport, OR 97365
FY Fisheries, Inc. Blue Dawn Fisheries, Inc. Harvest Moon Fisheries, Inc. Yaquina Sea Dawn, Inc. Jincks, Inc. Fred Yeck	GF0572	P.O. Box 352 Newport, OR 97365
Larkin, Marion Jean	GF0136	19737 Trophy Lane Mount Vernon, WA 98274
Lisa Melinda Fisheries, Inc. David Smith Jerry Bates	GF0010	P.O. Box 1650 Newport, OR 97365
Marathon Fisheries, Inc. Kurt Cochran Craig Cochran	GF0105	P.O. Box 290 Siletz, OR 97380
MAR-GUN Fisheries, Inc. Gunnar Ildhuso, Jr.	GF0438	101 Nickerson Street Suite 340 Seattle, WA 98109
Mark I, Inc. J. Christopher Garbrick	GF0043	4225 23 rd Avenue West Suite 103 Seattle, WA 98199
Miss Berdie, Inc. TS Fisheries, Inc. Stan Schones Tom Stam	GF0517	1483 Old River Road N.E. Siletz, OR 97380
Muir Milach, Inc. Dave Fraser Dave Willmore	GF0795	P.O. Box 954 Mercer Island, WA 98040

<i>Permit Owner and Contact</i>	<i>Permit Number</i>	<i>Mailing Address</i>
New Life Fisheries, Inc. Kurt Cochran	GF0321	P.O. Box 290 Siletz, OR 97380
Nicole Fisheries LLC Don Jester David Lethin	GF0052	112 Harrison Avenue Centralia, WA 98531
North Sea, Inc. Bryan North Mike Storey	GF0132	7327 SW Barnes Rd. #102, Portland Oregon, 97225
Ocean Ballad, Inc. Don Jester David Lethin	GF708	112 Harrison Avenue Centralia, WA 98531
Pacific Dawn LLC Burt Parker Chris Peterson	GF0273	2324 N.W. 90 th Street Seattle, WA 98117
Pacific Draggers, Inc. HB Lee, Inc. David Jincks Fred Yeck	GF0090	P.O. Box 352 Newport, OR 97365
Patience Fisheries, Inc. Mark E. Cooper	GF0256	P.O. Box 428 Newport, OR 97365
Phoenix Processor Limited Partnership Joe Bersch	GF0362	333 First Ave. West, Seattle, WA 98119
Retherford, Michael or Kelley	GF0515	880 N.E. Sturdevant Road Toledo, OR 97391
Sea Clipper LLC (Ocean Gold) Rich Carrol	GF0433	P.O. Box 1104 Westport , WA 98595

<i>Permit Owner and Contact</i>	<i>Permit Number</i>	<i>Mailing Address</i>
Sea Storm Fisheries, Inc. Arctic Storm, Inc. Dale Myer Donna Parker	GF0210	2727 Alaskan Way, Pier 69 Seattle, WA 98121
Traveler Fisheries LLC J. Christopher Garbrick	GF0111	4225 23 rd Avenue West Suite 103 Seattle, WA 98199
Trident Seafoods Corporation Christian Asay	GF0205	5303 Shilshole Ave. NW Seattle, WA 98117
West Coast Fishery Investments LLC (Aleutian Spray) Craig Cross	GF0154 GF0904 GF0971	5470 Shilshole Avenue N.W. Suite 300 Seattle , WA 98107
Whaley, Todd L.	GF0220	PO Box 6235 Brookings, OR 97415
Yaquina Trawlers, Inc. Raven Enterprises, Inc. DASL, Inc. Lyle Yeck Robert Smith	GF0124	1676 N.E. Yaquina Heights Drive Newport, OR 97365

Exhibit B

WHITING MOTHERSHIP COOPERATIVE

Harvest Schedule as of March 4, 2013

1. Members/Permit Owners and Allocation Percentages

<i>Members/Permit Owners & Contact Persons</i>	<i>Percentage Allocation</i>
American Seafoods Company LLC Mike Hyde Jan Jacobs	GF0351 9.945747%
Bay Islander Fisheries Inc. Kurt Cochran	GF0320 0.505995%
Calamari LLC Craig Urness	GF0272 0.611940%
Cooper, Mark E. Mark Cooper	GF0254 1.919750%
EX-1 Corporation Michael Retherford	GF0810 0.542467%
F/V Leslie Lee, Inc. Raymond Hall Danny Hall	GF0144 4.113516%
F/V/ Neahkahnne LLC Dale Myer Donna Parker	GF0374 3.944061%
F/V Seeker, Inc. Jim Seavers	GF0109 4.858447%
Fury Group, Inc. Michael Stone	GF0675 4.298209%

<i>Members/Permit Owners</i>	<i>Percentage Allocation</i>
FY Fisheries, Inc. and Blue Dawn Fisheries, Inc. and Harvest Moon Fisheries, Inc. and Yaquina Sea Dawn, Inc. and Jincks, Inc. Fred Yeck	GF0572 4.982793%
Isabella Fisheries LLC Marion Larkin	GF0013 0.374698%
Larkin, Marion	GF0136 0.152638%
Lisa Melinda Fisheries, Inc. David Smith Jerry Bates	GF0010 4.523843%
Marathon Fisheries, Inc. Kurt Cochran Craig Cochran	GF0105 4.903333%
MAR-GUN Fisheries, Inc. Gunnar Ildhuso, Jr.	GF0438 4.355232%
Mark I, Inc. J. Christopher Garbrick	GF0043 5.115294%
Miss Berdie, Inc. and TS Fisheries, Inc. Stan Schones Tom Stam	GF0517 4.558887%
Muir Milach, Inc. Dave Fraser Dave Willmore	GF0795 1.688707%
New Life Fisheries, Inc. Kurt Cochran	GF0321 0.151646%
Nicole Fisheries LLC Don Jester David Lethin	GF0052 0.125453%

<i>Members/Permit Owners</i>	<i>Percentage Allocation</i>
North Sea, Inc. Bryan North	GF0132 5.387414%
Ocean Ballad, Inc. David Lethin	GF0708 1.074783%
Pacific Dawn LLC Burt Parker Chris Peterson	GF0273 3.002765%
Pacific Draggers, Inc. and HB Lee, Inc. David Jincks Fred Yeck	GF0090 3.141636%
Patience Fisheries, Inc. Mark E. Cooper	GF0256 0.931501%
Phoenix Processor Limited Partnership Joe Bersch	GF0362 1.527815%
Retherford, Michael or Kelley	GF0515 0.955006%
Sea Clipper LLC Rich Carrol	GF0433 0.156388%
Sea Storm Fisheries, Inc. and Arctic Storm, Inc. Dale Myer Donna Parker	GF0210 3.443703%
Traveler Fisheries LLC J. Christopher Garbrick	GF0111 3.970116%
Trident Seafoods Corporation Christian Asay	GF0205 1.207269%

<i>Members/Permit Owners</i>	<i>Percentage Allocation</i>
West Coast Fishery Investments LLC (Aleutian Spray) Craig Cross	GF0154 & GF0904 & GF0971 5.116051% 2.159780% 2.209872%
Whaley, Todd L.	GF0220 1.040567%
Yaquina Trawlers, Inc. and Raven Enterprises, Inc. and DASL, Inc. Lyle Yeck Robert Smith	GF0124 3.002675%

2. List of Vessels Harvesting 2013 Allocations

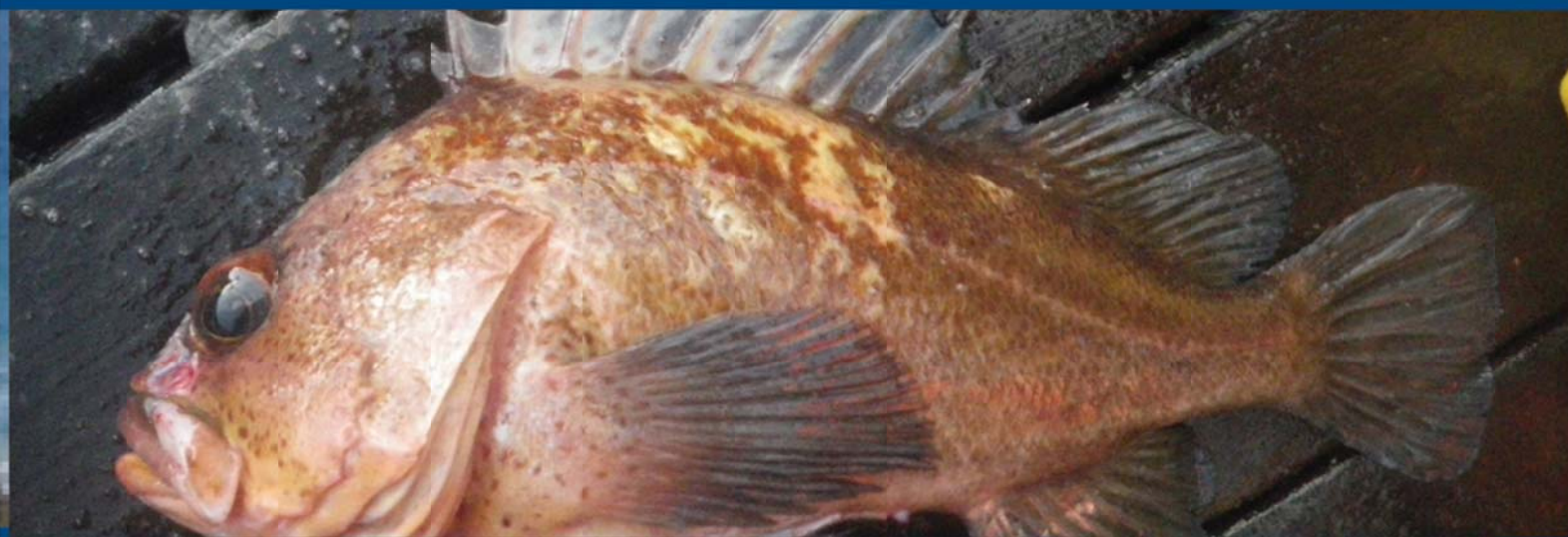
<i>Vessel Name and Official Number</i>	<i>Vessel Name and Official Number</i>	<i>Vessel Name and Official Number</i>
BAY ISLANDER O.N. 521200	BLUE FOX O.N. 979437	CALAMARI O.N. 968968
EXCALIBUR O.N. 578930	LESLIE LEE O.N. 584873	LISA MELINDA O.N. 584360
MARATHON O.N. 596156	MAR-GUN O.N. 525608	MARK I O.N. 509552
MESSIAH O.N. 610150	MISS BERDIE O.N. 913277	MISS SARAH O.N. 921578
MISS SUE O.N. 580055	MUIR MILACH O.N. 611524	NEAHKAHNIE O.N. 599534
NEW LIFE O.N. 504299	NICOLE O.N. 923632	NORDIC FURY.. O.N. 542651

<i>Vessel Name and Official Number</i>	<i>Vessel Name and Official Number</i>	<i>Vessel Name and Official Number</i>
OCEAN HUNTER O.N. 926699	ARCTIC FURY O.N. 996920	PACIFIC CHALLENGER O.N. 518937
PACIFIC FURY O.N. 561934	PACIFIC PRINCE O.N. 697280	PACIFIC RAM O.N. 589115
PEGASUS O.N. 565120	PERSEVERANCE O.N. 536873	PREDATOR O.N. 547390
RAVEN O.N. 629499	SEA CLIPPER O.N. 553396	SEADAWN O.N. 548685
SEA STORM O.N. 628959	SEEKER O.N. 924585	STARWARD O.N. 617807
TRAVELER O.N. 929356	WESTERN DAWN O.N. 524423	WINONA J O.N. 645410
NORDIC STAR O.N. 961	BALLAD O.N. 590537	



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Estimated Discard and Catch of Groundfish Species in the 2012 US West Coast Fisheries



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TABLE OF CONTENTS

Executive Summary	4
Data Sources.....	5
Methods.....	7
Discard Estimation Methods Overview	7
Final IFQ Fishery Discard Estimation	8
Shore-based IFQ Sectors	8
At-sea Hake Coop Sectors.....	11
California Halibut Bottom Trawl Fishery	12
Pink Shrimp Trawl Fishery.....	12
Non-Nearshore Fixed Gear Sector	13
Nearshore Fixed Gear Sector	14
Other Commercial Data Summaries	15
Results.....	16
Acknowledgements.....	18
References	18
Figures.....	20
Figure 1. PacFIN Fish Ticket Data Processing.....	20
Tables	20
Table 1. IFQ Fishery Data Stratification.....	21
Table 2. IFQ Discard Ratios.....	22
Table 3. Observed Sectors: IFQ/Coop Fishing Mortality Estimates by Sector	26
Table 4. OA California Halibut Trawl.....	31
Table 5. Pink Shrimp Trawl	32
Table 6. LE Sablefish Primary Fixed Gear	34
Table 7. LE Non-Primary Fixed Gear.....	36
Table 8. OA Fixed Gear	38
Table 9. LE and OA Fixed Gear Summary.....	41
Table 10. Nearshore Fixed Gear: Partition Landings by Depth.....	43
Table 11. Nearshore Fixed Gear: Discard Ratios	44
Table 12. Nearshore Fixed Gear: Fishing Mortality Estimates.....	46
Table 13. Observed Sectors: Non-IFQ Fishing Mortality Estimates by Sector	49
Table 14. Incidental Landings.....	52
Table 15. Fishing Mortality Estimates by Sector	54
Table 16. Fishing Mortality Estimates Relative to Harvest Specifications	59

Executive Summary

The primary objective of this report is to estimate fishing mortality of groundfish species in U.S. west coast fisheries during 2012 and evaluate mortality estimates relative to Annual Catch Limit (ACL), Acceptable Biological Catch (ABC), and Overfishing Limit (OFL) harvest management goals. These management goals are published each year in the federal groundfish regulations for selected groundfish species (50 CFR 660 Subpart G). Based on a recommendation from the Pacific Fishery Management Council's (PFMC) Scientific and Statistical Committee (SSC), we present groundfish mortality estimates by species, whenever possible. Our primary findings include:

- Estimated fishing mortality for all groundfish species or complexes did not exceed 2012 ACL, ABC, or OFL harvest goals.
- Estimated fishing mortality of four species/complexes were above 90% of ACL goals: cabezon – Oregon (98%), nearshore rockfish complex – north of 40°10' N. latitude (97%), petrale sole (96%), and California scorpionfish – south of 34°27' N. latitude (95%).
- Twenty-six groundfish species or complexes (65%) had fishing mortality estimates which were less than 50% of 2012 ACL harvest goals.
- Fishing mortality estimates for all groundfish combined were lower in all sectors/fisheries in 2012 relative to the prior year, except mortality estimates were higher in all state recreational groundfish fisheries and groundfish landings increased in those fisheries which catch groundfish incidentally.
- An almost equal proportion of groundfish species or complexes showed an increase (48%) or decrease (53%) in estimated fishing mortality from 2011 to 2012.
- The majority of rockfish species or complexes showed an increase in estimated fishing mortality in 2012 relative to 2011, in contrast to the majority of flatfish species which decreased.

Summaries of 2012 catch from the following groundfish fishery sectors are included:

Commercial -

Shore-based Individual Fishing Quota (IFQ) Program*

Limited entry (LE) trawl permits – fishing bottom trawl gear

LE trawl permits – fishing fixed gear

LE trawl permits – targeting California halibut with bottom trawl gear

LE trawl permits – targeting Pacific whiting (hake) with midwater trawl gear

At-sea Whiting Coop Programs*

Pacific whiting (hake) catcher-processor (C/P)

Pacific whiting (hake) mothership (MS)

Pacific whiting (hake) mothership catcher-vessel

Open access (OA) bottom trawl - targeting California halibut*

OA fixed gear nearshore (Oregon/California)*

Fixed gear LE sablefish primary season (tier endorsed)*

Fixed gear LE non-primary sablefish (non-endorsed and daily trip limit sectors)*

Fixed gear OA daily trip limit*

Exempted fishing permit (EFP)

Non-commercial –

*Sectors that use federal observer data

- Tribal (shoreside fisheries)
- Tribal at-sea Pacific whiting (hake)*
- Recreational (Washington/Oregon/California)
- Research

Other non-groundfish fisheries included with incidental catch of groundfish species:

- Commercial -
 - OA shrimp trawl – Washington/Oregon/California*
 - OA bottom trawl
 - Other gear groups - not trawl, shrimp trawl, or fixed-gear
 - Fixed gear targeting non-groundfish

Data Sources

Data sources used to estimate groundfish fishing mortality include landing receipts (fish tickets), onboard observer data, recreational catch, research catch, and discard mortality rates.

Fleet-wide landing receipts (a.k.a. fish tickets) are the cornerstone of retained catch information for all sectors of the commercial groundfish fishery on the US west coast. Fish tickets are trip-aggregated sales receipts issued to vessels by fish-buyers in each port for each delivery of fish. They are provided to fish-buyers by a state agency and must be returned to the agency for processing. Fish tickets are designed by the individual states. Washington, Oregon, and California each have a slightly different fish ticket format. Each state conducts species-composition sampling for numerous market categories reported on fish tickets. Market categories represent either a single species or a mixture of species. Fish ticket and species-composition data are submitted by state agencies to the Pacific Fisheries Information Network (PacFIN) regional database, which is maintained by the Pacific States Marine Fisheries Commission (PSMFC). For analytical purposes, the percentage of weight of each species within market categories obtained from species composition sampling was applied to the fish ticket data used in our analyses. Landed weights from sampled market categories were distributed to individual species whenever possible.

Fish ticket landings data for the calendar year 2012 were retrieved from the PacFIN database (05-29-2013) and allocated to various sectors of the groundfish fishery as indicated in Figure 1. All additional data processing steps are described in the methods section below. Discard is defined in this report as only catch which is discarded at-sea. Discard at the dock is coded in PacFIN fish ticket landings data and is thus accounted for in landing weights in this report. Landing weights are presented in round weight, as any conversion factors (e.g. for at-sea processing) have already been applied by state agencies or in PacFIN.

Discard estimation focused on commercial groundfish fishery sectors with scientific at-sea observations of discards, conducted by the Northwest Fishery Science Center (NWFSC) Observer Program, Fishery Resource Analysis and Monitoring Division (FRAM). The West Coast Groundfish Observer Program (WCGOP) and the At-Sea Hake Observer Program (A-SHOP) observe distinct sectors of the groundfish fishery. The WCGOP observes a number of different sectors of the groundfish fishery, including IFQ shore-based sectors, limited entry and open access (OA) fixed gear, and state-permitted nearshore fixed gear sectors. The WCGOP also observes several fisheries that incidentally catch groundfish, including the California halibut trawl and pink shrimp trawl fisheries. WCGOP data from each of these groundfish sectors and fisheries were used for the purposes of discard estimation. Mortality estimates were summarized from the A-SHOP data for the at-sea Pacific hake/whiting fishery, including: catcher-processor, mothership, mothership catcher-vessel, and tribal components.

The NWFSC WCGOP program was established in 2001 by NOAA Fisheries (National Marine Fisheries Service,

*Sectors that use federal observer data

NMFS) (66 FR 20609). All commercial vessels that land groundfish caught in the United States Exclusive Economic Zone (EEZ) from 3-200 miles offshore are required to carry an observer when notified to do so by NMFS or its designated agent. Subsequent state rule-making also require vessels that fish for groundfish within 3 miles of shore or participate in other state-managed fisheries to carry federal observers when notified.

The WCGOP's goal is to improve total catch estimates by collecting information on west coast groundfish species discarded at-sea (for more details see <http://www.nwfsc.noaa.gov/research/divisions/fram/observation/index.cfm>). Estimates of observer coverage, observed catch, and a summary of observed fishing depths for each sector can be found at: http://www.nwfsc.noaa.gov/research/divisions/fram/observation/data_products/sector_products.cfm. Detailed information on data collection methods employed in each observed fishery can be found in WCGOP manuals (NWFSC 2012, NWFSC 2013a; http://www.nwfsc.noaa.gov/research/divisions/fram/observation/data_collection/training.cfm).

The sampling protocol employed by the WCGOP is primarily focused on the discarded portion of catch. To ensure that recorded weights for the retained portion of the observed catch are accurate, haul-level retained catch recorded by WCGOP observers are reconciled with trip-level fish ticket records. The WCGOP data are linked to fish tickets by fish ticket identification numbers obtained by the observer and are adjusted so that the total trip pounds of retained catch equals the total trip pounds on the fish ticket(s). Adjusting observer retained catch weight to fish ticket weight is done because the fish ticket weight is more accurate and fish tickets are legally binding documents (for more details see: http://www.nwfsc.noaa.gov/research/divisions/fram/observation/data_processing.cfm). Additional data processing steps are described in the methods section below.

The A-SHOP has conducted observations of the west coast at-sea Pacific hake (a.k.a. Pacific whiting, henceforth referred to as Pacific hake) fishery since 2001. Prior to 2001, observer coverage of the west coast at-sea Pacific hake fishery was conducted by the North Pacific Groundfish Observer Program. Current A-SHOP program information and documentation on data collection methods can be found in the observer manual (NWFSC 2013b; http://www.nwfsc.noaa.gov/research/divisions/fram/observation/data_collection/manuals/ashop_manual_updated_91613.pdf). The at-sea hake fishery has mandatory observer coverage, with each vessel over 38 meters carrying two observers. Beginning in 2011, under IFQ/Coop Program management, all catcher vessels which deliver catch to motherships are required to carry WCGOP observers.

Each year, a certain portion of the ACL for groundfish species is harvested through research activities. In 2012 research programs that caught groundfish included the NWFSC's groundfish bottom trawl survey, Pacific hake acoustic survey and rockfish hook and line survey, the International Pacific Halibut Commission's (IPHC) longline survey, as well as other scientific research permits. All groundfish research catch information was provided to NOAA's Northwest Regional Office (NWR). These data were then summarized by the NWR and included in this report.

In addition to these data sources, further information provided by the Groundfish Management Team (GMT) was also used in the total mortality estimation process. The GMT is an advisory body to the PFMC that is comprised of representatives from federal, state, and tribal agencies and is involved in evaluating management performance and alternatives for groundfish fisheries between the U.S. borders with Canada and Mexico. For the purposes of this analysis, the GMT provided mortality rates, which are assumptions regarding the survival of discards, for sablefish and lingcod in the trawl and fixed gear sectors and for the major species groups reported in the state-permitted fixed gear nearshore sector. In the 2013-2014 groundfish management cycle, the SSC recommended that discard mortality rate assumptions made for stock assessment purposes should also be considered for discard estimates of longnose skate (trawl and fixed gear) and spiny dogfish (hook-and-line fixed gear) (PFMC 2012). These rates were

first applied to 2012 discard estimates in this report. All trawl-related discard rates were only applied to estimates generated from bottom trawl gear (the gear from which research originated to inform the selected rates), and were thus not applied to estimates from midwater or pink shrimp trawl gear where assumptions of survivorship can vary greatly from bottom trawl gear.

Methods

Discard Estimation Methods Overview

We used a deterministic approach to estimate discard mortality for all WCGOP observed sectors of the groundfish fishery. Observed discard rates for each species were directly expanded to the fleet-wide level. Because of differences in data availability and management structure among sectors of the groundfish fishery, this approach was applied with slight modifications (see methods below).

The stratification scheme used in this analysis is inconsistent with the sampling design employed by the WCGOP. The overall WCGOP sampling design is based on a stratified multi-stage random sampling. This design-based framework distributes observational effort more evenly coast-wide than simple random sampling, and uses prior information (landings) to improve the efficiency of sampling allocation. Rather, methods employed in this report provide mortality estimates that are relevant to the spatial and temporal structure of groundfish management. The validity of stratification in terms of isolating variance in discard has not been rigorously tested. Until more work can be completed to evaluate which strata (area/depth/season) are most appropriate for discard analyses, broader stratification is often warranted to ensure adequate sample size or to meet confidentiality mandates.

Measures of uncertainty are not provided within the context of the WCGOP sampling design, as they would be biased by post-stratification. However, standard errors consistent with Pikitch et al. (1998) are provided for observed discard ratios in the context of the post-stratified analysis. The standard errors are most likely an underestimate of the actual uncertainty, but are the sole measure we can provide at this time.

In all cases where a FMP groundfish species grouping, nearshore species grouping, or unsampled catch category was used to compute discard ratios, any retained weights that were recorded by the observer but that did not appear on fish tickets were excluded from the denominator. This was necessary to prevent double-counting associated with differences in the species codes used by observers and processors. For instance, while observers may record rockfish catch at the species level, various species of rockfish are often grouped, weighed, and recorded together on the fish ticket under a grouped species code (e.g., NUSP = Northern Unspecified Slope Rockfish). By using only the retained groundfish weight from fish tickets in discard ratio denominators, we prevent double-counting of retained weights. When using a single species in the denominator, (e.g., sablefish in the fixed gear fisheries), any retained weights in observer and fish ticket data that share the same species code will match and adjust properly.

Species were defined and/or grouped for this report according to the WCGOP Data Processing Appendix (http://www.nwfsc.noaa.gov/research/divisions/fram/observation/data_processing.cfm). A complete listing of groundfish species is defined in the Groundfish Fishery Management Plan (<http://www.pcouncil.org/wp-content/uploads/fmpthr19.pdf>). Groundfish species that are currently being managed under rebuilding plans are presented separately from non-rebuilding species.

In all tables, (--) was used when there is no actual numeric value (i.e., the species was not caught). Values appear as 0.0 when a value exists but is smaller than the decimal places allotted. A value of NA represents that the calculation is not applicable for a particular species or stratum, or that the calculation did not produce a result (e.g., very small

values might result in NA from a standard error calculation). Grey shading indicates that values include estimates of both discard and retained catch.

Final IFQ Fishery Discard Estimation

The IFQ/Coop managed groundfish fishery operates with a variety of gear types and target strategies, which depend on where catch is delivered and processed.

Catch delivered to shore-based processors (IFQ):

- Bottom trawl: Bottom trawl nets were used to catch a variety of groundfish species.
- Midwater non-hake trawl: Midwater trawl nets were used to target midwater non-Pacific hake species, primarily yellowtail rockfish.
- Pot: Pot gear was used to target groundfish species, primarily sablefish.
- Hook-and-line: Longlines were primarily used to target groundfish species, mainly sablefish.
- LE California halibut trawl: Bottom trawl nets were used to target California halibut by fishers holding a state California halibut permit and a LE federal trawl groundfish permit.
- Shoreside hake trawl: Midwater trawl nets were used to catch Pacific hake.

Catch processed at-sea (Coop Program):

- At-sea motherships, mothership catcher vessels, and catcher-processors: Midwater trawl nets are used to catch Pacific hake. Catcher vessels deliver unsorted catch to a mothership. The catch is sorted and processed aboard the mothership. Catcher-processors catch and process at-sea.

In 2011, the implementation of the IFQ management program resulted in changes to fishing regulations which, in turn, resulted in development of new methods for estimating fishing mortality under the IFQ fishery. For example, under IFQ regulations:

- Vessels must carry NMFS observers on all IFQ fishing trips.
- Observer sampling priorities were shifted to focus more on IFQ and rebuilding groundfish species.
- The use of multiple gear types were allowed for fishing under a Federal groundfish trawl-endorsed permit (trawl or fixed gear).
- A limit of one (1) IFQ reporting area could be fished per trip.
- Individual fishing quotas (IFQs) were established for a subset of groundfish managed under the Fishery Management Plan (FMP).

Shore-based IFQ Sectors

Fleet-wide discard estimates for the shore-based IFQ sectors were derived from WCGOP observer data and fish ticket landings data (Figure 1). Fish tickets associated with the IFQ fishery were defined by analysts through an extensive quality control and review process of all available data sources, including those utilized for in-season management. For a description of the IFQ fishery, associated data sources, and observer data collection, see: http://www.nwfsc.noaa.gov/research/divisions/fram/observation/catchshares_how.cfm. For additional information provided in status reports by the Economic Data Collection Program concerning landings and revenue in this fishery, see: <http://www.pcouncil.org/resources/archives/briefing-books/june-2013-briefing-book/>.

IFQ bottom trawl vessels can hold a California halibut bottom trawl permit and participate in the state-permitted California halibut fishery. California halibut tows can occur on the same trip as tows targeting IFQ groundfish and were identified at the tow-level based on the use of bottom trawl gear and the following criteria: 1) the target was

California halibut or 2) the target was nearshore mix, sand sole, or other flatfish, and the tow took place in less than 30 fathoms and south of 40°10' N. latitude. All IFQ bottom trawl tows that met at least one of the above requirements were analyzed using methods for IFQ discard estimation. Tow targets are typically determined by the vessel captain.

Observer data from the IFQ fishery were stratified by sector, gear type, and management area (Table 1). If applicable and sample size permitted, we further stratified by season and depth. Records were separated into two groundfish management areas, north and south of 40° 10' N. latitude. Each management area was divided into three depth strata (0-125, 126-250, >250 fathoms). The depth strata used in the present analysis highlight the areas shoreward and seaward of RCA closures relevant in the fishery management framework and provide consistency when evaluating discard or bycatch over time, as depth-based spatial closures change. The fishery was further stratified into two seasonal strata: winter (November-April) and summer (May-October). Originally, seasonal strata were based on the structure of two-month cumulative trip limit periods, but they now continue to reflect seasonal changes in RCA closures, fishing effort, and target species in the fishery (e.g. winter petrale sole). Due to a limited number of observations, IFQ vessels fishing midwater trawl gear for non-Pacific hake target species in the area north of 40° 10' N. latitude were not stratified by season or depth. Lastly, observations from tows made by IFQ vessels participating in the LE California halibut fishery (per criteria above) were combined with all other observations of bottom trawl gear due to low sample size and confidentiality guidelines.

Despite the 100% observer coverage mandate which began in 2011, there were some rare occasions (e.g., observer illness) when tows or sets were not sampled (unsampled). In some cases (e.g. protocol), tows or sets may have had some portion of the discarded catch recorded in very broad or mixed (unsampled) categories (Table X). We used ratio estimators to apportion any unsampled discard weight to specific species within each stratum, based on what was observed in the sampled catch. Values used to calculate the expanded discard weight of groundfish species from each WCGOP unsampled catch category in the 2012 IFQ fishery are presented in Tables 2a & b. Discard ratios and expansion factors are presented by season and depth. Winter season is January-April and November-December and summer season is May-October. Only strata with unsampled discard weight are shown.

To obtain the estimated discard weight of a species (W) when the entire haul or set was unsampled, the unsampled discard weight, summed within the stratum, was multiplied by the ratio of the discard weight of the species (summed across sampled hauls within a stratum) divided by the total discard weight of all species in all sampled hauls within a stratum:

$$W_{p,s} = \sum_p x_{p,s} \times \frac{\sum_f w_{f,s}}{\sum_f x_{f,s}}$$

where, for each stratum:

s = stratum, which could include, area, depth, gear, and sector

p = unsampled haul

f = sampled haul

x = total weight of discarded catch

W = estimated discard weight of the species

w = sampled discard weight of the species

In hauls with unsampled catch categories, unsampled discard weight was recorded as non-IFQ species (NIFQ) or IFQ species. Unsampled IFQ species weight could be further categorized into IFQ flatfish (IFQFF), IFQ rockfish

(IFQRF), and IFQ mixed species (IFQM). IFQM included all 2012 IFQ managed species (see 77 FR 28497 for a listing of IFQ species in 2012). NIFQ included all species encountered that were not designated as an IFQ species in 2012 management. Observers are instructed that IFQ hauls or sets in which they record unsampled categories cannot also contain sampled species that are within the unsampled category to avoid double counting.

Table X. WCGOP unsampled catch categories and associated species (used in IFQ fishery protocols) are as follows:

IFQFF	IFQRF
Arrowtooth Flounder	Aurora Rockfish
Butter Sole	Bank Rockfish
Curlfin Turbot	Blackgill Rockfish
Dover Sole	Bocaccio Rockfish
English Sole	Canary Rockfish
Flatfish Unid	Chilipepper Rockfish
Flathead Sole	Cowcod Rockfish
Pacific Halibut	Darkblotched Rockfish
Pacific Sanddab	Flag Rockfish
Petrable Sole	Greenspotted Rockfish
Rex Sole	Greenstriped Rockfish
Rock Sole	Halfbanded Rockfish
Sand Sole	Harlequin Rockfish
Sanddab Unid	Longspine Thornyhead
Starry Flounder	Pacific Ocean Perch
	Pygmy Rockfish
	Redbanded Rockfish
	Redstripe Rockfish
	Rockfish Unid
	Rosethorn Rockfish
	Rosy Rockfish
	Rougheye Rockfish
	Sharpchin Rockfish
	Shortraker Rockfish
	Shortspine Thornyhead
	Silvergray Rockfish
	Splitnose Rockfish
	Spotted Rockfish Unid
	Squarespot Rockfish
	Starry Rockfish
	Stripetail Rockfish
	Widow Rockfish
	Yelloweye Rockfish
	Yellowmouth Rockfish
	Yellowtail Rockfish

To obtain the estimated discard weight of a species (W) in hauls or sets with unsampled categories, the unsampled discard weight, summed within the stratum, was multiplied by the ratio of the discard weight of the species (summed across sampled hauls within a stratum) divided by the discard weight of all sampled species that are included within an unsampled category (NIFQ, IFQFF, IFQRF, IFQM) within a stratum. This denominator only includes fully

sampled hauls (i.e. no unsampled categories) in order to determine appropriate ratios. Estimated discard weight of the species was summed across unsampled categories and then added to the discard weight of the species that was sampled in the hauls with unsampled categories:

$$W_{p,s} = \sum_y \left(\sum_p x_{p,y,s} \times \frac{\sum_f w_{f,s}}{\sum_f x_{f,y,s}} \right) + \sum_p w_{p,s}$$

where, for each stratum:

s = stratum, which could include, area, depth, gear, and sector

y = unsampled category (either NIFQ, IFQFF, IFQRF, or IFQM)

p = haul with unsampled catch category

f = sampled haul

x = weight of discarded catch

W = estimated discard weight of the species

w = sampled discard weight of the species

Expanded discard weights of a particular species obtained using the equations above for unsampled hauls or hauls with unsampled catch categories were then added to the sampled discard weight of that species (from sampled catch) within each stratum to obtain the total species-specific discard weight per stratum.

Coast-wide landings, sampled discard weight, estimated discard weight, and estimated fishing mortality in the 2012 shore-based non-hake IFQ sectors and the LE California halibut fishery are reported in Table 3a. We apply a 50% mortality rate to discarded sablefish and lingcod weight caught by IFQ bottom trawl and LE California halibut trawl sectors. These rates are assumptions made by the GMT and carried over from management under the pre-IFQ LE groundfish bottom trawl sector (before 2011). We apply a 20% mortality rate to discarded sablefish caught by IFQ hook-and-line and pot gear. This rate is an assumption by the GMT, previously used in non-nearshore groundfish fixed gear sectors. For the first time in this report, we apply SSC recommended discard mortality rate assumptions (previously made for stock assessment purposes) for longnose skate (trawl = 50%, fixed gear = 50%) and spiny dogfish (hook-and-line fixed gear = 50%) (PFMC 2012).

At-Sea Hake Coop Sectors

The midwater trawl fishery for Pacific hake is comprised of three at-sea processing fleets: catcher-processors, motherships (with non-tribal catcher boats), and a tribal fleet delivering to motherships. The A-SHOP produces estimates of total catch (discard + retained) in the at-sea Pacific hake fishery. Observers sample unsorted catch and provide a visual estimate of the proportion retained, at the species level. Discarded catch weight is calculated on a haul basis for the total weight of all species. The discard weight estimate, along with the proportion retained, form the basis for the two at-sea hake sectors summarized in Table 3b. The at-sea tribal fleet is represented in Table 15, along with shore-based tribal landings.

Coast-wide landings or retained catch, sampled discard weight, estimated discard weight, and estimated fishing mortality in all 2012 Pacific hake IFQ/Coop Program sectors (shore-based and at-sea) are reported in Table 3b. The 2012 Pacific hake fleet which delivers to shore-based processors was observed by WCGOP under the IFQ fishery and discard was estimated in the same manner as described for the Shore-based IFQ Sectors (above). Prior to 2011, this fishery was conducted under an Exempted Fishing Permit (EFP). It continues to operate as a

“maximum retention” fishery, where minor amounts of operational discard at-sea are permissible provided the observer accounts for the discard weight.

California Halibut Bottom Trawl Fishery

For a description of the California halibut bottom trawl fishery, vessel selection, observer coverage, vessel waivers, and prior California halibut bottom trawl reports, see: http://www.nwfsc.noaa.gov/research/divisions/fram/observation/data_products/halibut_trawl.cfm.

Fleet-wide discard estimates in the California halibut bottom trawl fishery were derived from WCGOP observer data and fish ticket landings data. All California halibut vessels are permitted by the state of California. However, limited entry (LE) vessels also have a federal limited entry groundfish permit, whereas open access (OA) vessels do not. The WCGOP provides observer coverage for the LE California halibut fishery under the shore-based IFQ fishery and isolates data for the LE California halibut fishery based on criteria listed in the previous section. The WCGOP randomly samples the OA California halibut fishery separately. Thus the two components (LE and OA) now have different sampling priorities, protocols, and selection design and therefore are analyzed separately.

Discard ratios were computed for the OA observed data using the retained weight of California halibut in the denominator. The fleet landed weight of California halibut was then used as a multiplier to expand observed discard ratios to the fleet (Table 4). Fleet-wide landings were compiled from OA trawl fish tickets (see Figure 1) for those vessels that had a state-issued California halibut bottom trawl permit.

Discard estimates were computed based on the following equation:

$$\hat{D}_s = \frac{\sum_t d_{st}}{\sum_t r_t} \times F$$

where:

s : species or species group

t : observed tows

d_s : observed discard weight of species s

r : observed retained weight of California halibut

F : weight of retained California halibut recorded on fish tickets for the fleet (expansion factor)

\hat{D}_s : discard estimate for species s

Table 4 presents estimated fishing mortalities of groundfish species caught in the 2012 OA California halibut trawl fishery. A 50% mortality rate was applied for discarded lingcod and sablefish, which are assumptions made by the GMT and carried over from management under the pre-IFQ LE groundfish bottom trawl sector (before 2011). For the first time in this report, we apply an SSC recommended discard mortality rate assumption (previously made for stock assessment purposes) of 50% for longnose skate (PFMC 2012).

Pink Shrimp Trawl Fishery

Fleet-wide discard estimates for the pink shrimp trawl fishery were derived from WCGOP observer data and fish ticket landings data (Figure 1). For a description of the pink shrimp trawl fishery, vessel selection, observer coverage, vessel waivers, and prior pink shrimp trawl reports, see: http://www.nwfsc.noaa.gov/research/divisions/fram/observation/data_products/shrimp_trawl.cfm.

Discard ratios for each state pink shrimp fishery were calculated by dividing the observed discard weight of each species or complex by the observed retained weight of pink shrimp (Table 5). The fleet landed weight of pink shrimp was used as a multiplier to expand observed discard ratios to the fleet. Table 5 presents landings, final discard estimates, and total fishing mortality in the 2012 individual state pink shrimp trawl fisheries.

Discard estimates for each state were computed based on the following equation:

$$\hat{D}_s = \frac{\sum_t d_{st}}{\sum_t r_t} \times F$$

where:

s : species or species group

t : observed tows

d : observed discard weight of species s

r : observed retained weight of pink shrimp

F : weight of retained pink shrimp recorded on fish tickets for the fleet (expansion factor)

\hat{D}_s : discard estimate for species s

In prior reports, pink shrimp fish tickets in the area north of 40°10' N. latitude were compiled for a single discard expansion factor, and south of 40°10' N. latitude landings were summarized as part of the remaining incidental fisheries. Previously, observer data from all state pink shrimp fleets in the north were combined to calculate discard rates. However, WCGOP coverage of the Washington pink shrimp fleet began in 2010 and coverage of all state fisheries in 2011 and 2012 were sufficient to further stratify the analysis by state.

Non-Nearshore Fixed Gear Sector

Fleet-wide discard estimates for the LE and OA non-nearshore fixed gear sector of the groundfish fishery were derived from WCGOP observer data and fish ticket landings data. For a description of the fixed gear sectors, vessel selection, observer coverage, vessel waivers, and prior fixed gear sector reports, see: http://www.nwfsc.noaa.gov/research/divisions/fram/observation/data_products/fixed_gear.cfm.

Fish tickets for fixed gear that did not have recorded sablefish or nearshore species were included in the non-nearshore fixed gear sector only if groundfish landings were greater than non-groundfish landings based on a unique vessel and landing date (Figure 1). If non-groundfish landings were greater than groundfish landings, those fixed gear fish tickets (which also did not have recorded sablefish or nearshore species) were summarized in Table 14 incidental landings. The commercial fixed gear fish tickets with recorded nearshore species weight were not used in this portion of the analysis, regardless of whether they included recorded weights for sablefish. These fish tickets were instead included in the nearshore fixed gear groundfish sector (see next section). Fish tickets associated with the Pacific halibut directed commercial fishery were isolated and removed from our analyses based on landed catch of Pacific halibut recorded on the fish ticket on the day of the opening or within two subsequent days. Fish tickets generated from fixed gear fishing under the IFQ fishery were also excluded.

Fish tickets were partitioned into three commercial fixed gear subsectors: LE sablefish endorsed primary season, LE non-sablefish endorsed, and OA fixed gear groundfish. Commercial fixed gear fish tickets were first divided out by whether the vessel had a federal groundfish permit (LE) or no federal groundfish permit (OA). Open access fish

tickets were placed in the OA fixed gear groundfish subsector. Next, LE fish tickets were separated based on whether the vessel's federal groundfish permit(s) had a sablefish endorsement with tier quota for the primary season or whether it was not endorsed (also referred to as '0' tier permits). Fish tickets for all LE vessels with tier sablefish endorsements operating during the sablefish primary season (April – October) and within their allotted tier quota were placed in the LE sablefish endorsed primary subsector. If LE sablefish-endorsed vessels fished outside of the primary season (November-March) or made trips within the season after they had reached their cumulative tier quota, the fish tickets were placed in the LE non-sablefish endorsed subsector. Fish tickets from non-sablefish endorsed LE vessels were also placed in this subsector.

Data used in our analyses were collected by WCGOP from the following fixed gear subsectors in order of priority: LE sablefish endorsed primary season fixed gear, LE '0' tier (non-endorsed), and OA fixed gear (non-nearshore). LE sablefish endorsed vessels that were fishing outside of the primary season or that had reached their cumulative tier quota in the primary season were not observed.

Observer data were stratified by subsector, gear type, and area (where applicable) (Tables 6-8). Area strata (north and south of 36° N. latitude) are based on PFMC area management for sablefish trip limits. Gear type was defined as longline gear or pot/trap gear. If landings were made by a fixed gear subsector for which there were no or very few WCGOP observations, the most appropriate observed discard ratios were selected and applied to these landings based on similarities in the fishery management structure, fishing and discard behavior, and the gear fished. For example, the LE non-sablefish endorsed fixed gear subsector landed 8.6 mt of groundfish with pot gear in 2012 (Table 7). Given similarities in gear type and catch composition, OA fixed gear pot data were selected as the most appropriate source of information to compute a discard ratio, which was then multiplied by the LE non-sablefish endorsed fixed gear pot landings to generate estimated discard.

Explicit depth stratification of fixed gear fishing effort is not possible because there are no fleet-wide estimates of fishing depths. However, management restricted most fixed gear fishing to depths greater than 100 fathoms in the area north of 40° 10' N. latitude and to depths greater than 150 fathoms in the area south of 40° 10' N. latitude.

The number of observed vessels, trips, and sets are summarized for each subsector in Tables 6-8, along with sablefish and FMP groundfish fleet landings (excluding Pacific hake) used as a measure for expanding discard from observed trips to the entire fleet (expansion factor). Retained groundfish was used as the denominator rather than sablefish weight alone because some subsectors and in general fixed gear fisheries south of 36° N. latitude have a wider range of target species. A broader denominator was therefore necessary to effectively capture fishing effort in these calculations. Stratum estimated discard weight for all subsectors were then summed for each area and summed coast-wide.

Coast-wide landings, final discard estimates, and estimated fishing mortality are reported in Table 9 for 2012 LE and OA non-nearshore groundfish fixed gear. A 20% mortality rate is applied for discarded sablefish, as assumed by the GMT. For the first time in this report, we apply SSC recommended discard mortality rate assumptions (previously made for stock assessment purposes) for longnose skate (50%) and spiny dogfish (50%) (PFMC 2012).

Nearshore Fixed Gear Sector

Fleet-wide discard estimates for the commercial nearshore fixed gear sector of the groundfish fishery were derived from WCGOP observer data, fish ticket landings data (Figure 1), and mortality rates provided by the GMT. For a description of the nearshore fixed gear sector, vessel selection, observer coverage, vessel waivers, and prior nearshore fixed gear sector reports, see: <http://www.nwfsc.noaa.gov/research/divisions/fram/observation/>

data_products/nearshore_gear.cfm.

The WCGOP provides coverage for the commercial nearshore fisheries in California and Oregon based on a selection process of state-issued nearshore permits/licenses. Although California and Oregon nearshore fisheries are sampled separately for observer coverage, fleet-wide discard estimates are provided for the areas north and south of the groundfish management line at 40° 10' N. latitude, in accordance with 2012 federal groundfish management specifications.

Mortality rates provided by the GMT differ for each species according to depth. In December 2007, the GMT provided revised depth-specific discard survival assumptions for nearshore species. It was therefore necessary to generate discard estimates in each of the three depth intervals employed by the GMT (0-10, 11-20, > 20 fathoms). The percentage of catch for each species or complex by depth was calculated based on summarized observer data from 2003-2012 (Table 10). Fleet landings of each nearshore species or complex in 2012 were then distributed among depth intervals using the percentages computed in the previous step. Finally, the total distributed landed weight of all nearshore groundfish species within each depth stratum was used to expand observed discard to the fleet level (expansion factor).

Prior to the calculation of discard ratios in this sector, WCGOP observer data were stratified by area and depth (Table 11). Discard ratios were calculated by dividing the stratum discard weight of each species or complex by the retained weight of nearshore species. Observed discard ratios were multiplied by the allocated landed weight of all nearshore groundfish species within each depth stratum (Table 11). These fleet-level estimates of gross discard within each stratum were then multiplied by depth-specific discard mortality rates (provided by the GMT) to generate estimates of discard mortality in each stratum (Table 12a & b). If provided, a species-specific discard mortality rate was applied in preference to a complex or group rate. Per GMT preference, gopher rockfish in the area south of 40° 10' N. latitude assumed the Shallow nearshore rockfish discard mortality group rates. Final discard estimates for each area were obtained by summing estimates of discard mortality across depth strata. Gross discard estimates, discard mortality rates, estimated discard mortality, and fishing mortality estimates in the 2012 nearshore fixed gear sectors north and south of 40° 10' N. latitude are reported in Tables 12a & b.

Other Commercial Data Summaries

Landings of groundfish species from the WA tribal shore-based fisheries are summarized in Table 15. The WA tribal summary is based exclusively on fish ticket data. Discard estimates for WA tribal shore-based fisheries were not available. Tribal directed groundfish fisheries employ full retention requirements. In addition, full retention is monitored by a target tribal observation rate of 15% for Makah trawl fisheries. Discard mortality of fixed gear sablefish is accounted for in tribal management by reducing the tribal allocation to account for discard mortality. For more information on discard and retention in tribal sablefish fisheries and Makah trawl observations, see Appendix B of the 2011-2012 groundfish harvest specifications (PFMC and NMFS 2011). The at-sea hake tribal sector must operate within defined boundaries in waters off northwest Washington. The catch can be delivered to a contracted mothership by catcher vessels for processing or be caught and processed by a contracted catcher-processor. Washington at-sea tribal data in Table 15 were summarized from the A-SHOP.

Groundfish species catch from the recreational fisheries are summarized in Table 15, based exclusively on data provided by the Washington Department of Fish and Wildlife, the Oregon Department of Fish and Wildlife, and the California Department of Fish and Wildlife. State agencies provide catch weight (discarded + retained) estimates with PFMC-approved depth dependent mortality rates applied to account for discard mortality.

Research catch of groundfish species is summarized in Table 15, based on data provided by the NOAA Northwest Regional Office. Catch weight (discarded + retained) was summarized from reporting of scientific research permits that directly or indirectly caught groundfish off the U.S. west coast. Catch varies by research permit, including but not limited to: catch from permits with only retained catch, tagging study catch where all fish were released alive, and combined discarded and retained catch. Research catch was summarized for all gear types employed.

Landings of groundfish species from other non-groundfish fisheries operating under federal open access landing limits, which are mostly state-managed and incidentally catch groundfish, are also summarized in Table 15 as 'Incidental fisheries'. A more detailed breakdown of incidental landings by PacFIN gear group is provided in Table 14. Catch summaries of incidental fisheries were based exclusively on fish ticket data.

Bycatch estimation and summaries for several additional fish species observed by the WCGOP and A-SHOP are available in separate reports; Pacific halibut is provided in Jannot et al. 2013, salmon species are provided in Al-Humaidhi et al. 2012a, and green sturgeon and Pacific eulachon are provided in Al-Humaidhi et al. 2012b.

Results

Fishing mortality estimates for all groundfish combined were lower for all sectors in 2012 relative to the prior year, except increases of groundfish landings in those which catch groundfish incidentally and mortality estimates were higher in all state recreational groundfish fisheries (Table 15) (Bellman et al. 2012). However, when reviewed at a finer level, an almost equal proportion of groundfish species or complexes showed an increase (48%) or decrease (53%) in estimated fishing mortality from 2011 to 2012.

Relative to 2011, the shore-based IFQ fishery in 2012 demonstrated a minor decrease in overall effort (-10% trips, -2% tows/sets) (Table 1). Only 0.4% of tows/sets in 2012 were unsampled by observers (e.g., rare occasions such as observer illness), although 100% of trips continue to be observed. IFQ fishing with bottom or midwater trawl gear (non-hake targeted) decreased slightly in 2012 (-6% trips, -3% tows), with a corresponding decrease in both overall groundfish landings and discard (Table 3a). However, it was possible to report 2012 midwater trawl data which was not part of the shoreside hake fleet, due to adequate sample size and enough vessels fishing to meet confidentiality guidelines. In 2012, IFQ fishing with hook-and-line fixed gears decreased (-58% trips, -20% sets) but fishing with pot gears increased (+19% trips, +12% sets). A corresponding decrease in both overall groundfish landings and discard occurred in hook-and-line IFQ fishing. Even though IFQ pot fishing effort (trips and sets) increased in 2012 relative to 2011, there was a decrease in groundfish landings, but an increase in groundfish discard weight. Shore-based IFQ midwater trawl fishing targeting Pacific hake during 2012 demonstrated a decrease in both landings and discard relative to 2011 (Table 3b). We also note that for groundfish species/complexes designated and tracked under IFQ management (excluding Pacific halibut), discard mortality estimates presented in this report, as a whole, were within 0.3% of those calculated in the inseason Vessel Account System for 2012 and landings were within 0.6%.

Two elements which affect discard estimates are the discard ratio and the expansion factor used to generate the fleet-wide estimate. Changes in expansion factors are tracked by reviewing the fleet-wide landing trends in each observed fishery. In state fisheries which are observed for incidental groundfish, landings were down by 30% in the OA California halibut trawl fishery (Table 4). Thus the expansion factor for discard estimation was lower. Fleet-wide landings in the Washington and Oregon pink shrimp fisheries increased relative to 2011, but California's landings decreased (Table 5). Relative to 2011 landings, all sectors of the groundfish non-IFQ fixed gear fishery (LE and OA) demonstrated decreased landings in 2012 (Table 9). Nearshore fixed gear landings increased slightly in

Oregon and decreased in California, though the expansion factors calculated for north and south of 40°10' N. latitude were both lower in 2012 (Table 11).

Estimated fishing mortality for all groundfish species or complexes did not exceed 2012 ACL, ABC, or OFL harvest goals (Table 16). Fishing mortality estimates are evaluated in terms of 2012 ACL, ABC, and OFL harvest specifications from federal groundfish regulations (50 CFR 660 Subpart G). Twenty-six groundfish species or complexes (65%) had fishing mortality estimates which were less than 50% of 2012 ACL harvest goals. However, the estimated fishing mortality of four groundfish species/complexes were above 90% of their ACL goals: cabezon – Oregon (98%), nearshore rockfish complex – north of 40°10' N. latitude (97%), petrale sole (96%), and California scorpionfish – south of 34°27' N. latitude (95%).

The Oregon cabezon represented the closest attainment of an ACL goal in 2012 (98%). The primary contributions of fishing mortality are from the commercial nearshore fixed gear fishery and the Oregon recreational fishery. Overall fishing mortality estimated for the nearshore complex north of 40°10' N. latitude is attributed to recreational fisheries and commercial nearshore fixed gear fishing. The majority of Petrale sole are caught in the non-hake IFQ fishery with trawl gear, almost all of which are retained and landed. Recreational fishing in California contributes the majority of California scorpionfish weight caught in the area south of 34°27' N. latitude.

For rebuilding groundfish, 2012 fishing mortality estimates decreased relative to 2011 for several species: canary rockfish, darkblotched rockfish and Pacific ocean perch, and increased for others: bocaccio rockfish, cowcod, petrale sole, and yelloweye rockfish. In 2012, ACL goals either increased or remained consistent for all rebuilding species except darkblotched rockfish which decreased by 2 mt relative to the 2011 value.

The majority of non-rebuilding rockfish species or complexes showed an increase in estimated fishing mortality in 2012 relative to 2011, in contrast to the majority of flatfish species which decreased. This follows the same trend as in 2011, where all flatfish species had decreased estimated fishing mortality relative to 2010, with the exception of petrale sole.

For the past four years, sablefish mortality north of 36° N. latitude continues the trend of decreasing. However, this is the first year that sablefish mortality south of 36° N. latitude has shown a decrease in mortality. In the past several years, sablefish mortality was estimated very close to the harvest goal in both areas, but 2012 fishing mortality estimates now have a margin remaining from the ACL goal (88% of ACL caught north 36° N lat., 56% south 36° N lat.).

Longnose skate and spiny dogfish discard estimate comparison's between 2012 and 2011 should consider the newly applied discard mortality rates as assumed by the SSC for 2012 data. Discard values are provided in most tables for the gross discard estimate (comparable to 2011 values) and the final estimate reduced by the applicable discard mortality rate.

As with all point estimates, mortality values presented in Tables 15 and 16 should be considered with caution. It should be noted that multiple sources of uncertainty were not accounted for in this analysis and might influence mortality estimates. Sources of uncertainty include, but are not limited to: species composition sampling of landed catch, observed retained weights, and discard mortality rates. However, standard errors have been provided for observed discard ratios.

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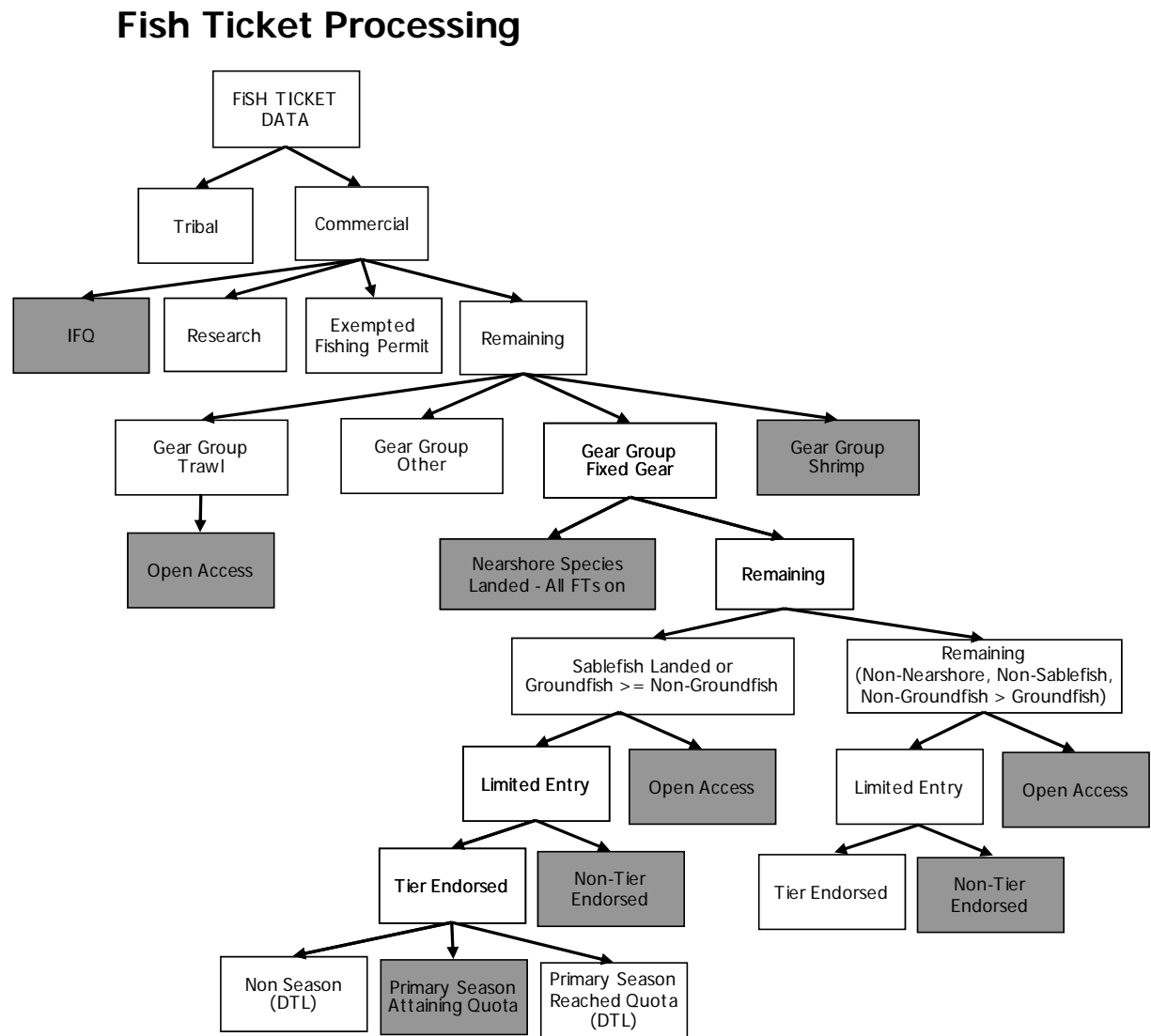
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Figures

Figure 1. Fish ticket data processing for division into groundfish fishery sectors after retrieval of a full calendar year data set from the Pacific Coast Fisheries Information Network (PacFIN) database (query date 05-29-2013). Grey highlight indicates sectors for which federal observer data are available.



Tables

Note: In all tables, (--) was used when there is no actual numeric value (i.e. the species was neither caught nor discarded). Values appear as 0.0 when a value exists but is smaller than the decimal places allotted. A value of NA represents that the calculation is not applicable for a particular species or strata, or that the calculation did not produce a result (e.g. very small values might result in NA from a standard error calculation).

Table 1. Number of vessels, trips and hauls from WCGOP observer data for the 2012 IFQ fishery by gear, latitudinal management area, season and depth (fm). Data are combined as needed to ensure confidentiality requirements and a reasonable number of observations. Winter season is January-April and November-December and summer season is May-October.

						No. of hauls with unsampled categories						
				No. of vessels	No. of trips	No. of sampled hauls	IFQ Flatfish	IFQ Rockfish	IFQ Mixed	Non-IFQ Species	No. unsampled hauls	% of hauls sampled
Trawl - Bottom + LE CA halibut	North of 40°10' N	Winter	0-125	10	21	150	0	0	0	1	0	100%
			126-250	48	271	994	0	0	6	28	7	99.3%
			> 250	47	354	1838	0	0	13	57	5	99.7%
		Summer	0-125	24	206	2324	5	0	19	73	32	98.6%
			126-250	32	183	742	0	1	6	25	4	99.5%
			> 250	33	221	1118	0	0	10	50	1	99.9%
	South of 40°10' N	Winter	0-125	3	27	119	0	0	0	3	0	100%
			126-250	11	53	147	0	0	0	4	1	99.3%
			> 250	11	68	336	0	0	0	9	0	100%
		Summer	0-125	8	110	512	0	0	0	8	2	99.6%
			126-250	9	76	219	1	1	0	21	0	100%
			> 250	9	111	524	0	0	1	26	0	100%
Trawl - Midwater	North of 40°10' N	Annual	All depths	6	11	37	0	0	0	0	0	100%
Hook-and-Line	Coastwide	Winter	0-250	3	8	78	0	0	0	0	0	100%
			> 250	3	7	103	0	0	0	0	0	100%
		Summer	0-250	6	15	211	0	0	0	0	0	100%
			> 250	4	13	106	0	0	0	0	0	100%
Pot	North of 40°10' N	Winter	0-250	4	14	50	0	0	0	0	0	100%
			> 250	7	33	258	0	0	0	1	0	100%
		Summer	0-250	4	25	136	0	0	0	0	0	100%
			> 250	7	51	443	0	0	0	6	0	100%
	South of 40°10' N	Winter	0-250	3	10	17	0	0	0	0	0	100%
			> 250	9	48	163	0	0	0	0	0	100%
		Summer	0-250	5	12	30	0	0	0	0	0	100%
			> 250	11	119	604	0	0	0	1	0	100%
Shoreside Hake	North of 40°10' N	Winter	All depths	21	109	208	0	0	0	1	0	100%
		Summer	All depths	23	606	1357	0	0	0	2	0	100%

Table 2a. Values used to calculate the expanded weight of groundfish species from each WCGOP unsampled catch category in the 2012 IFQ fishery using bottom trawl gear north of 40°10' N latitude. Discard ratios and expansion factors are presented by season and depth. Winter season is January-April and November-December and summer season is May-October. Only strata with unsampled discard weight are shown. Unsampled catch weight is assigned to the following categories: IFQ flatfish species (IFQFF), IFQ rockfish species (IFQRF), IFQ mixed species (IFQM), non-IFQ species (NIFQ), or all species (IFQ & non-IFQ). See text for a list of species included in each unsampled category.

IFQ Fishery - Bottom Trawl				IFQFF	IFQRF	IFQM				NIFQ						All Species					
North of 40°10' N Lat.				Summer	Summer	Summer			Winter		Summer			Winter			Summer			Winter	
Season	Depth (fm)	Expansion Factor (mt)		0-125	126-250	0-125	126-250	>250	126-250	>250	0-125	126-250	>250	0-125	126-250	>250	0-125	126-250	>250	126-250	>250
				0.5092	0.0009	4.8726	1.4765	4.4453	0.3719	0.5715	11.7434	2.6011	3.6148	0.0136	1.5161	3.3143	7.3451	12.4771	0.0227	7.2596	7.2893
Rebuilding species																					
				--	--	0.0001	--	--	--	--	--	--	--	--	--	--	0.0001	--	--	--	--
					0.0839	0.0054	0.0048	0.0011	0.0016	0.0008	--	--	--	--	--	--	0.0021	0.0025	0.0003	0.0006	0.0002
				--	0.0744	0.0008	0.0042	0.0003	0.0030	0.0006	--	--	--	--	--	--	0.0003	0.0023	0.0001	0.0012	0.0002
				0.0472	--	0.0378	0.0001	--	0.0023	0.0004	--	--	--	--	--	--	0.0147	0.0001	--	0.0009	0.0001
Other groundfish species																					
				0.3074	--	0.2460	0.4269	0.1116	0.3396	0.2652	--	--	--	--	--	--	0.0960	0.2280	0.0269	0.1358	0.0781
				--	--	--	--	--	--	--	0.0000	--	--	--	--	--	0.0000	--	--	--	--
				--	--	--	--	--	--	--	0.0002	--	--	--	--	--	0.0001	--	--	--	--
				0.0374	--	0.0299	0.0037	0.2870	0.0007	0.0987	--	--	--	--	--	--	0.0117	0.0020	0.0693	0.0003	0.0291
				0.1137	--	0.0910	0.0001	0.0000	0.0002	0.0001	--	--	--	--	--	--	0.0355	0.0000	0.0000	0.0001	0.0000
				--	--	0.0788	0.0025	0.0011	0.0031	0.0001	--	--	--	--	--	--	0.0307	0.0013	0.0003	0.0012	0.0000
				--	--	0.0073	0.0002	0.0000	0.0001	--	--	--	--	--	--	--	0.0029	0.0001	0.0000	0.0000	--
				--	--	--	--	--	--	--	0.0624	0.1173	0.0542	0.0288	0.0647	0.0423	0.0381	0.0547	0.0411	0.0388	0.0299
				--	0.0483	0.0000	0.0027	0.2320	0.0013	0.1034	--	--	--	--	--	--	0.0000	0.0015	0.0560	0.0005	0.0305
				--	--	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	0.0000	--
				--	--	0.0000	--	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--
				--	--	0.0002	--	--	0.0000	--	--	--	--	--	--	--	0.0001	--	--	0.0000	--
				--	--	0.0000	--	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--
				--	--	0.0000	--	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--
				--	0.0092	0.0128	0.0005	0.0000	0.0004	0.0000	--	--	--	--	--	--	0.0050	0.0003	0.0000	0.0002	0.0000
				--	--	0.0000	--	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--
				--	--	0.0000	--	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--
				--	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	--	--	--	--	--	--	0.0001	0.0000	0.0000	0.0000	0.0000
				--	0.0300	0.0001	0.0017	0.0005	0.0037	0.0003	--	--	--	--	--	--	0.0001	0.0009	0.0001	0.0015	0.0001
				--	0.0026	--	0.0001	0.0002	0.0003	0.0001	--	--	--	--	--	--	--	0.0001	0.0000	0.0001	0.0000
				--	0.0862	0.0006	0.0049	--	0.0000	--	--	--	--	--	--	--	0.0002	0.0026	--	0.0000	--
				--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	--	--	0.0000	--
				--	--	--	--	0.0010	--	--	--	--	--	--	--	--	--	--	0.0002	--	--
				--	--	0.0057	--	--	--	--	--	--	--	--	--	--	0.0022	--	--	--	--
Minor slope rockfish (North of 40°10' N. lat.)																					
				--	0.2347	0.0017	0.0133	0.0070	0.0079	0.0043	--	--	--	--	--	--	0.0007	0.0071	0.0017	0.0031	0.0013
				--	--	0.0000	--	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--
				--	0.0013	--	0.0001	0.0000	0.0001	0.0000	--	--	--	--	--	--	--	0.0000	0.0000	0.0000	0.0000
				--	0.0316	0.0001	0.0018	0.0003	0.0021	0.0006	--	--	--	--	--	--	0.0000	0.0010	0.0001	0.0008	0.0002
				--	0.0041	0.0000	0.0002	0.0000	0.0002	0.0000	--	--	--	--	--	--	0.0000	0.0001	0.0000	0.0001	0.0000
				--	0.0132	0.0002	0.0007	0.0002	0.0040	0.0001	--	--	--	--	--	--	0.0001	0.0004	0.0001	0.0016	0.0000
				--	0.0007	0.0000	0.0000	0.0000	--	--	--	--	--	--	--	--	0.0000	0.0000	0.0000	--	--
				--	--	--	--	--	0.0013	--	--	--	--	--	--	--	--	--	--	0.0005	--
				--	0.1311	0.0038	0.0074	0.0060	0.0223	0.0082	--	--	--	--	--	--	0.0015	0.0040	0.0014	0.0089	0.0024
				--	--	0.0000	--	--	--	0.0000	--	--	--	--	--	--	0.0000	--	--	--	0.0000

Table 2a (continued).

IFQ Fishery - Bottom Trawl		IFQFF	IFQRF	IFQM				NIFQ						All Species					
North of 40°10' N Lat.		Summer	Summer	Summer		Winter		Summer			Winter			Summer			Winter		
Season	Depth (m)	0-125	126-250	0-125	126-250	>250	126-250	>250	0-125	126-250	>250	0-125	126-250	>250	0-125	126-250	>250	126-250	>250
Expansion Factor (mt)		0.5092	0.0009	4.8726	1.4765	4.4453	0.3719	0.5715	11.7434	2.6011	3.6148	0.0136	1.5161	3.3143	7.3451	12.4771	0.0227	7.2596	7.2893
Mixed thornyheads																			
Shortspine/Longspine Thornyhead		--	0.0083	--	0.0005	0.0109	0.0001	0.0018	--	--	--	--	--	--	--	0.0003	0.0026	0.0000	0.0005
Other flatfish																			
Butter Sole		0.0084	--	0.0067	--	--	--	--	--	--	--	--	--	--	0.0026	--	--	--	--
Curlfin Turbot		0.0002	--	0.0002	--	--	--	--	--	--	--	--	--	--	0.0001	--	--	--	--
Flatfish Unid		--	--	--	--	0.0000	0.0000	--	--	--	--	--	--	--	--	--	0.0000	0.0000	--
Flathead Sole		0.0135	--	0.0108	0.0001	0.0000	0.0000	--	--	--	--	--	--	--	0.0042	0.0000	0.0000	0.0000	--
Pacific Sanddab		0.2432	--	0.1946	0.0000	--	--	0.0000	--	--	--	--	--	--	0.0759	0.0000	--	--	0.0000
Rex Sole		0.1098	--	0.0878	0.0017	0.0059	0.0015	0.0011	--	--	--	--	--	--	0.0343	0.0009	0.0014	0.0006	0.0003
Rock Sole		0.0007	--	0.0005	--	--	--	--	--	--	--	--	--	--	0.0002	--	--	--	--
Sanddab Unid		0.0008	--	0.0006	--	--	--	--	--	--	--	--	--	--	0.0002	--	--	--	--
Sand Sole		0.0031	--	0.0025	--	--	--	--	--	--	--	--	--	--	0.0010	--	--	--	--
Other groundfish																			
Big Skate		--	--	--	--	--	--	--	0.0840	0.0005	0.0001	0.0910	0.0002	0.0002	0.0512	0.0002	0.0001	0.0001	0.0002
California Skate		--	--	--	--	--	--	--	0.0000	--	--	--	0.0000	--	0.0000	--	--	0.0000	--
Cod Unid		--	--	--	--	--	--	--	0.0000	--	--	--	--	--	0.0000	--	--	--	--
Kelp Greenling		--	--	--	--	--	--	--	0.0002	--	--	0.0003	--	0.0000	0.0001	--	--	--	0.0000
Pacific Flatnose		--	--	--	--	--	--	--	--	0.0000	0.0037	--	0.0000	0.0025	--	0.0000	0.0028	0.0000	0.0018
Pacific Grenadier		--	--	--	--	--	--	--	0.0000	0.0010	0.0992	--	0.0003	0.0462	0.0000	0.0005	0.0753	0.0002	0.0326
Ray Unid		--	--	--	--	--	--	--	0.0000	--	--	--	--	--	0.0000	--	--	--	--
Roundfish Unid		--	--	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	0.0000	--
Skate Unid		--	--	--	--	--	--	--	0.0023	0.0006	0.0029	--	0.0006	0.0009	0.0014	0.0003	0.0022	0.0003	0.0007
Soupin Shark		--	--	--	--	--	--	--	0.0002	--	0.0010	0.0026	--	--	0.0001	--	0.0007	--	--
Spotted Ratfish		--	--	--	--	--	--	--	0.0868	0.0774	0.0091	0.2565	0.0562	0.0091	0.0529	0.0361	0.0069	0.0337	0.0064
Pacific Cod		--	--	0.0026	0.0000	--	0.0000	--	--	--	--	--	--	--	0.0010	0.0000	--	0.0000	--
Pacific Hake		--	--	0.0690	0.4266	0.2801	0.4109	0.4057	--	--	--	--	--	--	0.0269	0.2278	0.0676	0.1643	0.1195
Sablefish (North of 36° N. lat.)		--	--	0.0094	0.0015	0.0068	0.0046	0.0077	--	--	--	--	--	--	0.0037	0.0008	0.0016	0.0018	0.0023
Shortbelly Rockfish		--	--	--	--	--	--	--	0.0000	0.0000	--	--	--	--	0.0000	0.0000	--	--	--
Shortspine Thornyhead (North of 34°27' N. lat.)		--	0.2103	0.0006	0.0119	0.0139	0.0073	0.0146	--	--	--	--	--	--	0.0002	0.0064	0.0033	0.0029	0.0043
Spiny Dogfish		--	--	--	--	--	--	--	0.2242	0.2974	0.0096	0.1846	0.6518	0.1403	0.1367	0.1386	0.0073	0.3911	0.0989
Starry Flounder		0.0012	--	0.0009	--	0.0001	--	0.0000	--	--	--	--	--	--	0.0004	--	0.0000	--	0.0000
Widow Rockfish		--	0.0005	--	0.0000	--	0.0000	--	--	--	--	--	--	--	--	0.0000	--	0.0000	--
Yellowtail Rockfish (North of 40°10' N. lat.)		--	0.0291	0.0001	0.0017	0.0000	--	--	--	--	--	--	--	--	0.0000	0.0009	0.0000	--	--
Non-groundfish species																			
Dungeness Crab		--	--	--	--	--	--	--	0.3409	0.0036	0.0004	0.3683	0.0019	0.0001	0.2079	0.0017	0.0003	0.0011	0.0001
Non-FMP flatfish																			
Deepsea Sole		--	--	--	--	--	--	--	--	0.0015	0.0287	--	0.0008	0.0185	--	0.0007	0.0218	0.0005	0.0130
Slender Sole		--	--	--	--	--	--	--	0.0889	0.0025	0.0004	0.0115	0.0013	0.0003	0.0542	0.0012	0.0003	0.0008	0.0002
Non-FMP skate																			
Aleutian Skate		--	--	--	--	--	--	--	0.0000	0.0091	0.0038	--	0.0019	0.0013	0.0000	0.0042	0.0029	0.0011	0.0009
Bering Skate		--	--	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	0.0000	--
Black Skate		--	--	--	--	--	--	--	0.0000	0.0011	0.0353	--	0.0008	0.0358	0.0000	0.0005	0.0268	0.0005	0.0252
Deepsea Skate		--	--	--	--	--	--	--	--	--	0.0001	--	0.0002	0.0010	--	--	0.0000	0.0001	0.0007
Pacific Electric Ray		--	--	--	--	--	--	--	0.0001	0.0005	--	0.0005	0.0002	0.0001	0.0001	0.0002	--	0.0001	0.0000
Sandpaper Skate		--	--	--	--	--	--	--	0.0133	0.0653	0.0198	0.0106	0.0562	0.0354	0.0081	0.0304	0.0150	0.0338	0.0250
Starry Skate		--	--	--	--	--	--	--	0.0001	--	0.0000	--	--	--	0.0001	--	0.0000	--	--
White Skate		--	--	--	--	--	--	--	--	--	0.0014	--	0.0000	0.0006	--	--	0.0011	0.0000	0.0004

Table 2b. Values used to calculate the expanded weight of groundfish species from each WCGOP unsampled catch category in 2012 IFQ fisheries: bottom trawl gear south of 40°10' N latitude, pot gear, shoreside hake. Winter season is January-April and November-December and summer season is May-October. Only strata with unsampled discard weight are shown. Unsampled catch weight is assigned to the following categories: IFQ flatfish species (IFQFF), IFQ rockfish species (IFQRF), IFQ mixed species (IFQM), non-IFQ species (NIFQ), or all species (IFQ & non-IFQ). See text for a list of species included in each unsampled category.

				IFQ - Bottom Trawl (South of 40°10' N Lat.)						IFQ - Pot		Shoreside Hake				
Area (40°10' N. Lat.)	IFQFF	IFQRF	IFQM	NIFQ						All Species		NIFQ			NIFQ	
	South	South	South	South						South		North	South	North	North	
	Summer	Summer	Summer	Summer			Winter			Summer	Winter	Summer	Summer	Winter	Summer	Winter
	Depth (fm)	126-250	126-250	>250	0-125	126-250	>250	0-125	126-250	>250	0-125	126-250	>250	>250	>250	All Depths
Expansion Factor (mt)	0.0068	0.0023	0.0340	4.2293	0.4871	1.1451	0.0612	0.0295	1.2453	1.5635	0.3629	0.0073	0.0009	0.0045	0.3402	0.0227
Rebuilding species																
Bocaccio rockfish (South of 40°10' N. lat.)	--	--	--	--	--	--	--	--	--	0.0001	--	--	--	--	--	--
Canary Rockfish	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--
Cowcod Rockfish (South of 40°10' N. lat.)	--	0.0000	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--
Darkblotched Rockfish	--	0.0011	0.0001	--	--	--	--	--	--	0.0000	0.0000	--	--	--	--	--
Petrale Sole	0.0036	--	0.0004	--	--	--	--	--	--	0.0043	0.0003	--	--	--	--	--
Other groundfish species																
Arrowtooth Flounder	0.7493	--	0.0534	--	--	--	--	--	--	0.0190	0.0423	--	--	--	--	--
Chilipepper Rockfish (South of 40°10' N. lat.)	--	0.0826	0.0000	--	--	--	--	--	--	0.2671	0.0134	--	--	--	--	--
Dover Sole	0.1578	--	0.5326	--	--	--	--	--	--	0.0080	0.0191	--	--	--	--	--
English Sole	0.0258	--	0.0003	--	--	--	--	--	--	0.0341	0.0076	--	--	--	--	--
Lingcod (South of 42° N. lat.)	--	--	0.0002	--	--	--	--	--	--	0.0203	0.0057	--	--	--	--	--
Longnose Skate	--	--	--	0.0862	0.2855	0.0949	0.1707	0.1085	0.2020	0.0380	0.0642	--	0.0002	--	--	--
Longspine Thornyhead (North of 34°27' N. lat.)	--	0.0037	0.2367	--	--	--	--	--	--	0.0000	0.0014	--	--	--	--	--
Longspine Thornyhead (South of 34°27' N. lat.)	--	--	--	--	--	--	--	--	--	--	--	--	0.0007	--	--	--
Minor nearshore rockfish (South of 40°10' N. lat.)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Brown Rockfish	--	--	--	0.0000	--	--	--	--	--	0.0000	--	--	--	--	--	--
Minor shelf rockfish (South of 40°10' N. lat.)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Greenspotted Rockfish	--	0.0007	--	--	--	--	--	--	--	0.0008	0.0000	--	--	--	--	--
Greenstriped Rockfish	--	0.0013	--	--	--	--	--	--	--	0.0054	0.0002	--	--	--	--	--
Halfbanded Rockfish	--	0.0000	--	--	--	--	--	--	--	0.0001	--	--	--	--	--	--
Pink Rockfish	--	0.0000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redstripe Rockfish	--	0.0000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rosethorn Rockfish	--	0.0013	--	--	--	--	--	--	--	--	0.0001	--	--	--	--	--
Rosy Rockfish	--	0.0000	--	--	--	--	--	--	--	0.0000	0.0001	--	--	--	--	--
Shelf Rockfish Unid	--	0.0052	--	--	--	--	--	--	--	0.0011	--	--	--	--	--	--
Squarespot Rockfish	--	0.0000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Stripetail Rockfish	--	0.1058	0.0000	--	--	--	--	--	--	0.0318	0.0321	--	--	--	--	--
Tiger Rockfish	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--
Yellowtail Rockfish	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--
Minor slope rockfish (South of 40°10' N. lat.)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aurora Rockfish	--	0.0718	0.0188	--	--	--	--	--	--	--	0.0094	--	--	--	--	--
Bank Rockfish	--	0.0012	0.0000	--	--	--	--	--	--	0.0000	0.0000	--	--	--	--	--
Blackgill Rockfish	--	0.0033	0.0001	--	--	--	--	--	--	--	0.0004	--	--	--	--	--
Pacific Ocean Perch	--	0.0001	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redbanded Rockfish	--	0.0007	0.0000	--	--	--	--	--	--	0.0000	0.0007	--	--	--	--	--
Sharpchin Rockfish	--	0.0018	--	--	--	--	--	--	--	0.0007	0.0005	--	--	--	--	--
Slope Rockfish Unid	--	0.0003	0.0001	--	--	--	--	--	--	--	--	--	--	--	--	--
Mixed thornyheads	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Shortspine/Longspine Thornyhead	--	0.0017	0.0190	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2b (continued).

Area (40°10' N. Lat.) Season Depth (fm) Expansion Factor (mt)	IFQ - Bottom Trawl (South of 40°10' N Lat.)										IFQ - Pot			Shoreside Hake		
	IFQFF	IFQRF	IFQM	NIFQ						All Species		NIFQ			NIFQ	
	South	South	South	South						South		North	South	North	North	North
	Summer	Summer	Summer	Summer			Winter			Summer	Winter	Summer	Summer	Winter	Summer	Winter
	126-250	126-250	>250	0-125	126-250	>250	0-125	126-250	>250	0-125	126-250	>250	>250	>250	All Depths	All Depths
	0.0068	0.0023	0.0340	4.2293	0.4871	1.1451	0.0612	0.0295	1.2453	1.5635	0.3629	0.0073	0.0009	0.0045	0.3402	0.0227
Other flatfish																
Butter Sole	0.0002	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Curlfin Turbot	0.0007	--	--	--	--	--	--	--	--	0.0018	--	--	--	--	--	--
Flatfish Unid	--	--	0.0002	--	--	--	--	--	--	--	--	--	--	--	--	--
Pacific Sanddab	0.0003			--	--	--	--	--	--	0.0951		--	--	--	--	--
Rex Sole	0.0622	--	0.0004	--	--	--	--	--	--	0.0053	0.0093	--	--	--	--	--
Rock Sole	--	--	--	--	--	--	--	--	--	0.0005	--	--	--	--	--	--
Roughscale Sole	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--
Sanddab Unid	--	--	--	--	--	--	--	--	--	0.0054	--	--	--	--	--	--
Sand Sole	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--
Other groundfish																
Big Skate	--	--	--	0.0239	0.0006	--	--	0.1636	--	0.0106	--	--	--	--	--	--
California Skate	--	--	--	0.0086	--	--	0.0001	0.0097	--	0.0038	--	--	--	--	--	--
Leopard Shark	--	--	--	0.0007	--	--	--	0.0102	--	0.0003	--	--	--	--	--	--
Pacific Flatnose	--	--	--	--	--	0.0018	0.0017	--	0.0001	--	0.0000	0.0032	0.0059	0.0098	--	--
Pacific Grenadier	--	--	--	--	0.0001	0.0571	0.0159	--	0.0016	--	0.0005	0.1176	0.3129	0.0495	--	--
Skate Unid	--	--	--	--	0.0060	0.0002	0.0020	0.0001	0.0006	--	0.0002	--	--	--	--	--
Soupin Shark	--	--	--	0.0026	--	--	--	0.0013	--	0.0012	--	--	--	--	0.0189	--
Spotted Ratfish	--	--	--	0.0675	0.2349	0.0055	0.0114	0.0299	0.1336	0.0298	0.0425	--	0.0015	--	--	--
Pacific Hake	--	--	0.1269	--	--	--	--	--	--	0.0458	0.2397	--	--	--	--	--
Sablefish (North of 36° N. lat.)	--	--	0.0026	--	--	--	--	--	--	0.0117	0.0039	--	--	--	--	--
Shortbelly Rockfish	--	--	--	0.0505	0.0179	0.0000	--	0.0164	0.0136	0.0223	0.0043	--	--	--	--	--
Shortspine Thornyhead (North of 34°27' N. lat.)	--	0.0088	0.0079	--	--	--	--	--	--	0.0000	0.0025	--	--	--	--	--
Spiny Dogfish Shark	--	--	--	0.0519	0.0527	0.0013	0.0205	0.0073	0.2990	0.0229	0.0951	--	--	0.0051	0.0518	0.0594
Splitnose rockfish (South of 40°10' N. lat.)	--	0.7082	0.0002	--	--	--	--	--	--	0.0000	0.2933	--	--	--	--	--
Starry Flounder	--	--	--	--	--	--	--	--	--	0.0001	--	--	--	--	--	--
Widow Rockfish	--	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--
Non-groundfish species																
California Halibut	--	--	--	--	--	--	--	0.0004	--	--	--	--	--	--	--	--
Dungeness Crab	--	--	--	0.5050	0.0106	0.0001	--	0.3965	0.0190	0.2228	0.0060	0.0002	--	--	0.0002	--
Non-FMP flatfish																
Deepsea Sole	--	--	--	--	0.0004	0.0277	0.0337	--	0.0009	--	0.0003	0.0008	--	0.0028	--	--
Diamond Turbot	--	--	--	0.0013	--	--	--	--	--	0.0006	--	--	--	--	--	--
Hornyhead Turbot	--	--	--	0.0002	--	--	--	--	--	0.0001	--	--	--	--	--	--
Slender Sole	--	--	--	0.0011	0.0020	0.0000	0.0000	0.0005	0.0031	0.0005	0.0010	--	--	--	--	--
Speckled Sanddab	--	--	--	0.0000	--	--	--	--	--	0.0000	--	--	--	--	--	--
Non-FMP skate																
Black Skate	--	--	--	--	--	0.0165	0.0199	--	0.0001	--	0.0000	0.0004	--	--	--	--
Deepsea Skate	--	--	--	--	--	0.0002	0.0004	--	--	--	--	--	--	--	--	--
Pacific Electric Ray	--	--	--	0.0020	0.0207	0.0001	--	0.0013	0.0058	0.0009	0.0019	--	--	--	--	--
Sandpaper Skate	--	--	--	0.0017	0.0524	0.0070	0.0113	0.0108	0.0894	0.0007	0.0284	--	--	--	--	--
Shovelnose Guitarfish	--	--	--	--	--	--	--	0.0002	--	--	--	--	--	--	--	--
Starry Skate	--	--	--	0.0007	--	--	--	0.0007	--	0.0003	--	--	--	--	--	--
Thornback Skate	--	--	--	0.0001	--	--	--	--	--	0.0000	--	--	--	--	--	--
White Skate	--	--	--	--	0.0001	--	0.0001	--	--	--	--	--	--	--	--	--

Table 3a. Non-hake IFQ sectors and LE California halibut. Landings (mt), estimated discard (mt), and fishing mortality estimate (mt) of groundfish species from non-hake IFQ and limited entry California halibut fisheries in 2012. Discard ratios (Table 2) were multiplied by expansion factors to generate estimated discard, sampled discard was expanded to the haul level and summed by sector, and landings were summarized from PacFIN.

Weight (mt)	IFQ - Bottom and LE CHLB Trawl				IFQ - Midwater Trawl				IFQ - Hook-and-Line				IFQ - Pot			
	Sampled Discard	Expanded Discard	Landed	Estimate	Sampled Discard	Expanded Discard	Landed	Estimate	Sampled Discard	Expanded Discard	Landed	Estimate	Sampled Discard	Expanded Discard	Landed	Estimate
Rebuilding species																
Bocaccio rockfish (South of 40°10' N. lat.)	0.01	0.00	8.83	8.84	--	--	--	--	--	--	--	--	--	--	0.00	0.00
Canary Rockfish	0.04	0.00	4.47	4.51	--	--	0.49	0.49	--	--	--	--	--	--	0.00	0.00
Cowcod rockfish (South of 40°10' N. lat.)	0.01	0.00	0.08	0.09	--	--	--	--	--	--	--	--	--	--	--	--
Darkblotched Rockfish	2.22	0.09	78.72	81.04	--	--	0.07	0.07	0.16	--	0.06	0.22	0.00	--	0.03	0.03
Pacific Ocean Perch (North of 40°10' N. lat.)	1.08	0.05	35.00	36.13	--	--	0.03	0.03	0.02	--	0.06	0.08	0.00	--	0.00	0.01
Petrale Sole	11.18	0.33	1018.98	1030.50	--	--	1.69	1.69	0.19	--	0.13	0.32	0.03	--	0.05	0.08
Yelloweye Rockfish	--	--	0.03	0.03	--	--	--	--	--	--	--	--	--	--	--	--
Other groundfish species																
Arrowtooth Flounder	193.36	7.92	2155.87	2357.15	--	--	1.90	1.90	4.29	--	0.09	4.38	1.15	--	0.07	1.22
Black Rockfish (North of 46°16' N. lat.)	0.01	0.00	0.71	0.72	--	--	--	--	--	--	--	--	--	--	--	--
Black Rockfish (South of 46°16' N. lat.)	--	--	0.02	0.02	--	--	--	--	--	--	--	--	--	--	--	--
Cabezon (Oregon)	0.08	0.00	--	0.08	--	--	--	--	--	--	--	--	--	--	--	--
Chilipepper Rockfish (South of 40°10' N. lat.)	52.95	0.42	234.77	288.14	--	--	--	--	--	--	--	--	--	--	0.01	0.01
Dover Sole	75.00	1.87	6938.37	7015.24	--	--	4.17	4.17	0.17	--	0.25	0.41	1.13	--	2.15	3.28
English Sole	31.18	0.82	114.59	146.59	0.00	--	0.12	0.12	--	--	--	--	--	--	--	--
Lingcod (North of 42° N. lat.)	22.76	0.65	317.54	329.24	0.23	--	2.38	2.61	0.04	--	0.15	0.19	0.01	--	1.81	1.83
50% discard mortality (Trawl) [‡]	11.38	0.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lingcod (South of 42° N. lat.)	6.48	0.09	16.35	19.63	--	--	--	--	--	--	--	--	--	--	0.32	0.32
50% discard mortality (Trawl) [‡]	3.24	0.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Longnose Skate	104.99	3.85	836.37	890.79	--	--	1.56	1.56	19.51	--	5.22	14.98	0.01	0.00	--	0.00
50% discard mortality (Trawl) [‡]	52.49	1.93	--	--	--	--	--	--	--	--	--	--	--	--	--	--
50% discard mortality (Fixed Gear) [‡]	--	--	--	--	--	--	--	--	9.76	--	--	--	0.00	0.00	--	--
Longspine Thornyhead (North of 34°27' N. lat.)	36.25	1.35	854.24	891.84	--	--	0.12	0.12	0.02	--	0.18	0.20	0.02	--	0.01	0.03
Longspine Thornyhead (South of 34°27' N. lat.)	--	--	0.40	0.40	--	--	--	--	--	--	--	--	0.00	0.00	0.00	0.00
Minor nearshore rockfish (North of 40°10' N. lat.)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Brown Rockfish	0.00	0.00	0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--
Nearshore Rockfish Unid	0.00	0.00	0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--
Quillback Rockfish	--	--	0.10	0.10	--	--	--	--	--	--	--	--	--	--	--	--
Minor shelf rockfish (North of 40°10' N. lat.)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bocaccio Rockfish	0.00	0.00	1.66	1.66	--	--	0.01	0.01	--	--	0.00	0.00	--	--	--	--
Chilipepper Rockfish	0.06	0.00	0.12	0.18	--	--	0.00	0.00	--	--	0.00	0.00	--	--	--	--
Cowcod Rockfish	0.00	0.00	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Greenspotted Rockfish	0.00	0.00	0.08	0.08	--	--	0.00	0.00	--	--	--	--	--	--	--	--
Greenstriped Rockfish	3.34	0.10	24.76	28.20	--	--	0.57	0.57	--	--	--	--	0.00	--	--	0.00
Halfbanded Rockfish	0.01	0.00	--	0.01	--	--	--	--	--	--	--	--	--	--	--	--
Harlequin Rockfish	0.00	0.00	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Pygmy Rockfish	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Redstripe Rockfish	0.04	0.00	0.66	0.71	--	--	0.00	0.00	0.00	--	--	0.00	--	--	--	--
Rosethorn Rockfish	0.70	0.03	2.35	3.09	--	--	0.00	0.00	0.04	--	0.05	0.08	0.00	--	0.00	0.01
Rosy Rockfish	0.06	0.00	--	0.07	--	--	--	--	--	--	--	--	--	--	--	--
Shelf Rockfish Unid	0.68	0.04	0.65	1.37	--	--	--	--	--	--	0.00	0.00	--	--	0.00	0.00
Silvergray Rockfish	0.00	0.00	1.28	1.28	--	--	0.09	0.09	0.00	--	0.01	0.01	--	--	--	--
Squarespot Rockfish	0.00	0.00	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Starry Rockfish	0.06	0.00	--	0.06	--	--	--	--	--	--	--	--	--	--	--	--
Stripetail Rockfish	1.42	0.04	0.06	1.53	--	--	--	--	--	--	--	--	--	--	--	--

[‡]Discard mortality rates provided by the Groundfish Management Team (GMT).

Table 3a. Non-hake IFQ sectors and LE California halibut (continued).

Weight (mt)	IFQ - Bottom and LE CHLB Trawl				IFQ - Midwater Trawl				IFQ - Hook-and-Line				IFQ - Pot			
	Sampled Discard	Expanded Discard	Landed	Estimate	Sampled Discard	Expanded Discard	Landed	Estimate	Sampled Discard	Expanded Discard	Landed	Estimate	Sampled Discard	Expanded Discard	Landed	Estimate
Minor shelf rockfish (South of 40°10' N. lat.)																
Bronzespotted Rockfish	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02	0.02
Flag Rockfish	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Greenblotched Rockfish	--	--	0.03	0.03	--	--	--	--	--	--	--	--	--	--	--	--
Greenspotted Rockfish	0.16	0.00	0.24	0.41	--	--	--	--	--	--	--	--	--	--	--	--
Greenstriped Rockfish	1.08	0.01	0.08	1.17	--	--	--	--	--	--	--	--	--	--	--	--
Halfbanded Rockfish	0.02	0.00	--	0.02	--	--	--	--	--	--	--	--	--	--	--	--
Mexican Rockfish	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Pink Rockfish	0.00	0.00	0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--
Redstripe Rockfish	0.00	0.00	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Rosethorn Rockfish	0.04	0.00	0.00	0.04	--	--	--	--	--	--	--	--	--	--	--	--
Rosy Rockfish	0.01	0.00	--	0.01	--	--	--	--	--	--	--	--	--	--	--	--
Shelf Rockfish Unid	0.34	0.00	0.00	0.35	--	--	--	--	--	--	--	--	--	--	0.10	0.10
Speckled Rockfish	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Squarespot Rockfish	0.00	0.00	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Stripetail Rockfish	10.98	0.06	0.29	11.32	--	--	--	--	--	--	--	--	--	--	--	--
Tiger Rockfish	0.00	0.00	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Vermilion Rockfish	0.00	--	0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--
Yellowtail Rockfish	0.00	0.00	0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	--
Minor slope rockfish (North of 40°10' N. lat.)																
Aurora Rockfish	3.59	0.19	15.09	18.87	--	--	0.01	0.01	0.00	--	0.07	0.07	0.00	--	0.03	0.04
Bank Rockfish	0.00	0.00	0.27	0.28	--	--	--	--	--	--	--	--	0.00	--	--	0.00
Blackgill Rockfish	0.03	0.00	4.70	4.73	--	--	0.00	0.00	0.22	--	0.26	0.48	--	--	0.06	0.06
Blackspotted Rockfish	--	--	0.19	0.19	--	--	--	--	--	--	0.04	0.04	--	--	--	--
Redbanded Rockfish	0.54	0.03	5.33	5.90	--	--	0.00	0.00	0.17	--	0.54	0.71	0.03	--	0.03	0.06
Rougheye Rockfish	0.06	0.00	47.29	47.35	--	--	0.07	0.07	4.39	--	14.98	19.36	0.03	--	0.06	0.09
Sharpchin Rockfish	0.61	0.02	7.92	8.55	--	--	--	--	0.00	--	--	0.00	--	--	--	--
Shortraker Rockfish	0.01	0.00	12.65	12.66	--	--	0.04	0.04	1.02	--	0.23	1.26	0.02	--	--	0.02
Shortraker/Rougheye Rockfish	--	--	--	--	--	--	--	--	2.16	--	--	2.16	--	--	--	--
Slope Rockfish Unid	0.15	0.00	1.24	1.39	0.01	--	1.15	1.16	--	--	--	--	--	--	0.02	0.02
Splitnose Rockfish	5.43	0.21	7.05	12.69	--	--	0.00	0.00	0.01	--	0.01	0.02	--	--	--	--
Yellowmouth Rockfish	0.00	0.00	6.64	6.64	--	--	--	--	0.10	--	0.08	0.18	0.00	--	0.00	0.00
Minor slope rockfish (South of 40°10' N. lat.)																
Aurora Rockfish	3.47	0.00	20.91	24.38	--	--	--	--	--	--	0.00	0.00	0.02	--	0.17	0.19
Bank Rockfish	0.04	0.00	16.55	16.58	--	--	--	--	--	--	--	--	--	--	--	--
Blackgill Rockfish	0.12	0.00	72.98	73.11	--	--	--	--	0.00	--	0.76	0.76	0.23	--	5.04	5.28
Blackspotted Rockfish	--	--	0.05	0.05	--	--	--	--	--	--	--	--	--	--	--	--
Pacific Ocean Perch	0.00	0.00	0.08	0.08	--	--	--	--	--	--	--	--	--	--	--	--
Redbanded Rockfish	0.07	0.00	0.62	0.70	--	--	--	--	--	--	--	--	--	--	--	--
Rougheye Rockfish	--	--	0.24	0.24	--	--	--	--	--	--	--	--	--	--	--	--
Sharpchin Rockfish	0.25	0.00	--	0.25	--	--	--	--	--	--	--	--	--	--	--	--
Shortraker Rockfish	0.00	--	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Slope Rockfish Unid	0.01	0.00	0.98	1.64	--	--	--	--	--	--	--	--	--	--	0.04	0.04
Yellowmouth Rockfish	--	--	0.05	0.05	--	--	--	--	--	--	--	--	--	--	--	--
Mixed thornyheads																
Shortspine/Longspine Thornyhead	1.58	0.06	--	1.64	--	--	--	--	--	--	--	--	0.00	--	--	0.00

Table 3a. Non-hake IFQ sectors and LE California halibut (continued).

Weight (mt)	IFQ - Bottom and LE CHLB Trawl				IFQ - Midwater Trawl				IFQ - Hook-and-Line				IFQ - Pot			
	Sampled Discard	Expanded Discard	Landed	Estimate	Sampled Discard	Expanded Discard	Landed	Estimate	Sampled Discard	Expanded Discard	Landed	Estimate	Sampled Discard	Expanded Discard	Landed	Estimate
Other flatfish																
Butter Sole	1.68	0.06	0.48	2.22	--	--	--	--	--	--	--	--	--	--	--	--
Curfin Turbot	0.50	0.00	0.43	0.94	--	--	--	--	--	--	--	--	--	--	--	--
Flatfish Unid	0.01	0.00	2.06	2.06	--	--	--	--	--	--	--	--	--	--	--	--
Flathead Sole	2.72	0.09	4.52	7.33	--	--	0.01	0.01	--	--	--	--	--	--	--	--
Pacific Sanddab	68.95	1.78	144.69	215.41	0.00	--	0.01	0.01	--	--	--	--	--	--	--	--
Rex Sole	25.44	0.80	348.17	374.40	--	--	1.15	1.15	--	--	--	--	0.01	--	0.00	0.01
Rock Sole	0.24	0.01	4.73	4.97	--	--	0.00	0.00	--	--	--	--	--	--	--	--
Roughscale Sole	0.00	0.00	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Sanddab Unid	1.32	0.01	2.14	3.47	--	--	--	--	--	--	--	--	--	--	--	--
Sand Sole	0.73	0.02	69.95	70.70	--	--	--	--	--	--	--	--	--	--	--	--
Other groundfish																
Big Skate	39.59	1.50	6.60	47.69	0.00	--	--	0.00	0.03	--	--	0.03	--	--	--	--
California Skate	0.89	0.04	1.17	2.11	--	--	--	--	--	--	--	--	--	--	--	--
Cod Unid	0.00	0.00	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Grenadier Unid	--	--	70.21	70.21	--	--	--	--	--	--	--	--	--	--	0.01	0.01
Groundfish Unid	--	--	0.04	0.04	--	--	--	--	--	--	--	--	--	--	--	--
Kelp Greenling	0.08	0.00	0.06	0.15	--	--	--	--	--	--	--	--	--	--	--	--
Leopard Shark	0.26	0.00	--	0.26	--	--	--	--	--	--	--	--	--	--	--	--
Pacific Flatnose	1.56	0.04	--	1.60	--	--	--	--	0.08	--	--	0.08	0.07	0.00	--	0.07
Pacific Grenadier	36.00	0.85	14.32	51.17	--	--	--	--	2.70	--	--	2.70	2.00	0.00	--	2.00
Ray Unid	0.01	0.00	--	0.01	--	--	--	--	--	--	--	--	--	--	--	--
Roundfish Unid	0.00	0.00	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Skate Unid	2.10	0.07	228.69	230.85	--	--	0.12	0.12	--	--	0.02	0.02	0.00	--	--	0.00
Southern Shark	0.52	0.02	0.08	0.62	--	--	--	--	--	--	--	--	--	--	--	--
Spotted Ratfish	75.39	2.99	0.61	78.99	0.16	--	0.04	0.21	0.12	--	--	0.12	0.01	0.00	--	0.01
Pacific Cod	0.68	0.02	394.96	395.66	--	--	0.21	0.21	--	--	--	--	--	--	--	--
Pacific Hake	222.62	7.87	18.45	248.94	--	--	0.68	0.68	0.00	--	--	0.00	0.00	--	--	0.00
Sablefish (North of 36° N. lat.)	7.54	0.17	1402.18	1406.04	--	--	1.62	1.62	8.56	--	203.35	205.06	10.42	--	519.63	521.72
50% discard mortality (Trawl) [‡]	3.77	0.09														
20% discard mortality (Fixed Gear) [‡]									1.71				2.08			
Sablefish (South of 36° N. lat.)	0.00	--	22.67	22.68	--	--	--	--	0.04	--	1.93	1.94	1.87	--	197.65	198.02
50% discard mortality (Trawl) [‡]	0.00															
20% discard mortality (Fixed Gear) [‡]									0.01				0.37			
Shortbelly Rockfish	5.18	0.26	0.04	5.48	--	--	--	--	--	--	--	--	--	--	--	--
Shortspine Thornyhead (North of 34°27' N. lat.)	5.38	0.23	681.32	686.92	--	--	1.12	1.12	0.58	--	11.36	11.94	0.33	--	0.86	1.19
Shortspine Thornyhead (South of 34°27' N. lat.)	--	--	0.59	0.59	--	--	--	--	--	--	--	--	0.03	--	0.33	0.36
Spiny Dogfish	276.65	11.54	51.85	340.04	0.00	--	0.21	0.21	57.50	--	--	28.75	0.11	0.00	--	0.05
50% discard mortality (Fixed Gear) [‡]									28.75				0.05	0.00		
Splitnose rockfish (South of 40°10' N. lat.)	40.28	0.11	19.48	59.87	--	--	--	--	--	--	--	--	--	--	--	--
Starry Flounder	0.28	0.01	8.05	8.34	--	--	--	--	--	--	--	--	--	--	--	--
Widow Rockfish	0.01	0.00	34.26	34.27	--	--	10.88	10.88	--	--	--	--	--	--	--	--
Yellowtail rockfish (North of 40°10' N. lat.)	0.21	0.01	389.23	389.45	0.00	--	185.62	185.62	0.01	--	--	0.01	--	--	--	--

[‡]Discard mortality rates provided by the Groundfish Management Team (GMT).

Table 3a. Non-hake IFQ sectors and LE California halibut (continued).

	IFQ - Bottom and LE CHLB Trawl				IFQ - Midwater Trawl				IFQ - Hook-and-Line				IFQ - Pot			
	Sampled Discard	Expanded Discard	Landed	Estimate	Sampled Discard	Expanded Discard	Landed	Estimate	Sampled Discard	Expanded Discard	Landed	Estimate	Sampled Discard	Expanded Discard	Landed	Estimate
Weight (mt)																
Non-groundfish species																
California Halibut	0.01	0.00	18.78	18.78	--	--	--	--	--	--	--	--	--	--	--	--
Dungeness Crab	188.31	8.09	0.04	196.44	0.07	--	--	0.07	--	--	--	--	0.56	0.00	--	0.56
Non-FMP flatfish																
Deepsea Sole	14.24	0.35	1.70	16.29	--	--	--	--	--	--	--	--	0.02	0.00	--	0.02
Diamond Turbot	0.11	0.01	--	0.11	--	--	--	--	--	--	--	--	--	--	--	--
Hornyhead Turbot	0.02	0.00	--	0.02	--	--	--	--	--	--	--	--	--	--	--	--
Slender Sole	35.57	1.48	0.17	37.22	--	--	--	--	--	--	--	--	--	--	--	--
Speckled Sanddab	0.00	0.00	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Non-FMP skate																
Aleutian Skate	2.20	0.11	--	2.31	--	--	--	--	0.03	--	--	0.03	--	--	--	--
Bering Skate	0.00	0.00	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Black Skate	17.92	0.49	0.01	18.42	--	--	--	--	1.01	--	--	1.01	0.00	0.00	--	0.00
Deepsea Skate	0.32	0.01	--	0.33	--	--	--	--	--	--	--	--	--	--	--	--
Pacific Electric Ray	1.07	0.03	--	1.10	--	--	--	--	--	--	--	--	--	--	--	--
Sandpaper Skate	38.13	1.54	0.04	39.71	0.01	--	--	0.01	0.18	--	--	0.18	0.00	--	--	0.00
Shovelnose Guitarfish	0.00	0.00	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
Starry Skate	0.12	0.01	--	0.12	--	--	--	--	--	--	--	--	--	--	--	--
Thornback Skate	0.00	0.00	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--
White Skate	0.42	0.01	--	0.43	--	--	--	--	--	--	--	--	--	--	--	--

Table 3b. Hake IFQ/Coop sectors. Retained catch/landings (mt), discard (mt), and fishing mortality estimates (mt) of groundfish species from hake IFQ/Coop sectors in 2012. In shoreside hake, discard ratios (Table 2) were multiplied by expansion factors to generate estimated discard, sampled discard was expanded to the haul level and summed by sector, and landings were summarized from PacFIN. At-sea hake Coop Program data was summarized from the A-SHOP.

Weight (mt)	IFQ - Shoreside Hake				At-sea Catcher-Processors			At-sea Mothership		
	Sampled Discard	Expanded Discard	Landed	Estimate	Sampled Discard	Retained	Estimate	Sampled Discard	Retained	Estimate
Rebuilding species										
Canary Rockfish	0.00	--	2.14	2.14	0.14	0.13	0.27	0.13	0.02	0.15
Darkblotched Rockfish	0.03	--	4.30	4.33	0.43	1.01	1.44	0.70	0.56	1.26
Pacific Ocean Perch (North of 40°10' N. lat.)	0.03	--	12.33	12.36	1.85	1.30	3.16	0.34	1.03	1.37
Petrale Sole	--	--	0.00	0.00	--	--	--	--	--	--
Other groundfish species										
Arrowtooth Flounder	--	--	24.82	24.82	1.06	1.49	2.55	0.89	1.19	2.09
Dover Sole	--	--	0.60	0.60	0.09	0.20	0.29	0.02	0.01	0.03
English Sole	--	--	0.02	0.02	0.00	0.01	0.01	0.00	--	0.00
Lingcod (North of 42° N. lat.)	--	--	3.74	3.74	--	0.01	0.01	0.07	0.10	0.17
Longnose Skate	--	--	0.24	0.24	0.03	--	0.03	0.03	--	0.03
Longspine Thornyhead (North of 34°27' N. lat.)	--	--	0.05	0.05	0.00	--	0.00	--	--	--
Minor shelf rockfish (North of 40°10' N. lat.)										
Bocaccio Rockfish	--	--	0.13	0.13	0.03	0.04	0.08	0.03	0.01	0.04
Chilipepper Rockfish	--	--	0.01	0.01	--	0.01	0.01	0.00	0.00	0.01
Greenspotted Rockfish	--	--	0.00	0.00	--	--	--	--	--	--
Greenstriped Rockfish	--	--	0.05	0.05	--	--	--	--	--	--
Harlequin Rockfish	--	--	--	--	--	0.00	0.00	--	--	--
Redstripe Rockfish	--	--	0.04	0.04	0.00	0.03	0.03	0.02	0.01	0.03
Rosethorn Rockfish	--	--	0.00	0.00	--	0.00	0.00	--	--	--
Shelf Rockfish Unid	--	--	0.01	0.01	--	0.00	0.00	--	--	--
Silvergray Rockfish	--	--	0.57	0.57	0.23	0.43	0.65	0.05	0.07	0.13
Stripetail Rockfish	--	--	--	--	--	--	--	0.00	--	0.00
Minor slope rockfish (North of 40°10' N. lat.)										
Aurora Rockfish	--	--	0.46	0.46	0.00	0.00	0.01	0.01	--	0.01
Bank Rockfish	--	--	--	--	0.00	0.01	0.01	--	0.01	0.01
Blackgill Rockfish	--	--	0.23	0.23	0.01	0.01	0.03	--	0.00	0.00
Redbanded Rockfish	--	--	0.83	0.83	0.00	0.00	0.00	0.00	--	0.00
Rougheye Rockfish	0.01	--	47.07	47.08	22.85	19.59	42.44	1.30	10.29	11.59
Sharpchin Rockfish	--	--	0.66	0.66	--	--	--	0.00	0.00	0.00
Shortraker Rockfish	--	--	5.63	5.63	0.07	0.60	0.68	--	0.01	0.01
Shortraker/Rougheye Rockfish	--	--	--	--	0.00	--	0.00	--	--	--
Slope Rockfish Unid	--	--	0.09	0.09	0.00	--	0.00	--	--	--
Splitnose Rockfish	0.23	--	16.21	16.44	0.47	9.23	9.70	2.85	7.93	10.78
Yellowmouth Rockfish	--	--	0.52	0.52	0.20	0.01	0.21	--	0.04	0.04
Other flatfish										
Flatfish Unid	--	--	0.00	0.00	--	0.00	0.00	0.00	0.00	0.01
Rex Sole	--	--	4.39	4.39	0.59	2.03	2.62	0.15	0.14	0.29
Rock Sole	--	--	0.00	0.00	--	--	--	--	--	--
Other groundfish										
Big Skate	--	--	--	--	0.09	--	0.09	0.01	--	0.01
Grenadier Unid	--	--	0.01	0.01	--	0.00	0.00	0.01	--	0.01
Groundfish Unid	--	--	1.36	1.36	--	--	--	--	--	--
Pacific Electric Ray	--	--	--	--	0.03	--	0.03	0.03	--	0.03
Roundfish Unid	--	--	--	--	0.05	0.00	0.05	0.00	--	0.00
Skate Unid	--	--	0.07	0.07	0.00	--	0.00	--	--	--
Soupin Shark	0.13	0.01	0.51	0.64	--	0.02	0.02	0.07	--	0.07
Spotted Ratfish	--	--	0.00	0.00	--	--	--	--	--	--
Pacific Cod	--	--	0.04	0.04	0.01	0.00	0.02	0.01	--	0.01
Pacific Hake	127.92	--	65288.38	65416.31	145.51	55549.05	55694.56	155.20	38060.27	38215.47
Sablefish (North of 36° N. lat.)	--	--	47.21	47.21	0.12	4.11	4.23	0.61	0.27	0.88
Shortbelly Rockfish	--	--	0.08	0.08	0.00	0.02	0.02	0.17	0.10	0.27
Shortspine Thornyhead (North of 34°27' N. lat.)	--	--	8.32	8.32	0.87	0.36	1.23	0.35	0.16	0.51
Spiny Dogfish	0.44	0.02	159.64	160.10	110.15	38.19	148.34	22.56	6.90	29.46
Widow Rockfish	0.05	--	107.36	107.41	15.05	26.94	42.00	26.20	11.14	37.34
Yellowtail rockfish (North of 40°10' N. lat.)	0.03	--	388.21	388.24	25.35	6.65	32.00	6.25	4.75	11.00
Non-groundfish species										
Dungeness Crab	0.00	0.00	0.00	0.00	--	--	--	--	--	--
Non-FMP flatfish										
Slender Sole	--	--	--	--	--	0.00	0.00	0.00	0.02	0.02

Table 4. Observed discard ratios, standard error, estimated discard (mt), landings (mt), and fishing mortality estimates (mt) of groundfish species from federal open access participants in the state-licensed California halibut fishery in 2012 (only occurs south of 40°10' N latitude). Ratios are computed as the observed discard weight divided by the observed weight of retained California halibut (adjusted to fish tickets). Discard ratios were multiplied by fleet landings of California halibut to generate estimated discard.

Open Access California Halibut Fishery South of 40°10' N Lat.	Observed vessels	Observed trips	Observed tows	Expansion factor: Fleet landings of California halibut (mt)	
	7	27	77	56.3	
	Discard Ratio	SE	Discard	Landed	Total Estimate
Rebuilding species					
Canary rockfish	--	--	--	0.00	0.00
Petrale sole	0.0027	0.0593	0.15	0.23	0.38
Other groundfish species					
Arrowtooth flounder	--	--	--	0.04	0.04
Black rockfish (South of 46°16' N. lat.)	--	--	--	0.00	0.00
California scorpionfish (South of 34°27' N. lat.)	--	--	--	0.00	0.00
English sole	0.0155	0.1392	0.87	0.23	1.10
Lingcod (South of 42° N. lat.)	--	--	--	0.01	0.01
50% discard mortality (Trawl) [‡]			--		
Longnose skate	0.0008	0.1657	0.05	--	0.02
50% discard mortality (Trawl) [‡]			0.02		
Minor nearshore rockfish (South of 40°10' N. lat.)					
Brown Rockfish	--	--	--	0.01	0.01
Copper Rockfish	--	--	--	0.00	0.00
Minor shelf rockfish (South of 40°10' N. lat.)					
Vermilion Rockfish	--	--	--	0.00	0.00
Other flatfish					
Butter Sole	--	--	--	0.00	0.00
Curlfin Turbot	0.0102	0.0909	0.58	0.00	0.58
Flatfish Unid	--	--	--	0.45	0.45
Pacific Sanddab	0.0134	0.1908	0.75	0.04	0.80
Rex Sole	0.0001	--	0.01	--	0.01
Rock Sole	0.00	0.0195	0.00	0.14	0.14
Sanddab Unid	--	--	--	0.00	0.00
Sand Sole	0.0004	0.0024	0.02	10.23	10.26
Other groundfish					
Big Skate	0.3598	0.5777	20.25	--	20.25
California Skate	0.0082	0.3574	0.46	--	0.46
Leopard Shark	--	--	--	0.05	0.05
Skate Unid	--	--	--	0.68	0.68
Southern Shark	--	--	--	0.11	0.11
Pacific cod	0.0000	--	0.00	--	0.00
Spiny dogfish	0.03	0.2162	1.83	--	1.83
Starry flounder	0.0150	0.0470	0.84	3.72	4.57
Non-groundfish species					
California Halibut	0.0061	0.0196	0.34	56.30	56.64
Dungeness Crab	2.6828	5.1052	151.03	--	151.03
Non-FMP flatfish					
Deepsea Sole	--	--	--	0.22	0.22
Fantail Sole	0.0024	0.1979	0.13	0.01	0.14
Hornyhead Turbot	0.0028	0.1214	0.16	0.12	0.28
Non-FMP skate					
Pacific Electric Ray	0.0053	0.2614	0.30	--	0.30
Sandpaper Skate	0.0000	--	0.00	--	0.00
Shovelnose Guitarfish	0.0011	--	0.06	--	0.06
Thornback Skate	0.0048	0.3649	0.27	--	0.27

[‡]Mortality rates provided by the Groundfish Management Team (GMT).

Table 5. Observed discard ratios, standard error, estimated discard (mt), landings (mt), and fishing mortality estimates (mt) of groundfish species from 2012 state pink shrimp fisheries. Ratios are computed as the observed discard weight divided by the observed weight of retained pink shrimp (adjusted to fish tickets). Discard ratios were multiplied by state fleet landings of pink shrimp to generate estimated discard.

Pink Shrimp Trawl Fishery	Washington					Oregon					California				
	Observed vessels	Observed trips	Observed tows	Expansion factor: Fleet landings of pink shrimp (mt)		Observed vessels	Observed trips	Observed tows	Expansion factor: Fleet landings of pink shrimp (mt)		Observed vessels	Observed trips	Observed tows	Expansion factor: Fleet landings of pink shrimp (mt)	
	10	31	516	4,242		52	154	2046	22,292		7	15	169	2,791	
	Discard Ratio	SE	Discard	Landed	Estimate	Discard Ratio	SE	Discard	Landed	Estimate	Discard Ratio	SE	Discard	Landed	Estimate
Rebuilding species															
Bocaccio rockfish (South of 40°10' N. lat.)	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	0.01
Canary rockfish	--	--	--	--	--	0.0000	--	0.01	0.01	0.02	--	--	--	--	--
Darkblotched rockfish	0.0004	0.0007	1.58	--	1.58	0.0001	0.0002	2.67	0.00	2.67	0.0003	0.0008	0.71	--	0.71
Pacific Ocean Perch (North of 40°10' N. lat.)	0.0000	0.0003	0.05	--	0.05	0.0000	0.0003	0.14	0.05	0.19	--	--	--	--	--
Petrale sole	0.0000	0.0018	0.08	--	0.08	0.0000	0.0014	0.49	0.11	0.60	0.0001	0.0138	0.32	0.15	0.47
Yelloweye rockfish	0.0000	--	0.00	--	0.00	0.0000	--	0.00	--	0.00	--	--	--	--	--
Other groundfish species															
Arrowtooth flounder	0.0006	0.0032	2.49	--	2.49	0.0002	0.0008	3.71	0.05	3.76	0.0001	0.0011	0.22	--	0.22
Cabazon (California)	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	0.01
California scorpionfish (South of 34°27' N. lat.)	--	--	--	--	--	--	--	--	--	--	--	--	--	0.36	0.36
Dover sole	0.0001	0.0011	0.46	--	0.46	0.0000	0.0007	1.06	0.61	1.67	0.0000	--	0.00	0.18	0.18
English sole	0.0000	--	0.00	--	0.00	0.0000	0.0007	0.05	--	0.05	0.0000	0.0008	0.02	0.55	0.57
Lingcod (North of 42° N. lat.)	0.0001	0.1163	0.53	--	0.53	0.0000	--	0.00	--	0.00	--	--	--	--	--
Lingcod (South of 42° N. lat.)	--	--	--	--	--	--	--	--	--	--	0.0000	0.0009	0.01	0.01	0.02
Longnose skate	0.0001	0.0261	0.41	--	0.41	0.0000	0.0010	0.11	0.09	0.21	0.0000	0.0006	0.03	--	0.03
Longspine thornyhead (North of 34°27' N. lat.)	--	--	--	--	--	0.0000	--	0.00	0.02	0.02	--	--	--	--	--
Minor nearshore rockfish (South of 40°10' N. lat.)															
Copper Rockfish	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	0.01
Minor shelf rockfish (North of 40°10' N. lat.)															
Bocaccio Rockfish	--	--	--	--	--	0.0000	--	0.02	--	0.02	--	--	--	--	--
Chilipepper Rockfish	--	--	--	--	--	0.0000	0.0007	0.05	--	0.05	0.0003	0.0134	0.96	--	0.96
Greenstriped Rockfish	0.0000	0.0006	0.13	--	0.13	0.0000	0.0006	0.38	--	0.38	0.0000	0.0001	0.04	--	0.04
Halfbanded Rockfish	--	--	--	--	--	0.0000	0.0003	0.00	--	0.00	--	--	--	--	--
Harlequin Rockfish	--	--	--	--	--	0.0000	--	0.00	--	0.00	--	--	--	--	--
Pygmy Rockfish	--	--	--	--	--	0.0000	0.0001	0.00	--	0.00	--	--	--	--	--
Redstripe Rockfish	--	--	--	--	--	0.0000	--	0.00	--	0.00	--	--	--	--	--
Shelf Rockfish Unid	0.0007	0.7261	3.07	--	3.07	0.0001	0.0007	1.59	--	1.59	0.0004	0.0137	1.12	--	1.12
Stripetail Rockfish	--	--	--	--	--	0.0000	0.0013	0.68	--	0.68	--	--	--	--	--
Minor slope rockfish (North of 40°10' N. lat.)															
Aurora Rockfish	0.0000	0.0038	0.06	--	0.06	0.0000	0.0008	0.07	--	0.07	--	--	--	--	--
Blackgill Rockfish	--	--	--	--	--	0.0000	--	0.00	--	0.00	--	--	--	--	--
Redbanded Rockfish	0.0000	0.0001	0.00	--	0.00	0.0000	0.0001	0.01	--	0.01	--	--	--	--	--
Rougheye Rockfish	0.0000	0.0005	0.01	--	0.01	0.0000	0.0002	0.00	--	0.00	--	--	--	--	--
Sharpchin Rockfish	--	--	--	--	--	0.0000	0.0001	0.00	--	0.00	--	--	--	--	--
Slope Rockfish Unid	--	--	--	--	--	--	--	--	0.08	0.08	--	--	--	--	--
Splitnose Rockfish	0.0000	0.0007	0.09	--	0.09	0.0000	0.0015	0.98	--	0.98	--	--	--	--	--

Table 5 (continued).

Pink Shrimp Trawl Fishery	Washington					Oregon					California				
	Observed vessels	Observed trips	Observed tows	Expansion factor: Fleet landings of pink shrimp (mt)		Observed vessels	Observed trips	Observed tows	Expansion factor: Fleet landings of pink shrimp (mt)		Observed vessels	Observed trips	Observed tows	Expansion factor: Fleet landings of pink shrimp (mt)	
	10	31	516	4,242		52	154	2046	22,292		7	15	169	2,791	
	Discard Ratio	SE	Discard	Landed	Estimate	Discard Ratio	SE	Discard	Landed	Estimate	Discard Ratio	SE	Discard	Landed	Estimate
Weight (mt)															
Mixed thornyheads															
Shortspine/Longspine Thornyhead	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00	0.00
Other flatfish															
Flatfish Unid	0.0002	0.0328	1.00	--	1.00	0.0002	0.0149	3.97	--	3.97	0.0000	0.0122	0.05	12.32	12.37
Flathead Sole	0.0004	0.0017	1.76	--	1.76	0.0000	0.0003	0.25	--	0.25	--	--	--	--	--
Pacific Sanddab	0.0000	0.0025	0.10	--	0.10	0.0001	0.0007	1.71	0.03	1.73	0.0006	0.0067	1.67	--	1.67
Rex Sole	0.0009	0.0017	4.02	--	4.02	0.0004	0.0006	9.60	0.09	9.70	0.0000	0.0003	0.07	0.27	0.35
Rock Sole	0.0001	0.0021	0.32	--	0.32	--	--	--	--	--	--	--	--	0.60	0.60
Sanddab Unid	--	--	--	--	--	0.0000	0.0059	0.08	--	0.08	--	--	--	0.02	0.02
Sand Sole	--	--	--	--	--	--	--	--	--	--	--	--	--	0.05	0.05
Other groundfish															
Big Skate	0.0000	--	0.00	--	0.00	0.0000	0.0150	0.09	--	0.09	--	--	--	--	--
California Skate	--	--	--	--	--	0.0000	0.0002	0.00	--	0.00	--	--	--	--	--
Leopard Shark	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	0.01
Skate Unid	--	--	--	--	--	0.0000	0.0001	0.00	--	0.00	--	--	--	1.19	1.19
Soupfin Shark	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	0.01
Spotted Ratfish	0.0000	0.0077	0.09	--	0.09	0.0000	0.0009	0.08	--	0.08	--	--	--	--	--
Pacific cod	--	--	--	--	--	0.0000	--	0.00	0.00	0.00	--	--	--	--	--
Pacific hake	0.0000	0.0007	0.15	--	0.15	0.0006	0.0019	12.82	--	12.82	0.0021	0.0327	5.79	--	5.79
Sablefish (North of 36° N. lat.)	0.0000	0.0004	0.00	--	0.00	0.0000	0.0004	0.00	0.13	0.14	0.0000	0.0014	0.07	--	0.07
Sablefish (South of 36° N. lat.)	--	--	--	--	--	--	--	--	--	--	--	--	--	0.12	0.12
Shortbelly rockfish	--	--	--	--	--	0.0000	0.0045	0.28	--	0.28	0.0000	0.0005	0.09	--	0.09
Shortspine Thornyhead (North of 34°27' N. lat.)	0.0000	0.0059	0.01	--	0.01	0.0000	0.0002	0.10	0.12	0.22	--	--	--	--	--
Spiny dogfish	0.0001	0.0933	0.53	--	0.53	0.0000	0.0007	0.06	--	0.06	0.0001	0.0017	0.31	0.01	0.31
Starry flounder	--	--	--	--	--	0.0000	--	0.01	--	0.01	--	--	--	--	--
Widow rockfish	0.0000	--	0.00	--	0.00	0.0000	0.0355	0.12	0.00	0.12	--	--	--	--	--
Yellowtail rockfish (North of 40°10' N. lat.)	0.0001	0.0885	0.54	--	0.54	0.0000	--	0.61	0.00	0.61	--	--	--	--	--
Non-groundfish species															
California Halibut	--	--	--	--	--	--	--	--	--	--	--	--	--	8.41	8.41
Dungeness Crab	--	--	--	--	--	0.0000	0.0028	0.04	--	0.04	0.0000	--	0.01	0.00	0.01
Non-FMP flatfish															
Hornyhead Turbot	--	--	--	--	--	--	--	--	--	--	--	--	--	2.51	2.51
Slender Sole	0.0048	0.0059	20.19	--	20.19	0.0033	0.0019	72.65	--	72.65	0.0002	0.0007	0.68	--	0.68
Speckled Sanddab	--	--	--	--	--	0.0000	0.0027	0.01	--	0.01	--	--	--	--	--
Non-FMP skate															
Sandpaper Skate	0.0000	0.0000	0.00	--	0.00	0.0000	0.0002	0.01	--	0.01	--	--	--	--	--
Starry Skate	--	--	--	--	--	0.0000	--	0.00	--	0.00	--	--	--	--	--

Table 6. Observed discard ratios, standard error, estimated discard (mt), landings (mt), and fishing mortality estimates (mt) from the LE sablefish endorsed primary season (tier endorsed) fixed gear fleet in 2012. Ratios are computed as the observed discard weight divided by the observed weight of retained sablefish (adjusted to fish tickets). Discard ratios were multiplied by fleet landings of sablefish to generate discard estimates for each gear type; combined with other fixed gear sectors in Table 9.

Limited Entry Sablefish Endorsed Primary Season	Longline					Pot				
	Observed vessels	Observed trips	Observed sets	Expansion factor: Fleet landings of sablefish (mt)		Observed vessels	Observed trips	Observed sets	Expansion factor: Fleet landings of sablefish (mt)	
	17	88	532	1,066		5	19	351	297	
	Discard Ratio	SE	Discard	Landed	Estimate	Discard Ratio	SE	Discard	Landed	Estimate
Weight (mt)										
Rebuilding species										
Bocaccio rockfish (South of 40°10' N. lat.)	--	--	--	0.03	0.03	--	--	--	--	--
Canary rockfish	0.0000	0.0090	0.03	0.02	0.04	0.0000	0.0029	0.01	--	0.01
Darkblotched rockfish	0.0014	0.0284	1.49	5.26	6.75	0.0000	0.0003	0.00	0.04	0.04
Pacific Ocean Perch (North of 40°10' N. lat.)	0.0000	0.0027	0.03	0.27	0.30	--	--	--	0.04	0.04
Petrale sole	0.0000	0.0050	0.05	0.48	0.53	0.0000	0.0040	0.00	--	0.00
Yelloweye rockfish	0.0002	0.0374	0.23	--	0.23	--	--	--	--	--
Other groundfish species										
Arrowtooth Flounder	0.0306	0.1167	32.61	2.44	35.05	0.0003	0.0028	0.08	0.07	0.15
Chilipepper Rockfish (South of 40°10' N. lat.)	0.0000	0.0117	0.01	0.14	0.15	--	--	--	--	--
Dover Sole	0.0028	0.0211	2.96	1.58	4.55	0.0030	0.0090	0.89	0.22	1.11
English Sole	0.0000	0.0103	0.02	0.28	0.30	--	--	--	--	--
Lingcod (North of 42° N. lat.)	0.0012	0.0276	1.29	4.18	5.46	0.0002	0.0219	0.05	0.56	0.61
Lingcod (South of 42° N. lat.)	0.0000	0.0111	0.05	1.14	1.19	0.0047	0.3566	1.40	0.78	2.18
Longnose Skate	0.0441	0.0855	47.02	20.89	44.39	--	--	--	0.69	0.69
50% discard mortality (Fixed Gear) [‡]			23.51							
Longspine Thornyhead (North of 34°27' N. lat.)	0.0000	0.0036	0.05	0.72	0.77	0.0001	0.0008	0.02	0.00	0.02
Minor shelf rockfish (North of 40°10' N. lat.)										
Bocaccio Rockfish	0.0000	0.0120	0.04	0.01	0.04	--	--	--	--	--
Chilipepper Rockfish	--	--	--	0.03	0.03	--	--	--	--	--
Greenspotted Rockfish	--	--	--	0.00	0.00	--	--	--	--	--
Greenstriped Rockfish	0.0001	0.0095	0.14	0.05	0.20	--	--	--	--	--
Rosethorn Rockfish	0.0003	0.0062	0.30	0.49	0.79	0.0000	0.0014	0.01	0.00	0.01
Rosy Rockfish	0.0000	0.0054	0.05	--	0.05	--	--	--	--	--
Shelf Rockfish Unid	0.0000	0.0038	0.01	0.16	0.17	--	--	--	0.00	0.00
Silvergray Rockfish	0.0000	0.0054	0.01	0.04	0.04	--	--	--	--	--
Stripetail Rockfish	0.0000	0.0024	0.01	0.00	0.01	--	--	--	--	--
Minor shelf rockfish (South of 40°10' N. lat.)										
Flag Rockfish	--	--	--	0.05	0.05	--	--	--	--	--
Rosy Rockfish	0.0000	0.0047	0.00	--	0.00	--	--	--	--	--
Shelf Rockfish Unid	--	--	--	0.02	0.02	--	--	--	--	--
Swordspine Rockfish	0.0000	0.0691	0.04	--	0.04	--	--	--	--	--
Minor slope rockfish (North of 40°10' N. lat.)										
Aurora Rockfish	0.0001	0.0147	0.13	0.05	0.18	--	--	--	0.00	0.00
Bank Rockfish	--	--	--	0.01	0.01	--	--	--	--	--
Blackgill Rockfish	0.0016	0.1102	1.74	1.19	2.93	0.0000	0.0007	0.00	0.03	0.03
Blackspotted Rockfish	--	--	--	0.15	0.15	--	--	--	--	--
Redbanded Rockfish	0.0066	0.0418	7.05	10.50	17.55	0.0000	0.0008	0.01	0.09	0.09
Rougheye Rockfish	0.0150	0.1703	15.94	30.61	46.55	--	--	--	0.06	0.06
Sharpchin Rockfish	--	--	--	0.01	0.01	--	--	--	--	--
Shortraker Rockfish	0.0029	0.1205	3.13	2.99	6.12	--	--	--	--	--
Shortraker/Rougheye Rockfish	0.0340	0.7760	36.24	--	36.24	--	--	--	--	--
Slope Rockfish Unid	0.0000	0.0189	0.03	3.32	3.35	--	--	--	2.16	2.16
Splitnose Rockfish	0.0000	0.0031	0.01	0.12	0.13	0.0000	0.0010	0.00	--	0.00
Yellowmouth Rockfish	--	--	--	1.19	1.19	--	--	--	--	--
Minor slope rockfish (South of 40°10' N. lat.)										
Aurora Rockfish	0.0001	0.0229	0.08	0.03	0.11	--	--	--	--	--
Blackgill Rockfish	0.0059	0.5185	6.26	3.61	9.87	--	--	--	0.03	0.03
Blackspotted Rockfish	--	--	--	7.13	7.13	--	--	--	--	--
Redbanded Rockfish	0.0008	0.1863	0.88	--	0.88	--	--	--	--	--
Rougheye Rockfish	0.0002	0.0344	0.17	--	0.17	--	--	--	--	--
Slope Rockfish Unid	--	--	--	0.94	0.94	--	--	--	1.88	1.88
Mixed thornyheads	0.0000	0.0011	0.00	0.16	0.16	--	--	--	--	--
Other flatfish										
Flatfish Unid	--	--	--	--	--	0.0000	0.0011	0.00	--	0.00
Rex Sole	--	--	--	0.32	0.32	0.0000	0.0019	0.00	--	0.00
Sand Sole	--	--	--	0.22	0.22	--	--	--	--	--

[‡]Mortality rates provided by the Groundfish Management Team (GMT).

Table 6 (continued).

Limited Entry Sablefish Endorsed Primary Season	Longline					Pot				
	Observed vessels	Observed trips	Observed sets	Expansion factor: Fleet landings of sablefish (mt)		Observed vessels	Observed trips	Observed sets	Expansion factor: Fleet landings of sablefish (mt)	
	17	88	532	1,066		5	19	351	297	
	Discard Ratio	SE	Discard	Landed	Estimate	Discard Ratio	SE	Discard	Landed	Estimate
Weight (mt)										
Other groundfish								--	--	--
Big Skate	0.0022	0.3527	2.38	--	2.38	--	--	--	--	--
California Skate	0.0000	0.0015	0.00	--	0.00	--	--	--	--	--
Grenadier Unid	--	--	--	6.87	6.87	--	--	--	0.00	0.00
Pacific Flatnose	0.0000	0.0022	0.02	--	0.02	0.0001	0.0109	0.02	--	0.02
Pacific Grenadier	0.0049	1.0493	5.22	--	5.22	0.0032	0.0111	0.96	--	0.96
Rockfish Unid	--	--	--	0.01	0.01	--	--	--	--	--
Skate Unid	--	--	--	2.55	2.55	0.0000	0.0006	0.00	--	0.00
Spotted Ratfish	0.0030	0.0188	3.21	0.01	3.22	--	--	--	--	--
Pacific Cod	0.0002	0.0277	0.20	1.03	1.23	--	--	--	0.00	0.00
Pacific Hake	0.0009	0.0494	0.94	--	0.94	--	--	--	--	--
Sablefish (North of 36° N. lat.)	0.3916	0.1259	424.82	1030.22	1115.18	0.4317	0.2510	128.17	269.61	295.25
20% discard mortality (Fixed Gear) [†]			84.96					25.63		
Sablefish (South of 36° N. lat.)	--	--	--	35.88	35.88	--	--	--	27.25	27.25
Shortspine Thornyhead (North of 34°27' N. lat.)	0.0039	0.0076	4.14	25.04	29.18	0.0001	0.0015	0.02	0.42	0.44
Shortspine Thornyhead (South of 34°27' N. lat.)	--	--	--	0.89	0.89	--	--	--	--	--
Spiny Dogfish	0.1314	0.3603	140.09	0.41	70.45	0.0002	0.0287	0.06	--	0.03
50% discard mortality (Fixed Gear) [†]			70.04					0.03		
Splitnose Rockfish (South of 40°10' N. lat.)	--	--	--	0.00	0.00	--	--	--	0.00	0.00
Starry Flounder	--	--	--	0.02	0.02	--	--	--	--	--
Widow Rockfish	0.0000	0.0066	0.00	0.08	0.08	--	--	--	--	--
Yellowtail Rockfish (North of 40°10' N. lat.)	0.0001	0.0187	0.16	0.38	0.53	--	--	--	0.00	0.00
Non-groundfish species										
Dungeness Crab	0.0000	0.0058	0.02	--	0.02	0.0006	0.0140	0.17	0.17	0.34
Non-FMP flatfish										
Deepsea Sole	--	--	--	--	--	0.0000	0.0027	0.01	--	0.01
Non-FMP skate										
Aleutian Skate	0.0003	0.1403	0.29	--	0.29	--	--	--	--	--
Black Skate	0.0002	0.0513	0.24	--	0.24	--	--	--	--	--
Sandpaper Skate	0.0012	0.0151	1.25	--	1.25	--	--	--	--	--
Starry Skate	0.0000	0.0019	0.01	--	0.01	--	--	--	--	--

[†]Mortality rates provided by the Groundfish Management Team (GMT).

Table 7. Observed discard ratios, standard error, estimated discard (mt), landings (mt), and fishing mortality estimates (mt) from the LE non-endorsed fixed gear fleet in 2012. Ratios are computed as the observed discard weight divided by the observed weight of retained sablefish (north of 36° N lat.) or FMP groundfish (south of 36° N lat. and pot gear) (adjusted to fish tickets). Discard ratios were multiplied by fleet landings of sablefish or FMP groundfish to generate discard estimates for each gear type; combined with fixed gear sectors in Table 9.

Limited Entry Non-Endorsed Fixed Gear	Longline - North of 36° N lat.						Longline - South of 36° N lat.						Pot - Coastwide				
	Observed vessels	Observed trips	Observed sets	Expansion factor: Fleet landings of sablefish (mt)			Observed vessels	Observed trips	Observed sets	Expansion factor: Fleet landings of groundfish (mt)			OA Observed (see Table 8b)	Expansion factor: Fleet landings of groundfish (mt)			
	9	23	29	196.6			17	105	223	542.1				8.6			
	Discard Ratio	SE	Discard	Landed	Estimate		Discard Ratio	SE	Discard	Landed	Estimate		Discard Ratio	SE	Discard	Landed	Estimate
Rebuilding species																	
Bocaccio Rockfish (South of 40°10' N. lat.)	--	--	--	0.10	0.10		--	--	--	0.67	0.67		--	--	--	--	--
Darkblotched Rockfish	--	--	--	1.34	1.34		--	--	--	0.10	0.10		--	--	--	--	--
Pacific Ocean Perch (North of 40°10' N. lat.)	--	--	--	0.03	0.03		--	--	--	--	--		--	--	--	--	--
Petrale Sole	--	--	--	0.06	0.06		--	--	--	0.13	0.13		--	--	--	--	--
Other groundfish species																	
Arrowtooth Flounder	0.0033	0.0253	0.64	0.32	0.97		--	--	--	--	--		0.0105	0.0865	0.09	--	0.09
Chilipepper Rockfish (South of 40°10' N. lat.)	--	--	--	0.44	0.44		--	--	--	0.20	0.20		--	--	--	--	--
Dover Sole	0.0017	0.0214	0.34	0.59	0.94		0.0036	0.0229	1.94	0.39	2.33		0.0016	0.0051	0.01	0.02	0.03
Lingcod (North of 42° N. lat.)	0.0032	0.1247	0.62	0.33	0.95		--	--	--	--	--		--	--	--	0.05	0.05
Lingcod (South of 42° N. lat.)	--	--	--	0.20	0.20		--	--	--	0.10	0.10		--	--	--	--	--
Longnose Skate	0.0209	0.0659	4.12	7.01	9.07		0.0062	0.1258	3.36	1.52	3.20		--	--	--	--	--
50% discard mortality (Fixed Gear) [†]			2.06						1.68								
Longspine Thornyhead (North of 34°27' N. lat.)	0.0001	0.0067	0.02	0.66	0.67		0.0053	0.3238	2.90	1.33	4.23		--	--	--	0.00	0.00
Longspine Thornyhead (South of 34°27' N. lat.)	--	--	--	--	--		0.0049	0.0042	2.63	12.37	15.00		--	--	--	--	--
Minor shelf rockfish (North of 40°10' N. lat.)	--	--	--	0.03	0.03		--	--	--	--	--		--	--	--	--	--
Greenstriped Rockfish	--	--	--	0.03	0.03		--	--	--	--	--		--	--	--	--	--
Rosethorn Rockfish	0.0000	0.0069	0.01	0.01	0.02		--	--	--	--	--		--	--	--	--	--
Shelf Rockfish Unid	--	--	--	0.07	0.07		--	--	--	--	--		--	--	--	--	--
Silvergray Rockfish	--	--	--	0.00	0.00		--	--	--	--	--		--	--	--	--	--
Stripetail Rockfish	--	--	--	0.00	0.00		--	--	--	--	--		--	--	--	--	--
Minor shelf rockfish (South of 40°10' N. lat.)	--	--	--	--	--		0.0002	0.0403	0.10	0.00	0.10		--	--	--	--	--
Bronzespotted Rockfish	--	--	--	--	--		--	--	--	0.01	0.01		--	--	--	--	--
Flag Rockfish	--	--	--	--	--		--	--	--	0.08	0.08		--	--	--	--	--
Greenblotched Rockfish	--	--	--	--	--		0.0001	0.0618	0.04	0.20	0.23		--	--	--	--	--
Greenspotted Rockfish	--	--	--	--	--		--	--	--	0.00	0.00		--	--	--	--	--
Greenstriped Rockfish	--	--	--	--	--		--	--	--	0.00	0.00		--	--	--	--	--
Mexican Rockfish	--	--	--	--	--		--	--	--	0.00	0.00		--	--	--	--	--
Pink Rockfish	--	--	--	--	--		0.0014	0.4286	0.76	--	0.76		--	--	--	--	--
Pinkrose Rockfish	--	--	--	--	--		--	--	--	0.00	0.00		--	--	--	--	--
Rosethorn Rockfish	--	--	--	--	--		0.0003	0.0140	0.16	0.23	0.39		--	--	--	--	--
Rosy Rockfish	--	--	--	--	--		--	--	--	0.03	0.03		--	--	--	--	--
Shelf Rockfish Unid	--	--	--	0.01	0.01		--	--	--	0.00	0.00		--	--	--	--	--
Speckled Rockfish	--	--	--	--	--		--	--	--	0.09	0.09		--	--	--	--	--
Squarespot Rockfish	--	--	--	--	--		--	--	--	0.16	0.16		--	--	--	--	--
Starry Rockfish	--	--	--	--	--		--	--	--	0.10	0.10		--	--	--	--	--
Vermilion Rockfish	--	--	--	--	--		--	--	--	0.64	0.64		--	--	--	--	--
Yellowtail Rockfish	--	--	--	--	--		--	--	--	0.04	0.04		--	--	--	--	--
Minor slope rockfish (North of 40°10' N. lat.)	--	--	--	--	--		--	--	--	--	--		--	--	--	--	--
Aurora Rockfish	--	--	--	0.00	0.00		--	--	--	--	--		--	--	--	--	--
Bank Rockfish	--	--	--	0.00	0.00		--	--	--	--	--		--	--	--	--	--
Blackgill Rockfish	--	--	--	0.20	0.20		--	--	--	--	--		--	--	--	--	--
Blackspotted Rockfish	--	--	--	0.01	0.01		--	--	--	--	--		--	--	--	--	--
Redbanded Rockfish	0.0002	0.0051	0.03	2.38	2.41		--	--	--	--	--		--	--	--	--	--
Rougheye Rockfish	0.0004	0.0140	0.07	3.06	3.13		--	--	--	--	--		--	--	--	--	--
Sharpchin Rockfish	--	--	--	0.00	0.00		--	--	--	--	--		--	--	--	--	--
Shortraker Rockfish	--	--	--	0.22	0.22		--	--	--	--	--		--	--	--	--	--
Shortraker/Rougheye Rockfish	0.0006	0.0411	0.12	--	0.12		--	--	--	--	--		--	--	--	--	--
Slope Rockfish Unid	--	--	--	0.80	0.80		--	--	--	--	--		--	--	--	--	--
Splitnose Rockfish	--	--	--	0.03	0.03		--	--	--	--	--		--	--	--	--	--
Yellowmouth Rockfish	--	--	--	0.07	0.07		--	--	--	--	--		--	--	--	--	--

[†]Mortality rates provided by the Groundfish Management Team (GMT).

Table 7 (continued).

Limited Entry Non-Endorsed Fixed Gear	Longline - North of 36° N lat.					Longline - South of 36° N lat.					Pot - Coastwide				
	Observed vessels	Observed trips	Observed sets	Expansion factor: Fleet landings of sablefish (mt)		Observed vessels	Observed trips	Observed sets	Expansion factor: Fleet landings of groundfish (mt)		OA Observed (see Table 8b)	Expansion factor: Fleet landings of groundfish (mt)			
	9	23	29	196.6		17	105	223	542.1			8.6			
	Discard Ratio	SE	Discard	Landed	Estimate	Discard Ratio	SE	Discard	Landed	Estimate	Discard Ratio	SE	Discard	Landed	Estimate
Weight (mt)															
Minor slope rockfish (South of 40°10' N. lat.)															
Aurora Rockfish	--	--	--	0.00	0.00	0.0000	0.0113	0.03	0.09	0.11	--	--	--	--	--
Bank Rockfish	--	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--
Blackgill Rockfish	0.0012	0.0517	0.23	10.38	10.61	0.0037	0.2836	2.02	31.39	33.40	0.0002	0.0054	0.00	0.01	0.01
Blackspotted Rockfish	--	--	--	1.67	1.67	--	--	--	--	--	--	--	--	--	--
Redbanded Rockfish	--	--	--	0.00	0.00	--	--	--	--	--	0.0006	0.0042	0.01	--	0.01
Sharpchin Rockfish	--	--	--	--	--	--	--	--	--	--	0.0003	0.0069	0.00	--	0.00
Slope Rockfish Unid	--	--	--	0.04	0.04	--	--	--	0.00	0.00	--	--	--	--	--
Mixed thornyheads															
Shortspine/Longspine Thornyhead	--	--	--	0.01	0.01	--	--	--	0.52	0.52	--	--	--	--	--
Other flatfish															
Flatfish Unid	--	--	--	--	--	--	--	--	0.06	0.06	--	--	--	--	--
Flathead Sole	--	--	--	0.00	0.00	--	--	--	--	--	--	--	--	--	--
Pacific Sanddab	--	--	--	--	--	--	--	--	0.64	0.64	--	--	--	--	--
Rex Sole	--	--	--	--	--	--	--	--	0.02	0.02	--	--	--	--	--
Other groundfish															
Big Skate	--	--	--	0.02	0.02	0.0065	1.4640	3.52	--	3.52	--	--	--	--	--
California Skate	--	--	--	--	--	--	--	--	0.01	0.01	--	--	--	--	--
Grenadier Unid	--	--	--	14.71	14.71	--	--	--	23.48	23.48	--	--	--	0.00	0.00
Leopard Shark	--	--	--	--	--	--	--	--	0.10	0.10	--	--	--	--	--
Pacific Flatnose	--	--	--	--	--	0.0016	0.1875	0.85	--	0.85	--	--	--	--	--
Pacific Grenadier	0.0004	0.0290	0.08	--	0.08	0.0225	0.9794	12.19	--	12.19	0.0004	0.0081	0.00	--	0.00
Rockfish Unid	--	--	--	0.24	0.24	--	--	--	0.05	0.05	--	--	--	--	--
Skate Unid	--	--	--	1.44	1.44	0.0034	0.4086	1.82	3.66	5.49	--	--	--	--	--
Southern Shark	--	--	--	--	--	--	--	--	0.11	0.11	--	--	--	--	--
Spotted Ratfish	0.0063	0.0914	1.25	0.00	1.25	0.0021	0.1018	1.13	--	1.13	--	--	--	--	--
Pacific Cod	--	--	--	0.03	0.03	--	--	--	0.11	0.11	--	--	--	--	--
Pacific Hake	--	--	--	0.01	0.01	0.0040	0.1044	2.16	0.26	2.42	--	--	--	--	--
Sablefish (North of 36° N. lat.)	0.2190	0.2190	43.06	196.64	205.25	--	--	--	--	--	0.2139	0.1408	1.85	8.55	8.92
20% discard mortality (Fixed Gear) [‡]			8.61										0.37		
Sablefish (South of 36° N. lat.)	--	--	--	--	--	0.0366	0.1840	19.84	336.90	340.86	--	--	--	--	--
20% discard mortality (Fixed Gear) [‡]								3.97							
Shortspine Thornyhead (North of 34°27' N. lat.)	0.0013	0.0082	0.25	8.78	9.03	0.0007	0.0482	0.39	20.25	20.64	--	--	--	0.01	0.01
Shortspine Thornyhead (South of 34°27' N. lat.)	--	--	--	--	--	0.0230	0.0196	12.49	106.18	118.66	--	--	--	--	--
Spiny Dogfish	0.0214	0.1442	4.20	0.74	2.84	0.0015	0.0578	0.84	0.03	0.45	0.0015	0.0300	0.01	--	0.01
50% discard mortality (Fixed Gear) [‡]			2.10					0.42					0.01		
Splitnose Rockfish (South of 40°10' N. lat.)	--	--	--	0.01	0.01	0.0000	0.0037	0.01	0.09	0.10	--	--	--	--	--
Widow Rockfish	--	--	--	--	--	--	--	--	0.09	0.09	--	--	--	--	--
Yellowtail Rockfish (North of 40°10' N. lat.)	--	--	--	0.02	0.02	--	--	--	--	--	--	--	--	--	--
Non-groundfish species															
California Halibut	--	--	--	--	--	--	--	--	0.04	0.04	--	--	--	--	--
Dungeness Crab	0.0003	0.0051	0.06	0.01	0.07	--	--	--	--	--	0.0040	0.0804	0.03	1.11	1.14
Non-FMP flatfish															
Deepsea Sole	--	--	--	--	--	0.0000	0.0075	0.02	--	0.02	--	--	--	--	--
Non-FMP skate															
Black Skate	--	--	--	--	--	0.0071	0.2356	3.84	--	3.84	--	--	--	--	--
Pelagic Stingray	--	--	--	--	--	0.0002	0.0484	0.12	--	0.12	--	--	--	--	--
Sandpaper Skate	0.0003	0.0127	0.06	--	0.06	0.0004	0.27	0.20	--	0.20	--	--	--	--	--

[‡] Mortality rates provided by the Groundfish Management Team (GMT).

Table 8a. Observed discard ratios, standard error, estimated discard (mt), landings (mt), and fishing mortality estimates (mt) from the OA fixed gear longline fleet in 2012. Ratios are computed as the observed discard weight divided by the observed weight of retained FMP groundfish (adjusted to fish tickets). Discard ratios were multiplied by fleet landings of FMP groundfish to generate discard estimates; combined with fixed gear sectors in Table 9.

Open Access Fixed Gear		Longline - Coastwide			North of 36° N lat.		South of 36° N lat.		
		Observed vessels	Observed trips	Observed sets	Expansion factor: Fleet landings of groundfish (mt)		Expansion factor: Fleet landings of groundfish (mt)		
					41	66	104	194.4	139.1
Weight (mt)		Discard Ratio	SE	Discard	Landed	Estimate	Discard	Landed	Estimate
Rebuilding species									
Bocaccio Rockfish (South of 40°10' N. lat.)		--	--	--	0.31	0.31	--	1.52	1.52
Canary Rockfish		--	--	--	0.07	0.07	--	--	--
Darkblotched Rockfish		0.0001	0.0031	0.02	0.77	0.79	0.01	0.00	0.02
Pacific Ocean Perch (North of 40°10' N. lat.)		--	--	--	0.04	0.04	--	--	--
Petrale Sole		0.0001	0.0076	0.02	0.05	0.07	0.02	0.01	0.02
Yelloweye Rockfish		0.0003	0.0194	0.06	--	0.06	0.04	--	0.04
Other groundfish species									
Arrowtooth flounder		0.0139	0.0797	2.70	0.31	3.01	1.93	--	1.93
Chilipepper Rockfish (South of 40°10' N. lat.)		--	--	--	0.20	0.20	--	0.13	0.13
Dover sole		0.0013	0.0087	0.26	0.30	0.55	0.18	0.01	0.20
Lingcod (North of 42° N. lat.)		0.0011	0.0436	0.21	10.94	11.15	--	--	--
Lingcod (South of 42° N. lat.)		0.0014	0.1230	0.28	2.70	2.98	0.20	2.50	2.70
Longnose skate		0.0154	0.0693	2.99	3.89	5.39	2.14	1.34	2.41
50% discard mortality (Fixed Gear) [‡]				1.49			1.07		
Longspine Thornyhead (North of 34°27' N. lat.)		0.0003	0.0326	0.06	0.07	0.13	0.05	--	0.05
Longspine Thornyhead (South of 34°27' N. lat.)		0.0000	0.0008	--	--	--	0.00	0.66	0.66
Minor shelf rockfish (North of 40°10' N. lat.)									
Bocaccio Rockfish		--	--	--	0.08	0.08	--	--	--
Chilipepper Rockfish		--	--	--	0.00	0.00	--	--	--
Greenstriped Rockfish		0.0000	0.0010	0.01	0.14	0.14	--	--	--
Rosethorn Rockfish		--	--	0.02	0.02	0.04	--	--	--
Shelf Rockfish Unid		0.0001	0.0038	--	0.04	0.04	--	--	--
Silvergray Rockfish		--	--	--	0.09	0.09	--	--	--
Stripetail Rockfish		--	--	--	0.00	0.00	--	--	--
Vermilion Rockfish		--	--	--	0.04	0.04	--	--	--
Minor shelf rockfish (South of 40°10' N. lat.)									
Flag Rockfish		--	--	--	--	--	--	0.18	0.18
Greenblotched Rockfish		--	--	--	--	--	--	0.07	0.07
Greenspotted Rockfish		--	--	--	0.01	0.01	--	0.95	0.95
Greenstriped Rockfish		--	--	--	--	--	--	0.04	0.04
Honeycomb Rockfish		--	--	--	--	--	--	0.00	0.00
Mexican Rockfish		--	--	--	--	--	--	0.03	0.03
Rosy Rockfish		--	--	--	0.05	0.05	--	0.03	0.03
Shelf Rockfish Unid		--	--	--	--	--	--	0.61	0.61
Speckled Rockfish		--	--	--	--	--	--	0.01	0.01
Squarespot Rockfish		--	--	--	--	--	--	0.03	0.03
Starry Rockfish		--	--	--	0.05	0.05	--	0.17	0.17
Vermilion Rockfish		--	--	--	0.74	0.74	--	7.62	7.62
Yellowtail Rockfish		--	--	--	0.27	0.27	--	0.28	0.28
Minor slope rockfish (North of 40°10' N. lat.)									
Aurora Rockfish		--	--	--	0.00	0.00	--	--	--
Bank Rockfish		--	--	--	0.00	0.00	--	--	--
Blackgill Rockfish		--	--	--	0.20	0.20	--	--	--
Blackspotted Rockfish		--	--	--	0.01	0.01	--	--	--
Redbanded Rockfish		0.0001	0.0021	0.02	1.78	1.80	--	--	--
Rougheye Rockfish		0.0005	0.0186	0.09	2.70	2.79	--	--	--
Sharpchin Rockfish		--	--	--	0.00	0.00	--	--	--
Shortraker Rockfish		--	--	--	0.17	0.17	--	--	--
Shortraker/Rougheye Rockfish		0.0001	0.0066	0.02	--	0.02	--	--	--
Slope Rockfish Unid		--	--	--	0.18	0.18	--	--	--
Splitnose Rockfish		--	--	--	0.04	0.04	--	--	--
Yellowmouth Rockfish		--	--	--	0.00	0.00	--	--	--

[†]Mortality rates provided by the Groundfish Management Team (GMT).

Table 8a (continued).

Open Access Fixed Gear	Longline - Coastwide			North of 36° N lat.			South of 36° N lat.		
	Observed vessels	Observed trips	Observed sets	Expansion factor: Fleet landings of sablefish (mt)			Expansion factor: Fleet landings of groundfish (mt)		
	41	66	104	157.8			139.1		
Weight (mt)	Discard	Ratio	SE	Discard	Landed	Estimate	Discard	Landed	Estimate
Minor slope rockfish (South of 40°10' N. lat.)									
Aurora Rockfish		0.0001	0.0298	0.02	0.01	0.03	0.02	0.02	0.03
Bank Rockfish		--	--	--	--	--	--	0.42	0.42
Blackgill Rockfish		0.0026	0.0315	0.51	0.87	1.37	0.36	57.75	58.11
Blackspotted Rockfish		--	--	--	0.01	0.01	--	--	--
Redbanded Rockfish		0.0001	0.0106	0.02	0.00	0.03	0.02	--	0.02
Rougheye Rockfish		0.0001	0.0087	0.03	--	0.03	0.02	--	0.02
Sharpchin Rockfish		--	--	--	--	--	--	--	--
Slope Rockfish Unid		--	--	--	--	--	--	0.54	0.54
Mixed thornyheads									
Shortspine/Longspine Thornyhead		0.0000	0.0008	0.00	--	0.00	0.00	0.05	0.05
Other flatfish									
Flatfish Unid		--	--	--	--	--	--	0.00	0.00
Pacific Sanddab		--	--	--	0.00	0.00	--	1.96	1.96
Rock Sole		--	--	--	0.00	0.00	--	0.01	0.01
Sanddab Unid		--	--	--	1.21	1.21	--	0.66	0.66
Sand Sole		--	--	--	0.01	0.01	--	0.00	0.00
Other groundfish									
Big Skate		0.0017	0.1071	0.34	0.04	0.38	0.24	--	0.24
Grenadier Unid		--	--	--	5.78	5.78	--	0.02	0.02
Leopard Shark		--	--	--	0.07	0.07	--	0.72	0.72
Pacific Flatnose		0.0001	0.0035	0.01	--	0.01	0.01	--	0.01
Pacific Grenadier		0.0013	0.1907	0.25	--	0.25	0.18	--	0.18
Rockfish Unid		--	--	--	0.01	0.01	--	1.28	1.28
Skate Unid		--	--	--	0.37	0.37	--	0.39	0.39
Soupin Shark		--	--	--	--	--	--	0.04	0.04
Spotted Ratfish		0.0033	0.0295	0.64	0.00	0.64	0.46	0.01	0.46
Pacific Cod		--	--	--	1.03	1.03	--	0.05	0.05
Pacific Hake		0.0000	0.0021	0.01	--	0.01	0.00	--	0.00
Sablefish (North of 36° N. lat.)		0.1931	0.1433	37.52	157.79	165.30	--	--	--
20% discard mortality (Fixed Gear) [†]				7.50			--		
Sablefish (South of 36° N. lat.)		0.0050	0.0878	--	--	--	0.70	51.68	51.82
20% discard mortality (Fixed Gear) [†]				--			0.14		
Shortspine Thornyhead (North of 34°27' N. lat.)		0.0069	0.0420	1.35	0.44	1.79	0.96	0.94	1.90
Shortspine Thornyhead (South of 34°27' N. lat.)		0.0006	0.0287	--	--	--	0.08	6.15	6.23
Spiny Dogfish		0.0483	0.6150	9.38	0.40	5.09	6.71	--	3.36
50% discard mortality (Fixed Gear) [†]				4.69			3.36		
Splitnose rockfish (South of 40°10' N. lat.)		--	--	--	0.01	0.01	--	0.19	0.19
Starry Flounder		--	--	--	0.01	0.01	--	0.00	0.00
Widow Rockfish		--	--	--	0.01	0.01	--	0.03	0.03
Yellowtail rockfish (North of 40°10' N. lat.)		--	--	--	0.05	0.05	--	--	--
Non-groundfish species									
California Halibut		--	--	--	0.12	0.12	--	0.39	0.39
Non-FMP flatfish									
Bigmouth Sole		--	--	--	--	--	--	0.00	0.00
Slender Sole		--	--	--	--	--	--	0.00	0.00
Non-FMP skate									
Sandpaper Skate		0.0003	0.0261	0.06	--	0.06	0.04	--	0.04

[†]Mortality rates provided by the Groundfish Management Team (GMT).

Table 8b. Observed discard ratios, standard error, estimated discard (mt), landings (mt), and fishing mortality estimates (mt) from the OA fixed gear pot fleet in 2012. Ratios are computed as the observed discard weight divided by the observed weight of retained FMP groundfish (adjusted to fish tickets). Discard ratios were multiplied by fleet landings of FMP groundfish to generate discard estimates; combined with fixed gear sectors in Table 9.

Open Access Fixed Gear	Pot - Coastwide			North of 36° N lat.			South of 36° N lat.		
	Observed vessels	Observed trips	Observed sets	Expansion factor: Fleet landings of groundfish (mt)			Expansion factor: Fleet landings of groundfish (mt)		
	16	29	51	103.8			22.6		
	Discard Ratio		SE	Discard	Landed	Estimate	Discard	Landed	Estimate
Rebuilding species									
Petrale sole		--	--	--	0.01	0.01	--	--	--
Other groundfish species									
Arrowtooth flounder		0.0105	0.0865	1.09	0.01	1.10	0.24	--	0.24
Chilipepper rockfish (South of 40°10' N. lat.)		--	--	--	--	--	--	0.00	0.00
Dover sole		0.0016	0.0051	0.17	0.01	0.17	0.04	0.00	0.04
Lingcod (North of 42° N. lat.)		--	--	--	0.05	0.05	--	--	--
Lingcod (South of 42° N. lat.)		--	--	--	0.11	0.11	--	0.02	0.02
Longnose skate		--	--	--	0.05	0.05	--	--	--
50% discard mortality (Fixed Gear) [‡]				--			--		
Longspine thornyhead (North of 34°27' N. lat.)		--	--	--	0.00	0.00	--	0.09	0.09
Minor shelf rockfish (North of 40°10' N. lat.)									
Shelf Rockfish Unid		--	--	--	0.05	0.05	--	--	--
Minor shelf rockfish (South of 40°10' N. lat.)									
Shelf Rockfish Unid		--	--	--	--	--	--	0.07	0.07
Minor slope rockfish (North of 40°10' N. lat.)									
Blackgill Rockfish		--	--	--	0.00	0.00	--	--	--
Redbanded Rockfish		--	--	--	0.00	0.00	--	--	--
Rougheye Rockfish		--	--	--	0.00	0.00	--	--	--
Slope Rockfish Unid		--	--	--	0.08	0.08	--	--	--
Minor slope rockfish (South of 40°10' N. lat.)									
Aurora Rockfish		--	--	--	0.00	0.00	--	0.02	0.02
Bank Rockfish		--	--	--	--	--	--	0.01	0.01
Blackgill Rockfish		0.0002	0.0054	0.02	0.04	0.06	0.00	0.22	0.23
Redbanded Rockfish		0.0006	0.0042	0.06	--	0.06	0.01	--	0.01
Sharpchin Rockfish		0.0003	0.0069	0.04	--	0.04	0.01	--	0.01
Slope Rockfish Unid		--	--	--	0.01	0.01	--	0.07	0.07
Mixed thornyheads									
Shortspine/Longspine Thornyhead		--	--	--	--	--	--	0.01	0.01
Other flatfish									
Sanddab Unid		--	--	--	--	--	--	0.02	0.02
Other groundfish									
Grenadier Unid		--	--	--	0.02	0.02	--	--	--
Leopard Shark		--	--	--	--	--	--	0.08	0.08
Pacific Grenadier		0.0004	0.0081	0.04	--	0.04	0.01	--	0.01
Rockfish Unid		--	--	--	--	--	--	0.01	0.01
Skate Unid		--	--	--	--	--	--	1.31	1.31
Pacific cod		--	--	--	0.00	0.00	--	--	--
Sablefish (North of 36° N. lat.)		0.2139	0.1408	22.20	103.33	107.77	--	--	--
20% discard mortality (Fixed Gear) [‡]				4.44			--		
Sablefish (South of 36° N. lat.)		--	--	--	--	--	--	20.66	20.66
20% discard mortality (Fixed Gear) [‡]				--			--		
Shortspine Thornyhead (North of 34°27' N. lat.)		--	--	--	0.04	0.04	--	0.02	0.02
Spiny dogfish		0.0015	0.0300	0.15	--	0.08	0.03	--	0.02
50% discard mortality (Fixed Gear) [‡]				0.08			0.02		
Splitnose rockfish (South of 40°10' N. lat.)		--	--	--	0.00	0.00	--	--	--
Non-groundfish species									
California halibut		--	--	--	--	--	--	0.02	0.02
Dungeness crab		0.0040	0.0804	0.42	2.60	3.02	0.09	--	0.09

[‡]Mortality rates provided by the Groundfish Management Team (GMT).

Table 9. Estimated discard (mt), landings (mt), and fishing mortality estimate (mt) of groundfish species in the LE and OA non-nearshore fixed gear sectors in 2012. Discard ratios were multiplied by fleet landings of sablefish or FMP groundfish to generate estimated discard (Tables 6-8: LE sablefish endorsed primary season, LE non-endorsed, OA).

Weight (mt)	Limited Entry - Coastwide			Open Access - Coastwide			LE & OA Coastwide
	Discard	Landed	LE Total	Discard	Landed	OA Total	
Rebuilding species							
Bocaccio rockfish (South of 40°10' N. lat.)	--	0.80	0.80	--	1.82	1.82	2.62
Canary rockfish	0.03	0.02	0.05	--	0.07	0.07	0.12
Darkblotched rockfish	1.49	6.75	8.23	0.03	0.78	0.81	9.04
Pacific Ocean Perch (North of 40°10' N. lat.)	0.03	0.35	0.38	--	0.04	0.04	0.41
Petrale sole	0.05	0.68	0.73	0.04	0.06	0.10	0.83
Yelloweye rockfish	0.23	--	0.23	0.10	--	0.10	0.34
Other groundfish species							
Arrowtooth flounder	33.42	2.83	36.26	5.95	0.32	6.27	42.53
Chilipepper rockfish (South of 40°10' N. lat.)	0.01	0.78	0.79	--	0.34	0.34	1.13
Dover sole	6.15	2.80	8.95	0.64	0.32	0.96	9.91
English Sole	0.02	0.28	0.30	--	--	--	0.30
Lingcod (North of 42° N. lat.)	1.96	5.11	7.07	0.21	10.99	11.20	18.27
Lingcod (South of 42° N. lat.)	1.45	2.22	3.67	0.48	5.33	5.81	9.48
Longnose skate	54.49	30.11	57.35	5.13	5.28	7.85	65.20
50% discard mortality (Fixed Gear) [‡]	27.25			2.56			
Longspine thornyhead (North of 34°27' N. lat.)	2.99	2.71	5.70	0.11	0.15	0.26	5.96
Longspine thornyhead (South of 34°27' N. lat.)	2.63	12.37	15.00	0.00	0.66	0.66	15.66
Minor shelf rockfish (North of 40°10' N. lat.)							
Bocaccio Rockfish	0.04	0.01	0.04	--	0.08	0.08	0.12
Chilipepper Rockfish	--	0.03	0.03	--	0.00	--	0.03
Greenspotted Rockfish	--	0.00	0.00	--	--	--	0.00
Greenstriped Rockfish	0.14	0.08	0.23	0.01	0.14	0.14	0.37
Rosethorn Rockfish	0.32	0.50	0.82	0.02	0.02	0.04	0.86
Rosy Rockfish	0.05	--	0.05	--	--	--	0.05
Shelf Rockfish Unid	0.01	0.23	0.24	--	0.08	0.08	0.32
Silvergray Rockfish	0.01	0.04	0.04	--	0.09	0.09	0.13
Stripetail Rockfish	0.01	0.00	0.01	--	0.00	0.00	0.01
Vermilion Rockfish	--	--	--	--	0.04	0.04	0.04
Minor shelf rockfish (South of 40°10' N. lat.)							
Bronzespotted Rockfish	0.10	0.00	0.10	--	--	--	0.10
Flag Rockfish	--	0.06	0.06	--	0.18	0.18	0.24
Greenblotched Rockfish	--	0.08	0.08	--	0.07	0.07	0.14
Greenspotted Rockfish	0.04	0.20	0.23	--	0.96	0.96	1.19
Greenstriped Rockfish	--	0.00	0.00	--	0.04	0.04	0.04
Honeycomb Rockfish	--	--	--	--	0.00	0.00	0.00
Mexican Rockfish	--	0.00	0.00	--	0.03	0.03	0.04
Pink Rockfish	0.76	--	0.76	--	--	--	0.76
Pinkrose Rockfish	--	0.00	0.00	--	--	--	0.00
Rosethorn Rockfish	0.16	0.23	0.39	--	--	--	0.39
Rosy Rockfish	0.00	0.03	0.03	--	0.07	0.07	0.11
Shelf Rockfish Unid	--	0.03	0.03	--	0.68	0.68	0.71
Speckled Rockfish	--	0.09	0.09	--	0.01	0.01	0.11
Squarespot Rockfish	--	0.16	0.16	--	0.03	0.03	0.18
Starry Rockfish	--	0.10	0.10	--	0.22	0.22	0.31
Swordspine Rockfish	0.04	--	0.04	--	--	--	0.04
Vermilion Rockfish	--	0.64	0.64	--	8.36	8.36	9.00
Yellowtail Rockfish	--	0.04	0.04	--	0.54	0.54	0.58
Minor slope rockfish (North of 40°10' N. lat.)							
Aurora Rockfish	0.13	0.06	0.19	--	0.00	0.00	0.20
Bank Rockfish	--	0.02	0.02	--	0.00	0.00	0.02
Blackgill Rockfish	1.74	1.42	3.15	--	0.20	0.20	3.35
Blackspotted Rockfish	--	0.16	0.16	--	0.01	0.01	0.17
Redbanded Rockfish	7.09	12.97	20.06	0.02	1.78	1.80	21.85
Rougheye Rockfish	16.01	33.74	49.75	0.09	2.70	2.79	52.53
Sharpchin Rockfish	--	0.01	0.01	--	0.00	0.00	0.02
Shortraker Rockfish	3.13	3.21	6.34	--	0.17	0.17	6.52
Shortraker/Rougheye Rockfish	36.36	--	36.36	0.02	--	0.02	36.38
Slope Rockfish Unid	0.03	6.28	6.31	--	0.26	0.26	6.57
Splitnose Rockfish	0.01	0.14	0.15	--	0.04	0.04	0.19
Yellowmouth Rockfish	--	1.26	1.26	--	0.00	0.00	1.26

[‡]Mortality rates provided by the Groundfish Management Team (GMT).

Table 9 (continued).

Weight (mt)	Limited Entry - Coastwide			Open Access - Coastwide			LE & OA Coastwide
	Discard	Landed	LE Total	Discard	Landed	OA Total	
Minor slope rockfish (South of 40°10' N. lat.)							
Aurora Rockfish	0.10	0.12	0.22	0.04	0.04	0.08	0.31
Bank Rockfish	--	0.00	0.00	--	0.43	0.43	0.43
Blackgill Rockfish	8.50	45.41	53.91	0.89	58.88	59.77	113.68
Blackspotted Rockfish	--	8.80	8.80	--	0.01	0.01	8.82
Redbanded Rockfish	0.88	0.00	0.88	0.12	0.00	0.12	1.01
Rougheye Rockfish	0.17	--	0.17	0.05	--	0.05	0.22
Sharpchin Rockfish	0.00	--	0.00	0.04	--	0.04	0.05
Slope Rockfish Unid	--	2.87	2.87	--	0.62	0.62	3.49
Mixed thornyheads							
Shortspine/Longspine Thornyhead	0.00	0.68	0.68	0.00	0.06	0.06	0.75
Other flatfish							
Flatfish Unid	0.00	0.06	0.06	--	0.00	0.00	0.06
Flathead Sole	--	0.00	0.00	--	--	--	0.00
Pacific Sanddab	--	0.64	0.64	--	1.96	1.96	2.60
Rex Sole	0.00	0.34	0.35	--	--	--	0.35
Rock Sole	--	--	--	--	0.02	0.02	0.02
Sanddab Unid	--	--	--	--	1.89	1.89	1.89
Sand Sole	--	0.22	0.22	--	0.01	0.01	0.23
Other groundfish							
Big Skate	5.90	0.02	5.92	0.58	0.04	0.62	6.54
California Skate	0.00	0.01	0.01	--	--	--	0.01
Grenadier Unid	--	45.06	45.06	--	5.82	5.82	50.88
Leopard Shark	--	0.10	0.10	--	0.86	0.86	0.96
Pacific Flatnose	0.89	--	0.89	0.02	--	0.02	0.91
Pacific Grenadier	18.46	--	18.46	0.47	--	0.47	18.93
Skate Unid	1.83	7.55	9.38	--	2.06	2.06	11.44
Soupfin Shark	--	0.11	0.11	--	0.04	0.04	0.15
Spotted Ratfish	5.58	0.01	5.59	1.09	0.01	1.10	6.70
Rockfish Unid	--	0.29	0.29	--	1.29	1.29	1.59
Pacific Cod	0.20	1.17	1.38	--	1.08	1.08	2.45
Pacific Hake	3.12	0.27	3.39	0.01	--	0.01	3.40
Sablefish (North of 36° N. lat.)	597.89	1505.03	1624.60	59.72	261.12	273.06	1897.67
20% discard mortality (Fixed Gear) [‡]	119.58			11.94			
Sablefish (South of 36° N. lat.)	19.84	400.03	403.99	0.70	72.34	72.47	476.47
20% discard mortality (Fixed Gear) [‡]	3.97			0.14			
Shortspine thornyhead (North of 34°27' N. lat.)	4.81	54.49	59.30	2.31	1.44	3.75	63.05
Shortspine thornyhead (South of 34°27' N. lat.)	12.49	107.07	119.56	0.08	6.15	6.23	125.79
Spiny Dogfish	145.20	1.17	73.77	16.28	0.40	8.54	82.31
50% discard mortality (Fixed Gear) [‡]	72.60			8.14			
Splitnose Rockfish (South of 40°10' N. lat.)	0.01	0.11	0.12	--	0.20	0.20	0.32
Starry Flounder	--	0.02	0.02	--	0.01	0.01	0.03
Widow Rockfish	0.00	0.17	0.17	--	0.04	0.04	0.21
Yellowtail Rockfish (North of 40°10' N. lat.)	0.16	0.40	0.56	--	0.05	0.05	0.61
Non-groundfish species							
California Halibut	--	0.04	0.04	--	0.54	0.54	0.58
Dungeness Crab	0.28	1.29	1.57	0.51	2.60	3.11	4.68
Non-FMP flatfish							
Bigmouth Sole	--	--	--	--	0.00	0.00	0.00
Deepsea Sole	0.02	--	0.02	--	--	--	0.02
Slender Sole	--	--	--	--	0.00	0.00	0.00
Non-FMP skate							
Aleutian Skate	0.29	--	0.29	--	--	--	0.29
Black Skate	4.08	--	4.08	--	--	--	4.08
Pelagic Stingray	0.12	--	0.12	--	--	--	0.12
Sandpaper Skate	1.51	--	1.51	0.09	--	0.09	1.61
Starry Skate	0.01	--	0.01	--	--	--	0.01

[‡]Mortality rates provided by the Groundfish Management Team (GMT).

Table 10. Commercial landings of nearshore species (mt) in Oregon and California during 2012, partitioned by depth interval and groundfish management area based on observed catch from 2003 to 2012. Data from both states were combined. The California state-permit framework is represented in the area south of 40° 10' N latitude.

	2003-2012 Total observed landings (mt)	2003-2012 Percentage of observed catch by depth (fathoms)			2012 Fleet landings (mt)	2012 Fleet landings (mt) reallocated by depth (fathoms)		
		0 - 10	11 - 20	> 20		0 - 10	11 - 20	> 20
NORTH of 40° 10' N Lat.								
Nearshore Species - Commercial								
Black rockfish (South of 46°16' N. lat.)	124.79	46.4%	51.6%	2.0%	116.52	54.04	60.10	2.38
Cabazon (California)	2.03	39.5%	51.9%	8.6%	1.68	0.66	0.87	0.14
Cabazon (Oregon)	20.18	33.2%	64.6%	2.2%	28.85	9.59	18.63	0.63
Lingcod (North of 42° N. lat.)	18.60	33.9%	61.5%	4.6%	35.12	11.91	21.58	1.62
Lingcod (South of 42° N. lat.)	5.49	28.7%	55.1%	16.1%	4.01	1.15	2.21	0.65
Minor nearshore rockfish (North of 40°10' N. lat.)								
Black and Yellow Rockfish	0.03	69.4%	30.6%	--	0.01	0.01	0.00	--
Blue Rockfish	14.34	22.4%	70.1%	7.5%	9.91	2.22	6.95	0.74
Brown Rockfish	0.25	8.7%	25.3%	66.0%	0.30	0.03	0.08	0.20
China Rockfish	5.53	32.8%	63.2%	4.0%	9.21	3.02	5.82	0.37
Copper Rockfish	1.30	12.2%	70.0%	17.9%	2.23	0.27	1.56	0.40
Gopher Rockfish	0.04	43.0%	55.5%	1.5%	0.06	0.02	0.03	0.00
Grass Rockfish	0.36	98.3%	1.0%	0.7%	0.22	0.22	0.00	0.00
Nearshore Rockfish Unid	2.21	28.2%	65.4%	6.4%	--	--	--	--
Olive Rockfish	0.07	4.9%	82.0%	13.2%	0.04	0.00	0.03	0.01
Quillback Rockfish	2.15	7.8%	60.8%	31.4%	3.17	0.25	1.93	1.00
Other groundfish								
Kelp Greenling	12.90	50.5%	48.2%	1.3%	19.51	9.85	9.41	0.26
SOUTH of 40° 10' N Lat.								
Nearshore Species - Commercial								
Black rockfish (South of 46°16' N. lat.)	1.16	47.4%	47.2%	5.5%	3.02	1.43	1.43	0.16
Cabazon (California)	5.77	94.0%	4.5%	1.5%	28.57	26.85	1.28	0.44
California scorpionfish (South of 34°27' N. lat.)	0.37	4.0%	1.4%	94.7%	3.19	0.13	0.04	3.02
Deeper nearshore rockfish								
Brown Rockfish	7.36	28.6%	56.4%	15.0%	25.83	7.38	14.57	3.88
Copper Rockfish	0.50	13.4%	45.0%	41.6%	4.62	0.62	2.08	1.92
Nearshore Rockfish Unid	0.38	29.3%	33.2%	37.5%	0.13	0.04	0.04	0.05
Olive Rockfish	0.42	21.7%	53.8%	24.5%	0.88	0.19	0.47	0.22
Quillback Rockfish	0.15	--	42.5%	57.5%	0.21	--	0.09	0.12
Treefish Rockfish	0.20	39.5%	50.2%	10.3%	1.60	0.63	0.80	0.17
Lingcod (South of 42° N. lat.)	5.12	46.0%	42.2%	11.8%	18.22	8.39	7.69	2.14
Minor nearshore rockfish (South of 40°10' N. lat.)								
Blue Rockfish	0.97	42.3%	44.9%	12.9%	1.04	0.44	0.47	0.13
Gopher Rockfish	4.50	50.3%	38.4%	11.4%	22.06	11.09	8.46	2.51
Nearshore Rockfish Unid	0.25	60.6%	30.4%	9.0%	--	--	--	--
Other groundfish								
Kelp Greenling	0.59	82.6%	13.1%	4.3%	4.49	3.71	0.59	0.19
Other nongroundfish								
California Sheephead	10.33	71.6%	27.5%	0.9%	27.58	19.74	7.60	0.24
Shallow nearshore rockfish								
Black and Yellow Rockfish	1.46	93.5%	3.2%	3.3%	11.25	10.53	0.36	0.37
China Rockfish	0.55	25.1%	49.0%	25.9%	1.37	0.34	0.67	0.35
Grass Rockfish	0.91	95.0%	4.5%	0.5%	11.46	10.88	0.51	0.06
Kelp Rockfish	0.11	65.7%	32.9%	1.4%	0.57	0.37	0.19	0.01
Nearshore Rockfish Unid	--	--	--	--	0.03	--	--	--

Table 11. Observed discard ratios with standard error and nearshore species fleet landings (mt) from the commercial nearshore fixed gear fishery in 2012 by groundfish management area and depth (fathoms). Data from both Oregon and California were combined. The California state-permit framework is represented in the area south of 40° 10' N latitude.

Nearshore Fixed Gear Fishery	North of 40° 10' N Lat.									South of 40° 10' N Lat.								
	0 - 10 fm			11 - 20 fm			> 20 fm			0 - 10 fm			11 - 20 fm			> 20 fm		
	Vessels	Trips	Sets	Vessels	Trips	Sets	Vessels	Trips	Sets	Vessels	Trips	Sets	Vessels	Trips	Sets	Vessels	Trips	Sets
	44	110	130	51	170	202	5	6	6	22	63	102	20	49	71	7	17	17
Observed	93.2			129.2			8.4			102.8			47.3			16.0		
Expansion factor: Fleet landings of nearshore species (mt)	Discard Ratio		SE	Discard Ratio		SE	Discard Ratio		SE	Discard Ratio		SE	Discard Ratio		SE	Discard Ratio		SE
Rebuilding species																		
Canary rockfish		0.0053	0.1149		0.0161	0.0463		0.0477	0.3092		0.0038	0.4228		0.0586	0.3800		0.2551	1.2986
Petrale sole		--	--		--	--		--	--		--	--		--	--		0.0011	0.0267
Yelloweye rockfish		0.0110	0.8748		0.0226	0.1943		0.0171	0.1074		--	--		0.0009	0.0429		0.0038	0.2223
Other groundfish species																		
Black rockfish (South of 46°16' N. lat.)		0.0108	0.0250		0.0103	0.0215		0.0026	0.0178		0.0185	0.0801		0.0030	0.0181		0.0268	0.5112
Cabazon (California)		0.0006	0.0715		0.0014	0.0655		--	--		0.0358	0.0953		0.0148	0.1387		0.0060	0.1326
Cabazon (Oregon)		0.0090	0.0209		0.0061	0.0177		--	--		--	--		--	--		--	--
Deeper nearshore rockfish (South of 40°10' N. lat.)																		
Brown Rockfish		--	--		--	--		--	--		0.0136	0.0566		0.0024	0.0095		0.0120	0.0410
Calico Rockfish		--	--		--	--		--	--		0.0000	--		--	--		0.0001	--
Copper Rockfish		--	--		--	--		--	--		0.0012	0.0157		0.0048	0.0381		0.0001	0.0028
Olive Rockfish		--	--		--	--		--	--		0.0005	0.0130		0.0056	0.0387		0.0191	0.2107
Quillback Rockfish		--	--		--	--		--	--		--	--		0.0001	--		--	--
Treefish Rockfish		--	--		--	--		--	--		0.0038	0.0473		0.0010	0.0187		--	--
Lingcod (North of 42° N. lat.)		0.0963	0.0811		0.1134	0.1103		0.0539	0.2167		--	--		--	--		--	--
Lingcod (South of 42° N. lat.)		0.0073	0.3584		0.0136	0.1448		0.0114	0.3641		0.0607	0.1042		0.1429	0.2782		0.1855	0.5224
Minor nearshore rockfish (North of 40°10' N. lat.)																		
Blue Rockfish		0.0135	0.0400		0.0194	0.0356		0.0887	0.7038		--	--		--	--		--	--
China Rockfish		0.0027	0.0091		0.0027	0.0075		0.0004	0.0096		--	--		--	--		--	--
Copper Rockfish		--	--		0.0003	0.0072		--	--		--	--		--	--		--	--
Olive Rockfish		--	--		0.0000	0.0163		0.0034	0.1077		--	--		--	--		--	--
Quillback Rockfish		0.0004	0.0168		0.0014	0.0143		0.0160	0.1323		--	--		--	--		--	--
Minor nearshore rockfish (South of 40°10' N. lat.)																		
Blue Rockfish		--	--		--	--		--	--		0.0053	0.0603		0.0062	0.0322		0.0090	0.0500
Gopher Rockfish		--	--		--	--		--	--		0.0100	0.0266		0.0207	0.0433		0.0096	0.0318
Minor shelf rockfish (North of 40°10' N. lat.)																		
Rosy Rockfish		--	--		0.0000	0.0204		--	--		--	--		--	--		--	--
Tiger Rockfish		--	--		0.0000	0.0056		--	--		--	--		--	--		--	--
Vermilion Rockfish		0.0003	0.0158		0.0004	0.0096		--	--		--	--		--	--		--	--
Minor shelf rockfish (South of 40°10' N. lat.)																		
Rosy Rockfish		--	--		--	--		--	--		--	--		--	--		0.0170	0.1514
Starry Rockfish		--	--		--	--		--	--		--	--		--	--		0.0015	0.0351
Vermilion Rockfish		--	--		--	--		--	--		0.0002	0.0080		0.0003	0.0048		--	--
Yellowtail Rockfish		--	--		--	--		--	--		--	--		--	--		0.006	0.1056

Table 11 (continued).

Nearshore Fixed Gear Fishery	North of 40° 10' N Lat.									South of 40° 10' N Lat.								
	0 - 10 fm			11 - 20 fm			> 20 fm			0 - 10 fm			11 - 20 fm			> 20 fm		
	Vessels	Trips	Sets	Vessels	Trips	Sets	Vessels	Trips	Sets	Vessels	Trips	Sets	Vessels	Trips	Sets	Vessels	Trips	Sets
	44	110	130	51	170	202	5	6	6	22	63	102	20	49	71	7	17	17
Observed																		
Expansion factor:	93.2			129.2			8.4			102.8			47.3			16.0		
Fleet landings of nearshore species (mt)	Discard Ratio	SE		Discard Ratio	SE		Discard Ratio	SE		Discard Ratio	SE		Discard Ratio	SE		Discard Ratio	SE	
Other flatfish																		
Pacific Sanddab		--	--		--	--		--	--		--	--	0.0001	--	--	0.0007	--	--
Rock Sole		--	--		--	--		--	--		--	--	--	--	--	0.0003	0.0097	--
Sanddab Unid		--	--		--	--		--	--		--	--	0.0004	0.0601	--	--	--	--
Sand Sole		--	--	0.0001	0.0141	--		--	--	0.0001	0.0393	--	0.0005	0.1717	--	--	--	--
Other groundfish																		
Big Skate		--	--	0.0006	--	--		--	--	--	--	--	--	--	--	--	--	--
California Scorpionfish		--	--	--	--	--		--	--	0.0001	--	--	--	--	--	--	--	--
Kelp Greenling	0.0276	0.0366	--	0.0174	0.0253	--	0.0062	0.0533	--	0.0034	0.0161	--	0.0069	0.1235	--	0.0005	0.0139	--
Leopard Shark		--	--	--	--	--		--	--	0.0079	--	--	--	--	--	--	--	--
Spotted Ratfish		--	--	0.0000	--	--		--	--	--	--	--	--	--	--	--	--	--
Skate Unid		--	--	--	--	--		--	--	0.0005	--	--	--	--	--	--	--	--
Shallow nearshore rockfish (South of 40°10' N. lat.)																		
Black and Yellow Rockfish		--	--	--	--	--		--	--	0.0054	0.0146	--	0.0014	0.0288	--	0.0034	0.2223	--
China Rockfish		--	--	--	--	--		--	--	0.0012	0.0303	--	0.0307	0.1354	--	0.0644	0.1763	--
Grass Rockfish		--	--	--	--	--		--	--	0.0001	0.0074	--	--	--	--	--	--	--
Kelp Rockfish		--	--	--	--	--		--	--	0.0014	0.0345	--	0.0007	0.0155	--	--	--	--
Spiny Dogfish Shark		--	--	--	--	--		--	--	--	--	--	0.0030	0.9618	--	--	--	--
Widow Rockfish		--	--	0.0002	0.0250	--		--	--	--	--	--	--	--	--	--	--	--
Yellowtail Rockfish	0.0012	0.0217	--	0.0030	0.0175	--	0.0556	0.3293	--	--	--	--	--	--	--	--	--	--
Non-groundfish species																		
California Halibut		--	--	--	--	--		--	--	0.0004	0.0983	--	--	--	--	--	--	--
Dungeness Crab		--	--	0.0000	0.0136	--		--	--	0.0003	0.0716	--	0.0004	--	--	--	--	--
Non-FMP flatfish																		
Diamond Turbot		--	--	--	--	--		--	--	0.0001	--	--	--	--	--	--	--	--
Non-FMP skate																		
Round Stingray		--	--	--	--	--		--	--	0.0002	--	--	--	--	--	--	--	--
Other nongroundfish ¹																		
Brown Irish Lord Sculpin		--	--	--	--	--		--	--	--	--	--	0.0005	--	--	--	--	--
Buffalo Sculpin	0.0014	0.0543	--	0.0004	0.0247	--		--	--	--	--	--	0.0011	0.2769	--	--	--	--
California Sheephead		--	--	--	--	--		--	--	0.2252	1.9675	--	0.1690	3.7807	--	--	--	--
Greenling Unid		--	--	0.0000	--	--		--	--	--	--	--	--	--	--	--	--	--
Pacific Staghorn Sculpin		--	--	--	--	--		--	--	--	--	--	0.0001	--	--	--	--	--
Red Irish Lord Sculpin	0.0019	0.0272	--	0.0010	0.0217	--		--	--	0.0002	--	--	--	--	--	--	--	--
Rock Greenling		--	--	--	--	--		--	--	0.0003	0.0195	--	--	--	--	--	--	--

¹ Some listed species are under state nearshore fixed gear management, but not included in the groundfish FMP.

Table 12a. Gross estimated discard (mt), discard mortality rates (provided by the Groundfish Management Team), estimated discard mortality (mt), fleet landings (mt), and fishing mortality estimates (mt) for the 2012 commercial nearshore fixed gear fishery north of 40° 10' N latitude.

Nearshore Fixed Gear Fishery North of 40° 10' N lat.	Gross estimated discard (mt) by depth (fm)			Discard mortality rate [‡] by depth (fm)			Estimated discard mortality (mt) by depth (fm)			Estimated discard mortality (mt)	Fleet Landings (mt)	Estimated fishing mortality (mt)
	0-10	11-20	> 20	0-10	11-20	> 20	0-10	11-20	> 20			
Rebuilding species												
Canary rockfish	0.49	2.08	0.40	10%	55%	100%	0.05	1.14	0.40	1.59	--	1.59
Darkblotched rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.07	0.07
Yelloweye rockfish	1.03	2.92	0.14	10%	50%	100%	0.10	1.46	0.14	1.71	--	1.71
Other groundfish species												
Arrowtooth flounder	--	--	--	7%	7%	7%	--	--	--	--	0.01	0.01
Black rockfish (South of 46°16' N. lat.)	1.01	1.33	0.02	10%	40%	90%	0.10	0.53	0.02	0.65	116.52	117.17
Cabazon (California)	0.06	0.18	--	7%	7%	7%	0.00	0.01	--	0.02	1.68	1.70
Cabazon (Oregon)	0.84	0.79	--	7%	7%	7%	0.06	0.06	--	0.11	28.85	28.97
Dover sole	--	--	--	7%	7%	7%	--	--	--	--	0.00	0.00
Lingcod (North of 42° N. lat.)	8.98	14.65	0.45	7%	7%	7%	0.63	1.03	0.03	1.69	35.12	36.80
Lingcod (South of 42° N. lat.)	0.68	1.76	0.10	7%	7%	7%	0.05	0.12	0.01	0.18	4.01	4.18
Longnose skate	--	--	--	7%	7%	7%	--	--	--	--	0.03	0.03
Minor nearshore rockfish (North of 40°10' N. lat.)												
Black and Yellow Rockfish	--	--	--	10%	40%	100%	--	--	--	--	0.01	0.01
Blue Rockfish	1.26	2.51	0.74	10%	60%	100%	0.13	1.50	0.74	2.37	9.91	12.28
Brown Rockfish	--	--	--	10%	40%	100%	--	--	--	--	0.30	0.30
China Rockfish	0.25	0.35	0.00	10%	50%	100%	0.03	0.18	0.00	0.21	9.21	9.41
Copper Rockfish	--	0.03	--	10%	40%	100%	--	0.01	--	0.01	2.23	2.24
Gopher Rockfish	--	--	--	10%	40%	100%	--	--	--	--	0.06	0.06
Grass Rockfish	--	--	--	10%	40%	100%	--	--	--	--	0.22	0.22
Olive Rockfish	--	0.01	0.03	10%	40%	100%	--	0.00	0.03	0.03	0.04	0.07
Quillback Rockfish	0.03	0.18	0.13	10%	40%	100%	0.00	0.07	0.13	0.21	3.17	3.38
Minor shelf rockfish (North of 40°10' N. lat.)												
Bocaccio Rockfish	--	--	--	10%	70%	100%	--	--	--	--	0.01	0.01
Rosy Rockfish	--	0.00	--	100%	100%	100%	--	0.00	--	0.00	--	0.00
Shelf Rockfish Unid	--	--	--	100%	100%	100%	--	--	--	--	0.07	0.07
Starry Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.00	0.00
Tiger Rockfish	--	0.01	--	10%	50%	100%	--	0.00	--	0.00	0.50	0.50
Vermilion Rockfish	0.03	0.05	--	10%	55%	100%	0.00	0.03	--	0.03	3.89	3.92
Minor slope rockfish (North of 40°10' N. lat.)												
Redbanded Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.00	0.00
Rougheye Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.00	0.00
Shortraker Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.00	0.00
Slope Rockfish Unid	--	--	--	100%	100%	100%	--	--	--	--	0.01	0.01
Other flatfish												
Sand Sole	--	0.01	--	7%	7%	7%	--	0.00	--	0.00	--	0.00
Other groundfish												
Big Skate	--	0.07	--	7%	7%	7%	--	0.01	--	0.01	--	0.01
Kelp Greenling	2.58	2.25	0.05	7%	7%	7%	0.18	0.16	0.00	0.34	19.51	19.85
Rockfish Unid	--	--	--	100%	100%	100%	--	--	--	--	0.01	0.01
Spotted Ratfish	--	0.01	--	7%	7%	7%	--	0.00	--	0.00	--	0.00
Sablefish (North of 36° N. lat.)	--	--	--	20%	20%	20%	--	--	--	--	1.04	1.04
Spiny Dogfish	--	--	--	7%	7%	7%	--	--	--	--	0.01	0.01
Starry Flounder	--	--	--	7%	7%	7%	--	--	--	--	0.00	0.00
Skate Unid	--	--	--	7%	7%	7%	--	--	--	--	0.20	0.20
Widow Rockfish	--	0.02	--	50%	90%	100%	--	0.02	--	0.02	0.02	0.04
Yellowtail Rockfish	0.11	0.39	0.47	100%	100%	100%	0.11	0.39	0.47	0.97	0.79	1.76
Non-groundfish species												
Dungeness Crab	--	0.00	--	100%	100%	100%	--	0.00	--	0.00	1.46	1.47
Other nongroundfish¹												
Buffalo Sculpin	0.13	0.05	--	100%	100%	100%	0.13	0.05	--	0.18	--	0.18
Greenling Unid	--	0.00	--	7%	7%	7%	--	0.00	--	0.00	--	0.00
Red Irish Lord Sculpin	0.18	0.12	--	100%	100%	100%	0.18	0.12	--	0.30	--	0.30

[‡]Discard mortality rates provided by the Groundfish Management Team (GMT). A mortality rate is applied to each gross estimated discard weight by depth.

¹ Some listed species are under state nearshore fixed gear management, but not included in the groundfish FMP.

Table 12b. Gross estimated discard (mt), discard mortality rates (provided by the Groundfish Management Team), estimated discard mortality (mt), fleet landings (mt), and fishing mortality estimates (mt) for the 2012 commercial nearshore fixed gear fishery south of 40° 10' N latitude. The California state-permit framework is also represented.

Nearshore Fixed Gear Fishery South of 40° 10' N lat	Gross estimated discard (mt) by depth (fm)			Discard mortality rate ‡ by depth (fm)			Estimated discard mortality (mt) by depth (fm)			Estimated discard mortality (mt)	Fleet Landings (mt)	Estimated fishing mortality (mt)
	0-10	11-20	> 20	0-10	11-20	> 20	0-10	11-20	> 20			
Rebuilding species												
Bocaccio rockfish (South of 40°10' N. lat.)	--	--	--	10%	70%	100%	--	--	--	--	0.73	0.73
Canary rockfish	0.39	2.77	4.08	10%	55%	100%	0.04	1.52	4.08	5.64	--	5.64
Darkblotched rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.02	0.02
Petrale sole	--	--	0.02	7%	7%	7%	--	--	0.00	0.00	0.00	0.00
Yelloweye rockfish	--	0.04	0.06	10%	50%	100%	--	0.02	0.06	0.08	--	0.08
Other groundfish species												
Black rockfish (South of 46°16' N. lat.)	1.90	0.14	0.43	10%	40%	90%	0.19	0.06	0.39	0.63	3.02	3.65
Cabezon (California)	3.68	0.70	0.10	7%	7%	7%	0.26	0.05	0.01	0.31	28.57	28.88
California scorpionfish (South of 34°27' N. lat.)	--	--	--	7%	7%	7%	--	--	--	--	3.19	3.19
Chilipepper rockfish (South of 40°10' N. lat.)	--	--	--	100%	100%	100%	--	--	--	--	0.04	0.04
Deeper nearshore rockfish												
Brown Rockfish	1.40	0.12	0.19	10%	40%	90%	0.14	0.05	0.17	0.36	25.83	26.19
Calico Rockfish	0.00	--	0.00	10%	40%	90%	0.00	--	0.00	0.00	--	0.00
Copper Rockfish	0.13	0.23	0.00	10%	40%	100%	0.01	0.09	0.00	0.11	4.62	4.72
Nearshore Rockfish Unid	--	--	--	10%	40%	90%	--	--	--	--	0.13	0.13
Olive Rockfish	0.05	0.26	0.31	10%	40%	90%	0.00	0.11	0.27	0.39	0.88	1.26
Quillback Rockfish	--	0.01	--	10%	40%	90%	--	0.00	--	0.00	0.21	0.21
Treefish Rockfish	0.3917	0.05	--	10%	40%	90%	0.0392	0.02	--	0.06	1.60	1.66
Lingcod (South of 42° N. lat.)	6.24	6.76	2.97	7%	7%	7%	0.44	0.47	0.21	1.12	18.22	19.34
Longspine thornyhead (North of 34°27' N. lat.)	--	--	--	100%	100%	100%	--	--	--	--	0.00	0.00
Longspine thornyhead (South of 34°27' N. lat.)	--	--	--	100%	100%	100%	--	--	--	--	0.05	0.05
Minor nearshore rockfish (South of 40°10' N. lat.)												
Blue Rockfish	0.54	0.29	0.14	10%	60%	100%	0.05	0.18	0.14	0.37	1.04	1.41
Gopher Rockfish ¹	1.03	0.98	0.15	10%	45%	100%	0.10	0.44	0.15	0.70	22.06	22.76
Minor shelf rockfish (South of 40°10' N. lat.)												
Flag Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.11	0.11
Freckled Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.01	0.01
Greenblotched Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.05	0.05
Greenspotted Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.07	0.07
Greenstriped Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.01	0.01
Honeycomb Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.00	0.00
Mexican Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.00	0.00
Rosethorn Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.03	0.03
Rosy Rockfish	--	--	0.27	100%	100%	100%	--	--	0.27	0.27	0.23	0.50
Shelf Rockfish Unid	--	--	--	100%	100%	100%	--	--	--	--	0.81	0.81
Speckled Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.02	0.02
Squarespot Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.00	0.00
Starry Rockfish	--	--	0.0235	100%	100%	100%	--	--	0.0235	0.02	0.25	0.27
Vermilion Rockfish	0.03	0.01	--	10%	55%	100%	0.00	0.01	--	0.01	7.04	7.05
Yellowtail Rockfish	--	--	0.09	10%	30%	75%	--	--	0.07	0.07	0.28	0.35
Minor slope rockfish (South of 40°10' N. lat.)												
Bank Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.01	0.01
Blackgill Rockfish	--	--	--	100%	100%	100%	--	--	--	--	2.31	2.31
Blackspotted Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.02	0.02
Redbanded Rockfish	--	--	--	100%	100%	100%	--	--	--	--	0.00	0.00
Slope Rockfish Unid	--	--	--	100%	100%	100%	--	--	--	--	0.07	0.07
Mixed thornyheads												
Shortspine/ Longspine Thornyhead	--	--	--	100%	100%	100%	--	--	--	--	0.03	0.03
Other flatfish												
Flatfish Unid	--	--	--	7%	7%	7%	--	--	--	--	0.01	0.01
Pacific Sanddab	--	0.00	0.01	7%	7%	7%	--	0.00	0.00	0.00	2.40	2.40
Rex Sole	--	--	--	7%	7%	7%	--	--	--	--	0.00	0.00
Rock Sole	--	--	0.00	7%	7%	7%	--	--	0.00	0.00	0.07	0.07
Sanddab Unid	--	0.02	--	7%	7%	7%	--	0.00	--	0.00	0.00	0.01
Sand Sole	0.02	0.03	--	7%	7%	7%	0.00	0.00	--	0.00	0.13	0.13

[‡]Discard mortality rates provided by the Groundfish Management Team (GMT). Each mortality rate is applied to each gross estimated discard weight by depth.

¹Gopher rockfish assume the discard mortality rate for the Shallow Nearshore Rockfish group.

Table 12b (continued).

Nearshore Fixed Gear Fishery South of 40° 10' N lat	Gross estimated discard (mt) by depth (fm)			Discard mortality rate ‡ by depth (fm)			Estimated discard mortality (mt) by depth (fm)			Estimated discard mortality (mt)	Fleet Landings (mt)	Estimated fishing mortality (mt)
	0-10	11-20	> 20	0-10	11-20	> 20	0-10	11-20	> 20			
Other groundfish												
California Scorpionfish	0.02	--	--	7%	7%	7%	0.00	--	--	0.00	0.00	0.00
Grenadier Unid	--	--	--	100%	100%	100%	--	--	--	--	0.62	0.62
Kelp Greenling	0.35	0.33	0.01	7%	7%	7%	0.02	0.02	0.00	0.05	4.49	4.54
Leopard Shark	0.81	--	--	7%	7%	7%	0.06	--	--	0.06	0.18	0.24
Rockfish Unid	--	--	--	100%	100%	100%	--	--	--	--	0.31	0.31
Skate Unid	0.05	--	--	7%	7%	7%	0.00	--	--	0.00	0.10	0.11
Southern Shark	--	--	--	7%	7%	7%	--	--	--	--	0.25	0.25
Spotted Ratfish	--	--	--	100%	100%	100%	--	--	--	--	0.00	0.00
Sablefish (North of 36° N. lat.)	--	--	--	20%	20%	20%	--	--	--	--	0.65	0.65
Sablefish (South of 36° N. lat.)	--	--	--	20%	20%	20%	--	--	--	--	4.39	4.39
Shallow nearshore rockfish												
Black and Yellow Rockfish	0.56	0.07	0.05	10%	45%	100%	0.06	0.03	0.05	0.14	11.25	11.39
China Rockfish	0.12	1.45	1.03	10%	50%	100%	0.01	0.73	1.03	1.77	1.37	3.14
Grass Rockfish	0.01	--	--	10%	45%	100%	0.00	--	--	0.00	11.46	11.46
Kelp Rockfish	0.15	0.03	--	10%	45%	100%	0.01	0.01	--	0.03	0.57	0.59
Nearshore Rockfish Unid	--	--	--	10%	45%	100%	--	--	--	--	0.03	0.03
Shortspine thornyhead (North of 34°27' N. lat.)	--	--	--	100%	100%	100%	--	--	--	--	0.12	0.12
Shortspine thornyhead (South of 34°27' N. lat.)	--	--	--	100%	100%	100%	--	--	--	--	0.97	0.97
Spiny dogfish shark	--	0.14	--	7%	7%	7%	--	0.01	--	0.01	--	0.01
Starry flounder	--	--	--	7%	7%	7%	--	--	--	--	0.13	0.13
Widow rockfish	--	--	--	50%	90%	100%	--	--	--	--	0.00	0.00
Non-groundfish species												
California halibut	0.04	--	--	7%	7%	7%	0.00	--	--	0.00	1.34	1.35
Dungeness crab	0.03	0.02	--	100%	100%	100%	0.03	0.02	--	0.05	1.36	1.42
Non-FMP flatfish												
Diamond Turbot	0.01	--	--	7%	7%	7%	0.00	--	--	0.00	--	0.00
Hornyhead Turbot	--	--	--	7%	7%	7%	--	--	--	--	0.00	0.00
Other nongroundfish ¹												
Brown Irish Lord Sculpin	--	0.02	--	100%	100%	100%	--	0.02	--	0.02	--	0.02
Buffalo Sculpin	--	0.05	--	100%	100%	100%	--	0.05	--	0.05	--	0.05
California Sheephead	23.15	8.00	--	100%	100%	100%	23.15	8.00	--	31.16	27.58	58.74
Pacific Staghorn Sculpin	--	0.00	--	100%	100%	100%	--	0.00	--	0.00	--	0.00
Red Irish Lord Sculpin	0.02	--	--	100%	100%	100%	0.02	--	--	0.02	--	0.02
Rock Greenling	0.03	--	--	7%	7%	7%	0.00	--	--	0.00	0.05	0.05

‡ Discard mortality rates provided by the Groundfish Management Team (GMT). Each mortality rate is applied to each gross estimated discard weight by depth.

¹ Some listed species are under state nearshore fixed gear management, but not included in the groundfish FMP.

Table 13. Estimated discard (mt), landings (mt), and estimated total fishing mortality (mt) of west coast groundfish species in non-IFQ 2012 fisheries/groundfish sectors observed by the WCGOP.

Weight (mt)	Open Access CA halibut			Pink shrimp			Non-nearshore fixed gear			Nearshore fixed gear		
	Discard	Landed	Estimate	Discard	Landed	Estimate	Discard	Landed	Estimate	Discard	Landed	Estimate
Rebuilding species												
Bocaccio rockfish (South of 40°10' N. lat.)	--	--	--	--	0.01	0.01	--	2.62	2.62	--	0.73	0.73
Canary rockfish	--	0.00	0.00	0.01	0.01	0.02	0.03	0.08	0.12	7.23	--	7.23
Darkblotched rockfish	--	--	--	4.96	0.00	4.96	1.52	7.52	9.04	--	0.10	0.10
Pacific Ocean Perch (North of 40°10' N. lat.)	--	--	--	0.19	0.05	0.24	0.03	0.39	0.41	--	--	--
Petrale sole	0.15	0.23	0.38	0.88	0.26	1.15	0.09	0.74	0.83	0.00	0.00	0.00
Yelloweye rockfish	--	--	--	0.00	--	0.00	0.34	--	0.34	1.79	--	1.79
Other groundfish species												
Arrowtooth flounder	--	0.04	0.04	6.43	0.05	6.47	39.38	3.15	42.53	--	0.01	0.01
Black rockfish (South of 46°16' N. lat.)	--	0.00	0.00	--	--	--	--	--	--	1.28	119.54	120.82
Cabazon (California)	--	--	--	--	0.01	0.01	--	--	--	0.33	30.25	30.58
Cabazon (Oregon)	--	--	--	--	--	--	--	--	--	0.11	28.85	28.97
California scorpionfish (South of 34°27' N. lat.)	--	0.00	0.00	--	0.36	0.36	--	--	--	--	3.19	3.19
Chilipepper rockfish (South of 40°10' N. lat.)	--	--	--	--	--	--	0.01	1.12	1.13	--	0.04	0.04
Dover sole	--	--	--	1.52	0.79	2.31	6.79	3.12	9.91	--	0.00	0.00
English sole	0.87	0.23	1.10	0.06	0.55	0.61	0.02	0.28	0.30	--	--	--
Lingcod (North of 42° N. lat.)	--	--	--	0.53	--	0.53	2.17	16.10	18.27	1.69	35.12	36.80
Lingcod (South of 42° N. lat.)	--	0.01	0.01	0.01	0.01	0.02	1.93	7.55	9.48	1.29	22.22	23.52
50% discard mortality (Trawl) [‡]												
Longnose skate	0.05	--	0.05	0.55	0.09	0.64	59.62	35.39	65.20	--	0.03	0.03
50% discard mortality (Trawl) [‡]												
50% discard mortality (Fixed Gear) [‡]							29.81					
Longspine thornyhead (North of 34°27' N. lat.)	--	--	--	0.00	0.02	0.02	3.10	2.86	5.96	--	0.00	0.00
Longspine thornyhead (South of 34°27' N. lat.)	--	--	--	--	--	--	2.64	13.03	15.66	--	0.05	0.05
Minor nearshore rockfish (North of 40°10' N. lat.)												
Black and Yellow Rockfish	--	--	--	--	--	--	--	--	--	--	0.01	0.01
Blue Rockfish	--	--	--	--	--	--	--	--	--	2.37	9.91	12.28
Brown Rockfish	--	--	--	--	--	--	--	--	--	--	0.30	0.30
China Rockfish	--	--	--	--	--	--	--	--	--	0.21	9.21	9.41
Copper Rockfish	--	--	--	--	--	--	--	--	--	0.01	2.23	2.24
Gopher Rockfish	--	--	--	--	--	--	--	--	--	--	0.06	0.06
Grass Rockfish	--	--	--	--	--	--	--	--	--	--	0.22	0.22
Olive Rockfish	--	--	--	--	--	--	--	--	--	0.03	0.04	0.07
Quillback Rockfish	--	--	--	--	--	--	--	--	--	0.21	3.17	3.38
Minor nearshore rockfish (South of 40°10' N. lat.)												
Black and Yellow Rockfish	--	--	--	--	--	--	--	--	--	0.14	11.25	11.39
Blue Rockfish	--	--	--	--	--	--	--	--	--	0.37	1.04	1.41
Brown Rockfish	--	0.01	0.01	--	--	--	--	--	--	0.36	25.83	26.19
Calico Rockfish	--	--	--	--	--	--	--	--	--	0.00	--	0.00
China Rockfish	--	--	--	--	--	--	--	--	--	1.77	1.37	3.14
Copper Rockfish	--	0.00	0.00	--	0.01	0.01	--	--	--	0.11	4.62	4.72
Gopher Rockfish	--	--	--	--	--	--	--	--	--	0.70	22.06	22.76
Grass Rockfish	--	--	--	--	--	--	--	--	--	0.00	11.46	11.46
Kelp Rockfish	--	--	--	--	--	--	--	--	--	0.03	0.57	0.59
Nearshore Rockfish Unid	--	--	--	--	--	--	--	--	--	--	0.16	0.16
Olive Rockfish	--	--	--	--	--	--	--	--	--	0.39	0.88	1.26
Quillback Rockfish	--	--	--	--	--	--	--	--	--	0.00	0.21	0.21
Treefish Rockfish	--	--	--	--	--	--	--	--	--	0.06	1.60	1.66
Minor shelf rockfish (North of 40°10' N. lat.)												
Bocaccio Rockfish	--	--	--	0.02	--	0.02	0.04	0.08	0.12	--	0.01	0.01
Chilipepper Rockfish	--	--	--	1.01	--	1.01	--	0.03	0.03	--	--	--
Greenspotted Rockfish	--	--	--	--	--	--	--	0.00	0.00	--	--	--
Greenstriped Rockfish	--	--	--	0.55	--	0.55	0.15	0.22	0.37	--	--	--
Halfbanded Rockfish	--	--	--	0.00	--	0.00	--	--	--	--	--	--
Harlequin Rockfish	--	--	--	0.00	--	0.00	--	--	--	--	--	--
Pygmy Rockfish	--	--	--	0.00	--	0.00	--	--	--	--	--	--
Redstripe Rockfish	--	--	--	0.00	--	0.00	--	--	--	--	--	--
Rosethorn Rockfish	--	--	--	--	--	--	0.34	0.53	0.86	--	--	--
Rosy Rockfish	--	--	--	--	--	--	0.05	--	0.05	0.00	--	0.00
Shelf Rockfish Unid	--	--	--	5.77	--	5.77	0.01	0.31	0.32	--	0.07	0.07
Silvergray Rockfish	--	--	--	--	--	--	0.01	0.12	0.13	--	--	--
Starry Rockfish	--	--	--	--	--	--	--	--	--	--	0.00	0.00
Stripetail Rockfish	--	--	--	0.68	--	0.68	0.01	0.00	0.01	--	--	--
Tiger Rockfish	--	--	--	--	--	--	--	--	--	0.00	0.50	0.50
Vermilion Rockfish	--	--	--	--	--	--	--	0.04	0.04	0.03	3.89	3.92

[‡]Discard mortality rates provided by the Groundfish Management Team (GMT).

Table 13 (continued).

Weight (mt)	Open Access CA halibut			Pink shrimp			Non-nearshore fixed gear			Nearshore fixed gear		
	Discard	Landed	Estimate	Discard	Landed	Estimate	Discard	Landed	Estimate	Discard	Landed	Estimate
Minor shelf rockfish (South of 40°10' N. lat.)												
Bronzespotted Rockfish	--	--	--	--	--	--	0.10	0.00	0.10	--	--	--
Flag Rockfish	--	--	--	--	--	--	--	0.24	0.24	--	0.11	0.11
Freckled Rockfish	--	--	--	--	--	--	--	--	--	--	0.01	0.01
Greenblotched Rockfish	--	--	--	--	--	--	--	0.14	0.14	--	0.05	0.05
Greenspotted Rockfish	--	--	--	--	--	--	0.04	1.15	1.19	--	0.07	0.07
Greenstriped Rockfish	--	--	--	--	--	--	--	0.04	0.04	--	0.01	0.01
Honeycomb Rockfish	--	--	--	--	--	--	--	0.00	0.00	--	0.00	0.00
Mexican Rockfish	--	--	--	--	--	--	--	0.04	0.04	--	0.00	0.00
Pink Rockfish	--	--	--	--	--	--	0.76	--	0.76	--	--	--
Pinkrose Rockfish	--	--	--	--	--	--	--	0.00	0.00	--	--	--
Rosethorn Rockfish	--	--	--	--	--	--	0.16	0.23	0.39	--	0.03	0.03
Rosy Rockfish	--	--	--	--	--	--	0.00	0.11	0.11	0.27	0.23	0.50
Shelf Rockfish Unid	--	--	--	--	--	--	--	0.71	0.71	--	0.81	0.81
Speckled Rockfish	--	--	--	--	--	--	--	0.11	0.11	--	0.02	0.02
Squarespot Rockfish	--	--	--	--	--	--	--	0.18	0.18	--	0.00	0.00
Starry Rockfish	--	--	--	--	--	--	--	0.31	0.31	0.02	0.25	0.27
Swordspine Rockfish	--	--	--	--	--	--	0.04	--	0.04	--	--	--
Vermilion Rockfish	--	0.00	0.00	--	--	--	--	9.00	9.00	0.01	7.04	7.05
Yellowtail Rockfish	--	--	--	--	--	--	--	0.58	0.58	0.07	0.28	0.35
Minor slope rockfish (North of 40°10' N. lat.)												
Aurora Rockfish	--	--	--	0.13	--	0.13	0.13	0.06	0.20	--	--	--
Bank Rockfish	--	--	--	--	--	--	--	0.02	0.02	--	--	--
Blackgill Rockfish	--	--	--	0.00	--	0.00	1.74	1.61	3.35	--	--	--
Blackspotted Rockfish	--	--	--	--	--	--	--	0.17	0.17	--	--	--
Redbanded Rockfish	--	--	--	0.02	--	0.02	7.11	14.75	21.85	--	0.00	0.00
Rougheye Rockfish	--	--	--	0.01	--	0.01	16.10	36.44	52.53	--	0.00	0.00
Sharpchin Rockfish	--	--	--	0.00	--	0.00	--	0.02	0.02	--	--	--
Shortraker Rockfish	--	--	--	--	--	--	3.13	3.38	6.52	--	0.00	0.00
Shortraker/Rougheye Rockfish	--	--	--	--	--	--	36.38	--	36.38	--	--	--
Slope Rockfish Unid	--	--	--	--	0.08	0.08	0.03	6.54	6.57	--	0.01	0.01
Splitnose Rockfish	--	--	--	1.06	--	1.06	0.01	0.18	0.19	--	--	--
Yellowmouth Rockfish	--	--	--	--	--	--	--	1.26	1.26	--	--	--
Minor slope rockfish (South of 40°10' N. lat.)												
Aurora Rockfish	--	--	--	--	--	--	0.14	0.16	0.31	--	--	--
Bank Rockfish	--	--	--	--	--	--	--	0.43	0.43	--	0.01	0.01
Blackgill Rockfish	--	--	--	--	--	--	9.40	104.28	113.68	--	2.31	2.31
Blackspotted Rockfish	--	--	--	--	--	--	--	8.82	8.82	--	0.02	0.02
Redbanded Rockfish	--	--	--	--	--	--	1.00	0.01	1.01	--	0.00	0.00
Rougheye Rockfish	--	--	--	--	--	--	0.22	--	0.22	--	--	--
Sharpchin Rockfish	--	--	--	--	--	--	0.05	--	0.05	--	--	--
Slope Rockfish Unid	--	--	--	--	--	--	--	3.49	3.49	--	0.07	0.07
Mixed thornyheads												
Shortspine/ Longspine Thornyhead	--	--	--	--	0.00	0.00	0.01	0.74	0.75	--	0.03	0.03
Other flatfish												
Butter Sole	--	0.00	0.00	--	--	--	--	--	--	--	--	--
Curlfin Turbot	0.58	0.00	0.58	--	--	--	--	--	--	--	--	--
Flatfish Unid	--	0.45	0.45	5.02	12.32	17.34	0.00	0.06	0.06	--	0.01	0.01
Flathead Sole	--	--	--	2.01	--	2.01	--	0.00	0.00	--	--	--
Pacific Sanddab	0.75	0.04	0.80	3.47	0.03	3.50	--	2.60	2.60	0.00	2.40	2.40
Rex Sole	0.01	--	0.01	13.70	0.37	14.07	0.00	0.34	0.35	--	0.00	0.00
Rock Sole	0.00	0.14	0.14	0.32	0.60	0.91	--	0.02	0.02	0.00	0.07	0.07
Sand Sole	0.02	10.23	10.26	--	0.05	0.05	--	0.23	0.23	0.00	0.13	0.13
Sanddab Unid	--	0.00	0.00	0.08	0.02	0.09	--	1.89	1.89	0.00	0.00	0.01
Other groundfish												
Big Skate	20.25	--	20.25	0.09	--	0.09	6.48	0.06	6.54	0.01	--	0.01
California Scorpionfish	--	--	--	--	--	--	--	--	--	0.00	0.00	0.00
California Skate	0.46	--	0.46	0.00	--	0.00	0.00	0.01	0.01	--	--	--
Grenadier Unid	--	--	--	--	--	--	--	50.88	50.88	--	0.62	0.62
Kelp Greenling	--	--	--	--	--	--	--	--	--	0.39	24.01	24.40
Leopard Shark	--	0.05	0.05	--	0.01	0.01	--	0.96	0.96	0.06	0.18	0.24
Pacific Flatnose	--	--	--	--	--	--	0.91	--	0.91	--	--	--
Pacific Grenadier	--	--	--	--	--	--	18.93	--	18.93	--	--	--
Rockfish Unid	--	--	--	--	--	--	--	1.59	1.59	--	0.32	0.32
Skate Unid	--	0.68	0.68	0.00	1.19	1.20	1.83	9.61	11.44	0.05	0.31	0.35
Southern Shark	--	0.11	0.11	--	0.01	0.01	--	0.15	0.15	--	0.25	0.25
Spotted Ratfish	--	--	--	0.17	--	0.17	6.67	0.02	6.70	0.00	0.00	0.00

Table 13 (continued).

Weight (mt)	Open Access CA halibut			Pink shrimp			Non-nearshore fixed gear			Nearshore fixed gear		
	Discard	Landed	Estimate	Discard	Landed	Estimate	Discard	Landed	Estimate	Discard	Landed	Estimate
Pacific cod	0.00	--	0.00	0.00	0.00	0.00	0.20	2.25	2.45	--	--	--
Pacific hake	--	--	--	18.75	--	18.75	3.13	0.27	3.40	--	--	--
Sablefish (North of 36° N. lat.)	--	--	--	0.08	0.13	0.21	657.62	1766.14	1897.67	--	1.69	1.69
20% discard mortality (Fixed Gear) [‡]							131.52					
Sablefish (South of 36° N. lat.)	--	--	--	--	0.12	0.12	20.53	472.36	476.47	--	4.39	4.39
20% discard mortality (Fixed Gear) [‡]							4.11					
Shortbelly rockfish	--	--	--	0.38	--	0.38	--	--	--	--	--	--
Shortspine thornyhead (North of 34°27' N. lat.)	--	--	--	0.11	0.12	0.23	7.12	55.93	63.05	--	0.12	0.12
Shortspine thornyhead (South of 34°27' N. lat.)	--	--	--	--	--	--	12.57	113.22	125.79	--	0.97	0.97
Spiny dogfish	1.83	--	1.83	0.89	0.01	0.90	161.47	1.57	163.05	0.01	0.01	0.02
50% discard mortality (Fixed Gear) [‡]												
Splitnose rockfish (South of 40°10' N. lat.)	--	--	--	--	--	--	0.01	0.31	0.32	--	--	--
Starry flounder	0.84	3.72	4.57	0.01	--	0.01	--	0.03	0.03	--	0.13	0.13
Widow rockfish	--	--	--	0.12	0.00	0.12	0.00	0.21	0.21	0.02	0.03	0.04
Yellowtail rockfish (North of 40°10' N. lat.)	--	--	--	1.14	0.00	1.14	0.16	0.45	0.61	0.97	0.79	1.76
Non-groundfish species												
California halibut	0.34	56.30	56.64	--	8.41	8.41	--	0.58	0.58	0.00	1.34	1.35
Dungeness crab	151.03	--	151.03	0.05	0.00	0.05	0.78	3.89	4.68	0.06	2.83	2.88
Non-FMP flatfish												
Bigmouth Sole	--	--	--	--	--	--	--	0.00	0.00	--	--	--
Deepsea Sole	--	0.22	0.22	--	--	--	0.02	--	0.02	--	--	--
Diamond Turbot	--	--	--	--	--	--	--	--	--	0.00	--	0.00
Fantail Sole	0.13	0.01	0.14	--	--	--	--	--	--	--	--	--
Hornyhead Turbot	0.16	0.12	0.28	--	2.51	2.51	--	--	--	--	0.00	0.00
Slender Sole	--	--	--	93.52	--	93.52	--	0.00	0.00	--	--	--
Speckled Sanddab	--	--	--	0.01	--	0.01	--	--	--	--	--	--
Non-FMP skate												
Aleutian Skate	--	--	--	--	--	--	0.29	--	0.29	--	--	--
Black Skate	--	--	--	--	--	--	4.08	--	4.08	--	--	--
Pacific Electric Ray	0.30	--	0.30	--	--	--	--	--	--	--	--	--
Pelagic Stingray	--	--	--	--	--	--	0.12	--	0.12	--	--	--
Round Stingray	--	--	--	--	--	--	--	--	--	0.00	--	0.00
Sandpaper Skate	0.00	--	0.00	0.01	--	0.01	1.61	--	1.61	--	--	--
Shovelnose Guitarfish	0.06	--	0.06	--	--	--	--	--	--	--	--	--
Starry Skate	--	--	--	0.00	--	0.00	0.01	--	0.01	--	--	--
Thornback Skate	0.27	--	0.27	--	--	--	--	--	--	--	--	--

[‡] Discard mortality rates provided by the Groundfish Management Team (GMT).

Table 14. Incidental landings (mt) of groundfish from shoreside commercial fisheries and exempted fishing permits in 2012 by gear group. Gear groups are as follows: HKL (hook-and-lines), MSC (miscellaneous), NET (nets), POT (pots), TLS (troll) and TWL (trawl).

	Shoreside Commercial Landings (mt) Other Fisheries By Gear Group						Incidental fisheries estimate
	HKL	MSC	NET	POT	TLS	TWL	
Rebuilding species							
Bocaccio rockfish (South of 40°10' N. lat.)	0.01	--	--	--	0.01	--	0.02
Canary rockfish	0.02	--	0.02	--	--	1.12	1.15
Darkblotched rockfish	0.03	--	--	0.03	--	0.02	0.08
Pacific Ocean Perch (North of 40°10' N. lat.)	0.00	--	--	--	0.00	0.16	0.16
Petrale sole	0.34	--	0.08	--	0.00	0.34	0.76
Yelloweye rockfish	0.05	--	--	--	--	0.04	0.09
Other groundfish species							
Arrowtooth flounder	0.24	--	--	--	--	0.00	0.24
Black rockfish (South of 46°16' N. lat.)	--	--	0.01	--	0.29	--	0.30
Cabazon (California)	--	0.06	0.03	--	--	--	0.10
California scorpionfish (South of 34°27' N. lat.)	--	0.02	0.19	--	--	0.07	0.27
Chilipepper rockfish (South of 40°10' N. lat.)	--	--	--	--	--	0.10	0.10
Dover sole	0.02	--	0.00	--	0.07	0.99	1.09
English sole	--	--	--	--	--	0.20	0.20
Lingcod (North of 42° N. lat.)	3.04	--	--	--	2.38	1.06	6.49
Lingcod (South of 42° N. lat.)	0.45	0.01	0.14	0.29	0.49	--	1.38
Longnose skate	2.83	--	--	--	0.03	0.28	3.15
Longspine thornyhead (North of 34°27' N. lat.)	0.00	--	--	--	0.01	0.25	0.26
Longspine thornyhead (South of 34°27' N. lat.)	0.00	--	--	--	--	--	0.00
Minor nearshore rockfish (North of 40°10' N. lat.)							
Blue Rockfish	--	--	--	--	0.08	--	0.08
Quillback Rockfish	--	--	--	--	--	0.06	0.06
Minor nearshore rockfish (South of 40°10' N. lat.)							
Black and Yellow Rockfish	--	0.01	--	--	--	--	0.01
Blue Rockfish	--	--	0.00	--	0.02	--	0.02
Brown Rockfish	--	--	--	--	--	0.00	0.00
Copper Rockfish	--	0.00	--	--	--	0.08	0.09
Gopher Rockfish	--	0.03	--	--	0.01	--	0.04
Grass Rockfish	--	0.01	0.01	--	--	--	0.02
Kelp Rockfish	--	0.00	--	--	--	--	0.00
Olive Rockfish	--	--	--	--	0.05	--	0.05
Treefish Rockfish	--	--	0.00	--	--	--	0.00
Minor shelf rockfish (North of 40°10' N. lat.)							
Bocaccio Rockfish	0.00	--	--	--	--	--	0.00
Chilipepper Rockfish	0.00	--	--	--	--	--	0.00
Greenstriped Rockfish	0.00	--	--	--	--	0.00	0.00
Redstripe Rockfish	--	--	--	--	--	--	--
Rosethorn Rockfish	0.03	--	--	--	--	--	0.03
Shelf Rockfish Unid	0.00	--	--	--	0.17	0.01	0.19
Silvergray Rockfish	0.03	--	--	--	--	--	0.03
Vermilion Rockfish	--	--	--	--	0.01	--	0.01
Minor shelf rockfish (South of 40°10' N. lat.)							
Greenspotted Rockfish	0.02	--	--	--	--	--	0.02
Pink Rockfish	--	--	--	--	--	0.01	0.01
Rosy Rockfish	0.00	--	--	--	--	--	0.00
Shelf Rockfish Unid	0.00	--	0.00	--	0.01	--	0.02
Speckled Rockfish	0.00	--	--	--	--	--	0.00
Starry Rockfish	0.01	--	--	--	--	--	0.01
Vermilion Rockfish	0.16	0.00	--	0.02	0.10	--	0.28
Yellowtail Rockfish	0.15	--	0.88	--	0.07	--	1.10

Table 14 (continued).

	Shoreside Commercial Landings (mt) Other Fisheries By Gear Group						Incidental fisheries estimate
	HKL	MSC	NET	POT	TLS	TWL	
Minor slope rockfish (North of 40°10' N. lat.)							
Aurora Rockfish	0.00	--	--	--	--	0.00	0.01
Blackgill Rockfish	0.01	--	--	--	0.01	0.00	0.02
Blackspotted Rockfish	0.00	--	--	--	--	--	0.00
Redbanded Rockfish	0.18	--	--	--	--	0.00	0.19
Rougheye Rockfish	0.68	--	--	--	--	0.04	0.72
Shortraker Rockfish	0.13	--	--	--	--	0.02	0.15
Slope Rockfish Unid	0.15	--	0.27	--	0.26	--	0.68
Splitnose Rockfish	0.00	--	--	--	--	0.00	0.00
Yellowmouth Rockfish	0.02	--	--	--	--	--	0.02
Minor slope rockfish (South of 40°10' N. lat.)							
Bank Rockfish	--	--	1.04	--	--	--	1.04
Slope Rockfish Unid	0.01	--	0.00	--	0.01	--	0.02
Other flatfish							
Butter Sole	--	--	0.09	--	--	0.00	0.09
Curlfin Turbot	0.02	--	--	--	--	0.01	0.03
Flatfish Unid	0.01	0.02	0.16	--	--	0.19	0.38
Flathead Sole	--	--	--	--	--	0.00	0.00
Pacific Sanddab	0.11	--	--	--	--	0.01	0.12
Rex Sole	--	--	--	--	--	0.33	0.33
Rock Sole	0.01	--	--	--	--	0.01	0.01
Sanddab Unid	0.02	--	0.06	0.04	0.03	--	0.14
Sand Sole	0.03	0.05	0.00	--	0.01	3.20	3.28
Other groundfish							
California Skate	--	--	0.01	--	--	--	0.01
Grenadier Unid	--	--	--	--	0.85	--	0.85
Kelp Greenling	--	0.00	--	--	0.01	--	0.02
Leopard Shark	0.09	--	1.54	--	--	--	1.63
Rockfish Unid	0.00	--	--	--	--	--	0.00
Skate Unid	0.36	--	5.52	--	--	--	6.00
Soupin Shark	0.06	--	0.69	--	--	0.02	0.77
Pacific cod	0.45	0.00	--	--	0.08	0.01	0.54
Sablefish (North of 36° N. lat.)	14.32	0.29	0.14	1.26	5.71	9.90	31.61
Sablefish (South of 36° N. lat.)	--	--	0.13	--	--	--	0.13
Shortspine thornyhead (North of 34°27' N. lat.)	0.23	--	--	--	0.36	0.79	1.38
Shortspine thornyhead (South of 34°27' N. lat.)	0.02	--	--	--	--	--	0.02
Spiny dogfish	0.03	--	0.04	--	--	--	0.07
Splitnose rockfish (South of 40°10' N. lat.)	--	0.00	0.00	--	--	--	0.01
Starry flounder	0.03	--	--	--	--	0.31	0.34
Widow rockfish	--	--	--	--	0.04	--	0.04
Yellowtail rockfish (North of 40°10' N. lat.)	0.05	--	--	--	2.10	0.07	2.21
Non-groundfish species							
California halibut	46.22	0.15	38.43	0.49	1.99	0.24	87.51
Dungeness crab	0.01	30.51	--	18644.13	0.51	0.10	18675.26
Non-FMP flatfish							
Deepsea Sole	--	--	--	--	--	0.01	0.01
Hornyhead Turbot	--	--	0.06	--	--	0.01	0.07
Slender Sole	--	--	0.02	--	--	0.01	0.03

Table 15. Estimated fishing mortality (mt) of west coast groundfish species and a subset of non-groundfish bycatch species in 2012 by sector or fishery.

Weight (mt)	Commercial fisheries										WA tribal landings	WA tribal at-sea	Recreational fishing mortality			Research	Estimated fishing mortality
	IFQ/Coop Management				Non-nearshore fixed gear	Nearshore fixed gear	OA CA halibut	Pink shrimp	Incidental fisheries	WA			OR	CA			
	Non-tribal at-sea hake	Non-tribal shoreside hake	Non-hake IFQ trawl	Non-hake IFQ fixed gear													
Rebuilding groundfish species																	
Bocaccio rockfish (South of 40°10' N. lat.)	--	--	8.84	0.00	2.62	0.73	--	0.01	0.02	--	--	--	--	124.73	2.55	139.51	
Canary rockfish	0.41	2.14	5.01	0.00	0.12	7.23	0.00	0.02	1.15	7.24	--	0.64	3.67	13.41	3.75	44.80	
Cowcod rockfish (South of 40°10' N. lat.)	--	--	0.09	--	--	--	--	--	--	--	--	--	--	0.84	0.22	1.15	
Darkblotched rockfish	2.70	4.33	81.11	0.25	9.04	0.10	--	4.96	0.08	0.64	--	--	--	--	1.74	104.95	
Pacific Ocean Perch (North of 40°10' N. lat.)	4.53	12.36	36.17	0.09	0.41	--	--	0.24	0.16	0.21	--	--	--	--	1.63	55.79	
Petrale sole	--	0.00	1032.19	0.40	0.83	0.00	0.38	1.15	0.76	69.71	--	--	0.16	0.73	4.43	1110.73	
Yelloweye rockfish	--	--	0.03	--	0.34	1.79	--	0.00	0.09	0.15	--	3.22	3.08	1.61	1.25	11.56	
Other groundfish species																	
Arrowtooth flounder	4.64	24.82	2359.05	5.60	42.53	0.01	0.04	6.47	0.24	55.55	0.04	--	0.00	0.00	9.09	2508.08	
Black rockfish (North of 46°16' N. lat.)	--	--	0.72	--	--	--	--	--	--	0.10	--	248.57	--	--	0.01	249.40	
Black rockfish (South of 46°16' N. lat.)	--	--	0.02	--	--	120.82	0.00	--	0.30	--	--	--	231.13	210.43	0.00	562.71	
Cabazon (California)	--	--	--	--	--	30.58	--	0.01	0.10	--	--	--	--	43.25	--	73.93	
Cabazon (Oregon)	--	--	0.08	--	--	28.97	--	--	--	--	--	--	17.78	--	--	46.83	
California scorpionfish (South of 34°27' N. lat.)	--	--	--	--	--	3.19	0.00	0.36	0.27	--	--	--	--	116.26	0.10	120.18	
Chilipepper rockfish (South of 40°10' N. lat.)	--	--	288.14	0.01	1.13	0.04	--	--	0.10	--	--	--	--	7.74	5.30	302.45	
Dover sole	0.32	0.60	7019.41	3.69	9.91	0.00	--	2.31	1.09	96.25	--	--	0.00	0.01	41.85	7175.44	
English sole	0.01	0.02	146.71	--	0.30	--	1.10	0.61	0.20	73.02	--	--	0.01	0.01	2.45	224.43	
Lingcod (North of 42° N. lat.)	0.18	3.74	331.86	2.02	18.27	36.80	--	0.53	6.49	50.68	--	119.32	156.24	--	5.27	731.40	
Lingcod (South of 42° N. lat.)	--	--	19.63	0.32	9.48	23.52	0.01	0.02	1.38	--	--	--	--	281.44	1.14	336.94	
Longnose skate	0.06	0.24	892.35	14.98	65.20	0.03	0.01	0.64	3.15	3.68	--	--	--	--	10.65	990.99	
Longspine thornyhead (North of 34°27' N. lat.)	0.00	0.05	891.96	0.23	5.96	0.00	--	0.02	0.26	0.04	--	--	--	--	13.51	912.04	
Longspine thornyhead (South of 34°27' N. lat.)	--	--	0.40	0.00	15.66	0.05	--	--	0.00	--	--	--	--	--	1.41	17.53	
Minor nearshore rockfish (North of 40°10' N. lat.)																	
Black and Yellow Rockfish	--	--	--	--	--	0.01	--	--	--	--	--	--	0.00	0.01	--	0.02	
Blue Rockfish	--	--	--	--	--	12.28	--	--	0.08	--	--	1.27	27.12	2.86	0.03	43.64	
Brown Rockfish	--	--	0.01	--	--	0.30	--	--	--	--	--	--	0.09	0.52	--	0.92	
China Rockfish	--	--	--	--	--	9.41	--	--	--	--	--	2.58	3.72	1.39	--	17.11	
Copper Rockfish	--	--	--	--	--	2.24	--	--	--	--	--	1.48	8.90	1.45	--	14.07	
Gopher Rockfish	--	--	--	--	--	0.06	--	--	--	--	--	--	--	0.08	--	0.14	
Grass Rockfish	--	--	--	--	--	0.22	--	--	--	--	--	--	1.35	0.15	--	1.72	
Nearshore Rockfish Unid	--	--	0.01	--	--	--	--	--	--	0.08	--	--	--	--	--	0.09	
Olive Rockfish	--	--	--	--	--	0.07	--	--	--	--	--	--	0.00	0.08	--	0.15	
Quillback Rockfish	--	--	0.10	--	--	3.38	--	--	0.06	--	--	2.31	8.82	3.56	0.07	18.31	

Note: A value is (--) when the species was neither caught nor discarded (no value). Values appear as 0.00 when a value is smaller than two decimal places.

Table 15 (continued).

Weight (mt)	Commercial fisheries										WA tribal landings	WA tribal at-sea	Recreational fishing mortality			Research	Estimated fishing mortality
	IFQ/Coop Management					Nearshore fixed gear	OA CA halibut	Pink shrimp	Incidental fisheries	WA			WA	Recreational fishing mortality			
	Non-tribal at-sea hake	Non-tribal shoreside hake	Non-hake IFQ trawl	Non-hake IFQ fixed gear	Non- nearshore fixed gear									WA	OR		
Minor nearshore rockfish (South of 40°10' N. lat.)	--	--	--	--	--	11.39	--	--	0.01	--	--	--	--	5.44	0.00	16.85	
Black and Yellow Rockfish	--	--	--	--	--	1.41	--	--	0.02	--	--	--	--	48.90	0.38	50.70	
Blue Rockfish	--	--	0.01	--	--	26.19	0.01	--	0.00	--	--	--	--	69.76	0.01	95.99	
Brown Rockfish	--	--	--	--	--	0.00	--	--	--	--	--	--	--	5.11	0.00	5.12	
Calico Rockfish	--	--	--	--	--	3.14	--	--	--	--	--	--	--	12.41	0.01	15.56	
China Rockfish	--	--	--	--	--	4.72	0.00	0.01	0.09	--	--	--	--	78.41	2.14	85.38	
Copper Rockfish	--	--	--	--	--	22.76	--	--	0.04	--	--	--	--	52.32	0.00	75.11	
Gopher Rockfish	--	--	--	--	--	11.46	--	--	0.02	--	--	--	--	20.64	--	32.11	
Grass Rockfish	--	--	--	--	--	0.59	--	--	0.00	--	--	--	--	19.11	--	19.70	
Kelp Rockfish	--	--	--	--	--	0.16	--	--	--	--	--	--	--	--	--	0.16	
Nearshore Rockfish Unid	--	--	--	--	--	1.26	--	--	0.05	--	--	--	--	31.50	0.12	32.93	
Olive Rockfish	--	--	--	--	--	0.21	--	--	--	--	--	--	--	2.70	0.01	2.93	
Quillback Rockfish	--	--	--	--	--	1.66	--	--	0.00	--	--	--	--	10.97	0.00	12.64	
Treefish Rockfish																	
Minor shelf rockfish (North of 40°10' N. lat.)																	
Bocaccio Rockfish	0.12	0.13	1.67	0.00	0.12	0.01	--	0.02	0.00	0.29	--	2.24	0.07	--	0.07	4.73	
Chilipepper Rockfish	0.02	0.01	0.18	0.00	0.03	--	--	1.01	0.00	--	--	--	0.00	--	0.13	1.38	
Cowcod Rockfish	--	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--	0.00	
Greenblotched Rockfish	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00	0.00	
Greenspotted Rockfish	--	0.00	0.08	--	0.00	--	--	--	--	--	--	--	0.01	0.00	0.02	0.11	
Greenstriped Rockfish	--	0.05	28.77	0.00	0.37	--	--	0.55	0.00	0.23	--	--	0.01	--	1.91	31.89	
Halfbanded Rockfish	--	--	0.01	--	--	--	--	0.00	--	--	--	--	--	--	0.00	0.01	
Harlequin Rockfish	0.00	--	0.00	--	--	--	--	0.00	--	--	--	--	--	--	0.00	0.00	
Pygmy Rockfish	--	--	0.00	--	--	--	--	0.00	--	--	--	--	--	--	0.00	0.00	
Redstripe Rockfish	0.07	0.04	0.71	0.00	--	--	--	0.00	--	6.41	--	--	0.00	--	4.02	11.25	
Rosethorn Rockfish	0.00	0.00	3.09	0.09	0.86	--	--	--	0.03	0.10	--	--	0.03	--	0.45	4.66	
Rosy Rockfish	--	--	0.07	--	0.05	0.00	--	--	--	--	--	--	0.01	0.01	--	0.13	
Shelf Rockfish Unid	0.00	0.01	1.37	0.00	0.32	0.07	--	5.77	0.19	0.34	--	--	--	--	--	8.07	
Silvergray Rockfish	0.78	0.57	1.37	0.01	0.13	--	--	--	0.03	0.00	--	--	--	--	0.10	2.99	
Squarespot Rockfish	--	--	0.00	--	--	--	--	--	--	--	--	--	--	--	0.00	0.00	
Starry Rockfish	--	--	0.06	--	--	0.00	--	--	--	--	--	--	--	--	--	0.06	
Stripetail Rockfish	0.00	--	1.53	--	0.01	--	--	0.68	--	--	--	--	--	--	0.85	3.07	
Swordspine Rockfish	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00	0.00	
Tiger Rockfish	--	--	--	--	--	0.50	--	--	--	--	--	--	0.15	1.77	0.14	2.56	
Vermilion Rockfish	--	--	--	--	0.04	3.92	--	--	0.01	--	--	--	0.67	9.17	4.86	18.67	
Yellowtail Rockfish	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.75	0.75	

Note: A value is (--) when the species was neither caught nor discarded (no value). Values appear as 0.00 when a value is smaller than two decimal places.

Table 15 (continued).

Weight (mt)		Commercial fisheries										WA tribal landings	WA tribal at-sea	Recreational fishing mortality			Research	Estimated fishing mortality
		IFQ/Coop Management																
		Non-tribal at-sea hake	Non-tribal shoreside hake	Non-hake IFQ trawl	Non-hake IFQ fixed gear	Non- nearshore fixed gear	Nearshore fixed gear	OA CA halibut	Pink shrimp	Incidental fisheries	WA			OR	CA			
Minor shelf rockfish (South of 40°10' N. lat.)																		
Bronzespotted Rockfish		--	--	--	0.02	0.10	--	--	--	--	--	--	--	--	--	--	0.12	
Flag Rockfish		--	--	0.00	--	0.24	0.11	--	--	--	--	--	--	--	14.15	0.03	14.53	
Freckled Rockfish		--	--	--	--	--	0.01	--	--	--	--	--	--	--	--	0.00	0.01	
Greenblotched Rockfish		--	--	0.03	--	0.14	0.05	--	--	--	--	--	--	--	0.71	0.05	0.98	
Greenspotted Rockfish		--	--	0.41	--	1.19	0.07	--	--	0.02	--	--	--	--	17.83	0.38	19.89	
Greenstriped Rockfish		--	--	1.17	--	0.04	0.01	--	--	--	--	--	--	--	1.16	0.17	2.55	
Halfbanded Rockfish		--	--	0.02	--	--	--	--	--	--	--	--	--	--	3.85	2.68	6.55	
Honeycomb Rockfish		--	--	--	--	0.00	0.00	--	--	--	--	--	--	--	6.22	0.00	6.23	
Mexican Rockfish		--	--	0.00	--	0.04	0.00	--	--	--	--	--	--	--	--	0.00	0.04	
Pink Rockfish		--	--	0.01	--	0.76	--	--	--	0.01	--	--	--	--	--	0.02	0.79	
Pinkrose Rockfish		--	--	--	--	0.00	--	--	--	--	--	--	--	--	--	--	0.00	
Pygmy Rockfish		--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00	0.00	
Redstripe Rockfish		--	--	0.00	--	--	--	--	--	--	--	--	--	--	0.01	--	0.01	
Rosethorn Rockfish		--	--	0.04	--	0.39	0.03	--	--	--	--	--	--	--	--	0.02	0.48	
Rosy Rockfish		--	--	0.01	--	0.11	0.50	--	--	0.00	--	--	--	--	5.62	0.19	6.43	
Shelf Rockfish Unid		--	--	0.35	0.10	0.71	0.81	--	--	0.02	--	--	--	--	--	--	1.98	
Speckled Rockfish		--	--	0.00	--	0.11	0.02	--	--	0.00	--	--	--	--	9.59	0.04	9.76	
Squarespot Rockfish		--	--	0.00	--	0.18	0.00	--	--	--	--	--	--	--	4.41	0.05	4.64	
Starry Rockfish		--	--	--	--	0.31	0.27	--	--	0.01	--	--	--	--	23.35	0.07	24.01	
Stripetail Rockfish		--	--	11.32	--	--	--	--	--	--	--	--	--	--	--	2.06	13.38	
Swordspine Rockfish		--	--	--	--	0.04	--	--	--	--	--	--	--	--	0.01	0.01	0.05	
Tiger Rockfish		--	--	0.00	--	--	--	--	--	--	--	--	--	--	0.05	--	0.05	
Vermilion Rockfish		--	--	0.01	--	9.00	7.05	0.00	--	0.28	--	--	--	--	214.66	2.09	233.09	
Yellowtail Rockfish		--	--	0.01	--	0.58	0.35	--	--	1.10	--	--	--	--	52.71	1.69	56.44	
Minor slope rockfish (North of 40°10' N. lat.)						--												
Aurora Rockfish		0.02	0.46	18.88	0.11	0.20	--	--	0.13	0.01	0.02	--	--	--	--	0.25	20.06	
Bank Rockfish		0.02	--	0.28	0.00	0.02	--	--	--	--	--	--	--	--	--	0.01	0.32	
Blackgill Rockfish		0.03	0.23	4.73	0.54	3.35	--	--	0.00	0.02	0.01	--	--	--	--	0.07	8.98	
Blackspotted Rockfish		--	--	0.19	0.04	0.17	--	--	--	0.00	0.00	--	--	--	--	--	0.41	
Redbanded Rockfish		0.01	0.83	5.90	0.77	21.85	0.00	--	0.02	0.19	6.06	--	--	--	--	0.23	35.86	
Rougheye Rockfish		54.03	47.08	47.42	19.46	52.53	0.00	--	0.01	0.72	15.19	--	--	--	--	0.26	236.70	
Sharpchin Rockfish		0.00	0.66	8.55	0.00	0.02	--	--	0.00	--	0.23	--	--	--	--	4.19	13.65	
Shortraker Rockfish		0.69	5.63	12.70	1.27	6.52	0.00	--	--	0.15	1.30	--	--	--	--	0.02	28.29	
Shortraker/Rougheye Rockfish		0.00	--	--	2.16	36.38	--	--	--	--	--	--	--	--	--	--	38.54	
Slope Rockfish Unid		0.00	0.09	1.39	1.18	6.57	0.01	--	0.08	0.68	0.37	--	--	--	--	--	10.38	
Splitnose Rockfish		20.48	16.44	12.69	0.02	0.19	--	--	1.06	0.00	0.05	--	--	--	--	0.02	50.96	
Yellowmouth Rockfish		0.25	0.52	6.64	0.18	1.26	--	--	--	0.02	0.00	--	--	--	--	0.02	8.90	

Note: A value is (--) when the species was neither caught nor discarded (no value). Values appear as 0.00 when a value is smaller than two decimal places.

Table 15 (continued).

Weight (mt)	Commercial fisheries										WA tribal landings	WA tribal at-sea	Recreational fishing mortality			Research	Estimated fishing mortality
	IFQ/Coop Management																
	Non-tribal at-sea hake	Non-tribal shoreside hake	Non-hake IFQ trawl	Non-hake IFQ fixed gear	Non- nearshore fixed gear	Nearshore fixed gear	OA CA halibut	Pink shrimp	Incidental fisheries	WA			OR	CA			
Minor slope rockfish (South of 40°10' N. lat.)																	
Aurora Rockfish	--	--	24.38	0.19	0.31	--	--	--	--	--	--	--	--	--	0.34	25.21	
Bank Rockfish	--	--	16.58	--	0.43	0.01	--	--	1.04	--	--	--	--	0.62	0.06	18.74	
Blackgill Rockfish	--	--	73.11	6.04	113.68	2.31	--	--	--	--	--	--	--	--	0.30	195.44	
Blackspotted Rockfish	--	--	0.05	--	8.82	0.02	--	--	--	--	--	--	--	--	--	8.89	
Pacific Ocean Perch	--	--	0.08	--	--	--	--	--	--	--	--	--	--	--	--	0.08	
Redbanded Rockfish	--	--	0.70	--	1.01	0.00	--	--	--	--	--	--	--	--	0.01	1.71	
Rougheye Rockfish	--	--	0.24	--	0.22	--	--	--	--	--	--	--	--	--	--	0.46	
Sharpchin Rockfish	--	--	0.25	--	0.05	--	--	--	--	--	--	--	--	--	0.03	0.33	
Shortraker Rockfish	--	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--	0.00	
Slope Rockfish Unid	--	--	2.55	0.02	3.49	0.07	--	--	0.02	--	--	--	--	--	--	6.14	
Yellowmouth Rockfish	--	--	0.05	--	--	--	--	--	--	--	--	--	--	--	--	0.05	
Mixed thornyheads																	
Shortspine/ Longspine Thornyhead	--	--	1.64	0.00	0.75	0.03	--	0.00	--	--	--	--	--	--	--	2.42	
Other flatfish																	
Butter Sole	--	--	2.22	--	--	--	0.00	--	0.09	--	--	--	--	0.01	--	2.33	
Curlfin Turbot	--	--	0.94	--	--	--	0.58	--	0.03	--	--	--	--	--	--	1.71	
Flatfish Unid	0.01	0.00	2.06	--	0.06	0.01	0.45	17.34	0.38	0.59	--	5.91	--	--	0.01	26.82	
Flathead Sole	--	--	7.34	--	0.00	--	--	2.01	0.00	--	--	--	--	--	0.07	9.42	
Pacific Sanddab	--	--	215.43	--	2.60	2.40	0.80	3.50	0.12	--	--	--	0.11	65.89	9.77	300.62	
Rex Sole	2.91	4.39	375.55	0.01	0.35	0.00	0.01	14.07	0.33	37.44	--	--	--	--	8.79	443.84	
Rock Sole	--	0.00	4.98	--	0.02	0.07	0.14	0.91	0.01	7.24	--	--	0.01	1.17	0.11	14.66	
Roughscale Sole	--	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--	0.00	
Sanddab Unid	--	--	3.47	--	1.89	0.01	0.00	0.09	0.14	4.37	--	--	--	--	--	9.97	
Sand Sole	--	--	70.70	--	0.23	0.13	10.26	0.05	3.28	--	--	--	0.22	2.92	0.03	87.81	
Other groundfish																	
Big Skate	0.10	--	47.69	0.03	6.54	0.05	20.25	0.09	--	--	--	--	--	--	1.79	76.53	
Cabezon	--	--	--	--	--	--	--	--	--	--	--	7.97	--	--	--	7.97	
California Scorpionfish	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	--	0.00	
California Skate	--	--	2.11	--	0.01	--	0.46	0.00	0.01	--	--	--	--	--	0.35	2.93	
Cod Unid	--	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--	0.00	
Grenadier Unid	0.01	0.01	70.21	0.01	50.88	0.62	--	--	0.85	--	--	--	--	--	3.64	126.23	
Groundfish Unid	--	1.36	0.04	--	--	--	--	--	--	--	--	--	--	--	9.02	10.42	
Kelp Greenling	--	--	0.15	--	--	24.40	--	--	0.02	--	--	2.06	25.56	12.88	0.02	65.07	
Leopard Shark	--	--	0.26	--	0.96	0.24	0.05	0.01	1.63	--	--	--	0.01	35.28	--	38.43	
Pacific Electric Ray	0.06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.06	
Pacific Flatnose	--	--	1.60	0.14	0.91	--	--	--	--	--	--	--	--	--	--	2.65	
Pacific Grenadier	--	--	51.17	4.70	18.93	--	--	--	--	--	--	--	--	--	--	74.80	
Ray Unid	--	--	0.01	--	--	--	--	--	--	--	--	--	--	--	--	0.01	
Rockfish Unid	--	--	--	--	1.59	0.32	--	--	0.00	--	--	--	--	--	0.02	1.93	
Roundfish Unid	0.05	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--	0.05	
Skate Unid	0.00	0.07	230.98	0.02	11.44	0.31	0.68	1.20	6.00	77.27	--	--	--	--	0.05	328.02	
Soupfin Shark	0.10	0.64	0.62	--	0.15	0.25	0.11	0.01	0.77	--	--	--	--	--	--	2.66	
Spotted Ratfish	--	0.00	79.20	0.13	6.70	0.00	--	0.17	--	--	--	--	--	0.08	--	86.28	

Note: A value is (--) when the species was neither caught nor discarded (no value). Values appear as 0.00 when a value is smaller than two decimal places.

Table 15 (continued).

Weight (mt)	Commercial fisheries										WA tribal landings	WA tribal at-sea	Recreational fishing mortality			Research	Estimated fishing mortality
	IFQ/Coop Management																
	Non-tribal at-sea hake	Non-tribal shoreside hake	Non-hake IFQ trawl	Non-hake IFQ fixed gear	Non- nearshore fixed gear	Nearshore fixed gear	OA CA halibut	Pink shrimp	Incidental fisheries	WA			OR	CA			
Pacific cod	0.02	0.04	395.87	--	2.45	--	0.00	0.00	0.54	233.13	--	0.13	0.11	--	1.46	633.76	
Pacific hake	93910.03	65416.31	249.62	0.00	3.40	--	--	18.75	--	612.69	21.33	--	0.01	0.06	473.41	160705.61	
Sablefish (North of 36° N. lat.)	5.11	47.21	1407.66	726.78	1897.67	1.69	--	0.21	31.61	561.91	--	--	0.33	0.03	21.20	4701.40	
Sablefish (South of 36° N. lat.)	--	--	22.68	199.96	476.47	4.39	--	0.12	0.13	--	--	--	--	--	0.99	704.73	
Shortbelly rockfish	0.29	0.08	5.48	--	--	--	--	0.38	--	--	--	--	--	--	1.22	7.45	
Shortspine thornyhead (North of 34°27' N. lat.)	1.74	8.32	688.05	13.13	63.05	0.12	--	0.23	1.38	19.56	--	--	--	--	5.85	801.43	
Shortspine thornyhead (South of 34°27' N. lat.)	--	--	0.59	0.36	125.79	0.97	--	--	0.02	--	--	--	--	--	0.53	128.26	
Spiny dogfish	177.80	160.10	340.25	28.81	82.31	0.02	1.83	0.90	0.07	1.84	0.65	0.13	0.06	2.79	33.22	830.78	
Splitnose rockfish (South of 40°10' N. lat.)	--	--	59.87	--	0.32	--	--	--	0.01	--	--	--	--	--	1.71	61.91	
Starry flounder	--	--	8.34	--	0.03	0.13	4.57	0.01	0.34	0.00	--	--	2.97	0.94	0.03	17.36	
Widow rockfish	79.34	107.41	45.15	--	0.21	0.04	--	0.12	0.04	38.35	0.00	--	1.02	5.19	0.77	277.64	
Yellowtail rockfish (North of 40°10' N. lat.)	43.00	388.24	575.07	0.01	0.61	1.76	--	1.14	2.21	511.31	0.07	21.99	14.02	--	10.33	1569.76	
Non-groundfish species																	
California halibut	--	--	18.78	--	0.58	1.35	56.64	8.41	87.51	--	--	--	0.03	172.78	--	346.08	
California sheephead	--	--	--	--	--	58.74	--	0.02	0.54	--	--	--	--	42.97	--	102.27	
Dungeness crab	--	0.00	196.51	0.56	4.68	2.88	151.03	0.05	18675.26	1265.51	--	--	--	--	0.02	20296.51	
Non-FMP flatfish																	
Bigmouth Sole	--	--	--	--	0.00	--	--	--	--	--	--	--	--	--	--	0.00	
Deepsea Sole	--	--	16.29	0.02	0.02	--	0.22	--	0.01	--	--	--	--	--	--	16.55	
Diamond Turbot	--	--	0.11	--	--	0.00	--	--	--	--	--	--	--	0.12	--	0.24	
Fantail Sole	--	--	--	--	--	--	0.14	--	--	--	--	--	--	--	--	0.14	
Hornyhead Turbot	--	--	0.02	--	--	0.00	0.28	2.51	0.07	--	--	--	--	--	--	2.88	
Slender Sole	0.02	--	37.22	--	0.00	--	--	93.52	0.03	--	--	--	--	--	--	130.79	
Speckled Sanddab	--	--	0.00	--	--	--	--	0.01	--	--	--	--	--	0.06	--	0.08	
Non-FMP skate																	
Aleutian Skate	--	--	2.31	0.03	0.29	--	--	--	--	--	--	--	--	--	--	2.63	
Bering Skate	--	--	0.00	--	--	--	--	--	--	--	--	--	--	--	--	0.00	
Black Skate	--	--	18.42	1.01	4.08	--	--	--	--	--	--	--	--	--	--	23.50	
Deepsea Skate	--	--	0.33	--	--	--	--	--	--	--	--	--	--	--	--	0.33	
Pacific Electric Ray	--	--	1.10	--	--	--	0.30	--	--	--	--	--	--	--	--	1.39	
Pelagic Stingray	--	--	--	--	0.12	--	--	--	--	--	--	--	--	--	--	0.12	
Round Stingray	--	--	--	--	--	0.00	--	--	--	--	--	--	--	--	--	0.00	
Sandpaper Skate	--	--	39.72	0.19	1.61	--	0.00	0.01	--	--	--	--	--	--	--	41.52	
Shovelnose Guitarfish	--	--	0.00	--	--	--	0.06	--	--	--	--	--	--	8.88	--	8.94	
Starry Skate	--	--	0.12	--	0.01	--	--	0.00	--	--	--	--	--	--	--	0.13	
Thornback Skate	--	--	0.00	--	--	--	0.27	--	--	--	--	--	--	0.31	--	0.59	
White Skate	--	--	0.43	--	--	--	--	--	--	--	--	--	--	--	--	0.43	

Note: A value is (--) when the species was neither caught nor discarded (no value). Values appear as 0.00 when a value is smaller than two decimal places.

Table 16. Estimated fishing mortality (mt) of major west coast groundfish species in 2012 and corresponding management reference points (harvest specifications). Values which are 90% or greater relative to a management reference point are highlighted.

	Estimated fishing mortality (mt)	Management reference points (harvest specifications)					
		ACL (mt)	Estimated mortality (% of ACL)	ABC (mt)	mortality (% of ABC)	OFL (mt)	Estimated mortality (% of OFL)
Rebuilding species							
Bocaccio (South of 40°10' N. lat.)	140	274	51%	700	20%	732	19%
Canary rockfish	45	107	42%	594	8%	622	7%
Cowcod (South of 40°10' N. lat.)	1	3	38%	10	11%	13	9%
Darkblotched rockfish	105	296	35%	475	22%	497	21%
Pacific ocean perch (North of 40°10' N. lat.)	56	183	30%	962	6%	1007	6%
Petrale sole	1111	1160	96%	1222	91%	1279	87%
Yelloweye rockfish	12	17	68%	46	25%	48	24%
Non-rebuilding species							
Arrowtooth flounder	2508	12049	21%	12049	21%	14460	17%
Black rockfish (North of 46°16' N. lat.)	249	415	60%	415	60%	435	57%
Black rockfish (South of 46°16' N. lat.)	563	1000	56%	1117	50%	1169	48%
Cabazon (California)	74	168	44%	168	44%	176	42%
Cabazon (Oregon)	47	48	98%	48	98%	50	94%
California scorpionfish (South of 34°27' N. lat.)	120	126	95%	126	95%	132	91%
Chilipepper rockfish (South of 40°10' N. lat.)	302	1789	17%	1789	17%	1872	16%
Dover sole	7175	25000	29%	42843	17%	44826	16%
English sole	224	10150	2%	10150	2%	10620	2%
Lingcod (North of 42° N. lat.)	731	2151	34%	2151	34%	2251	32%
Lingcod (South of 42° N. lat.)	337	2164	16%	2164	16%	2597	13%
Longnose Skate	991	1349	73%	2873	34%	3006	33%
Other flatfish	897	4884	18%	7044	13%	10146	9%
Other groundfish ¹	1655	5575	30%	7742	21%	11150	15%
Minor rockfish (North of 40°10' N. lat.)	640	2227	29%	3414	19%	3820	17%
Nearshore	96	99	97%	99	97%	116	83%
Shelf	90	968	9%	1948	5%	2197	4%
Slope	453	1160	39%	1367	33%	1507	30%
Minor rockfish (South of 40°10' N. lat.)	1104	2341	47%	3712	30%	4291	26%
Nearshore	445	990	45%	990	45%	1145	39%
Shelf	402	714	56%	1890	21%	2243	18%
Slope	257	626	41%	832	31%	903	28%
Pacific cod (North of 43° N. lat.)	634	1600	40%	2222	29%	3200	20%
Pacific hake	160706	2012 US TAC = 186037 mt, % of US TAC = 86%					
Sablefish (North of 36° N. lat.)	4701	5347	88%	8242	66%	8623	63%
Sablefish (South of 36° N. lat.)	705	1258	56%				
Shortbelly rockfish	7	50	15%	5789	0%	6950	0%
Splitnose rockfish (South of 40°10' N. lat.)	62	1538	4%	1538	4%	1610	4%
Starry flounder	17	1360	1%	1511	1%	1813	1%
Thornyheads							
Longspine thornyhead (North of 34°27' N. lat.)	912	2064	44%	2902	32%	3483	27%
Longspine thornyhead (South of 34°27' N. lat.)	18	366	5%				
Shortspine thornyhead (North of 34°27' N. lat.)	801	1556	52%	2254	41%	2358	39%
Shortspine thornyhead (South of 34°27' N. lat.)	128	401	32%				
Mixed thornyheads	2						
Widow rockfish	278	600	46%	4705	6%	4923	6%
Yellowtail rockfish (North of 40°10' N. lat.)	1570	4371	36%	4371	36%	4573	34%

¹Includes the Other Groundfish category and Spiny dogfish from Table 15.

Supplemental Informational Report 1

November 2013

STATUS REPORT OF THE 2013 OCEAN SALMON FISHERIES OFF WASHINGTON, OREGON, and CALIFORNIA.

Preliminary Data Through October 31, 2013.^{ai}

Fishery and Area	Season	Effort	CHINOOK			COHO ^{b/}		
	Dates	Days Fished	Catch	Quota	Percent	Catch	Quota	Percent
COMMERCIAL								
Treaty Indian ^{c/}	5/1-6/19	474	30,904	26,250	118%		Non-Retention	
	7/1-9/4	550	18,502	20,493	90%	47,611	47,500	100%
Non-Indian North of Cape Falcon ^{d/}	5/1-6/30	1,498	24,035	29,300	82%		Non-Retention	
	7/1-9/17 ^{e/}	1,007	18,199	21,300	85%	6,494	10,220	64%
Cape Falcon - Humbug Mt.	4/1-8/29	5,620	66,226	None	NA		Non-Retention	
	9/4-10/31	1,475	26,500	None	NA		Non-Retention	
Humbug Mt. - OR/CA Border	4/1-5/31	13	50	NA	NA		Non-Retention	
	6/1-6/30	112	1,458	4,000	36%		Non-Retention	
	7/1-7/31 ^{f/}	316	3,821	4,782	80%		Non-Retention	
	8/1-8/29 ^{g/}	174	1,188	2,714	44%		Non-Retention	
	9/16-9/27	30	106	1,000	11%		Non-Retention	
OR/CA Border - Humboldt S. Jetty	5/1-5/10	182	2,696	3,000	90%		Non-Retention	
	6/1-9, 11 ^{h/}	157	2,905	3,352	87%		Non-Retention	
	7/15-7/21 ^{i/}	157	2,405	2,547	94%		Non-Retention	
	8/1-8/3 ^{j/}	112	1,993	1,692	118%		Non-Retention	
	9/16-9/30	64	180	6,000	3%		Non-Retention	
Humboldt S. Jetty - Horse Mt.				Closed				
Horse Mt. - Pt. Arena	5/22-5/31	255	4,403	None	NA		Non-Retention	
	6/1-8 & 21-30	810	26,863	None	NA		Non-Retention	
	7/15-7/31	1,547	67,884	None	NA		Non-Retention	
	8/1-8/29	1,072	14,691	None	NA		Non-Retention	
	9/1-30	324	3,775	None	NA		Non-Retention	
Pt. Arena - Pigeon Pt.	5/1-5/31	1,773	56,334	None	NA		Non-Retention	
	6/1-8 & 21-30	1,249	47,645	None	NA		Non-Retention	
	7/15-7/31	862	24,602	None	NA		Non-Retention	
	8/1-8/29	712	7,379	None	NA		Non-Retention	
	9/1-30	568	5,646	None	NA		Non-Retention	
Pt. Reyes-Pt. San Pedro	10/1-4, 7-11 & 14-15	70	700	None	NA		Non-Retention	
Pigeon Pt. - U.S./Mexico Border	5/1-5/31	1,613	14,101	None	NA		Non-Retention	
	6/1-8 & 21-30	736	9,847	None	NA		Non-Retention	
	7/15-7/31	565	3,865	None	NA		Non-Retention	
	8/1-8/29	100	440	None	NA		Non-Retention	
	9/1-30	10	100	None	NA		Non-Retention	
RECREATIONAL								
U.S./Canada Border - Queets River ^{k/}	5/10-11, 17-18, 6/22-28	1,868	465	8,000	35%		Non-Retention	
Queets River - Leadbetter Point ^{k/}	6/8-22	5,382	1,699				Non-Retention	
Leadbetter Point - Cape Falcon ^{k/}	6/8-21	1,108	634				Non-Retention	
U.S./Canada Border - Cape Alava	6/29-9/22 ^{l/}	13,715	5,861	4,900	120%	6,500	8,200	79%
Cape Alava-Queets River	6/29-9/22 ^{m/}	3,768	2,197	1,650	133%	2,778	2,990	93%
	9/28-10/13	237	119	50	238%	18	50	36%
Queets River - Leadbetter Pt.	6/23-8/31 ^{n/o}	26,649	11,269	20,300	59%	16,440	29,140	56%
	9/6-9/30 ^{p/}	3,687	762			3,802	6,350	60%
Leadbetter Pt.-Cape Falcon	6/22-8/31 ^{q/}	25,860	7,134	9,900	80%	18,788	38,380	49%
	9/1-9/30 ^{r/}	3,803	754			1,750	9,785	18%
Cape Falcon - Humbug Mt.	3/15-10/31	58,414	17,727	None	NA	Non-Retention except for periods listed		
Cape Falcon to OR/CA Border	7/1-31	Included Above or Below		NA	NA	6,580	10,500	63%
Cape Falcon to Humbug Mt. ^{s/}	9/1-30	Included Above		NA	NA	3,743	19,580	19%
Humbug Mt. - OR/CA Border (OR-KMZ) ^{u/}	5/1-9/8	16,530	9,635	None	NA	Included Above		
OR/CA Border - Horse Mt. (CA-KMZ)	5/1-9/8	28,502	32,501	None	NA	Non-Retention		
Horse Mt. - Pt. Arena (Ft. Bragg) ^{u/}	4/6-11/10	15,374	9,501	None	NA	Non-Retention		
Pt. Arena - Pigeon Pt. (San Francisco) ^{u/}	4/6-11/10	57,596	53,921	None	NA	Non-Retention		
Pigeon Pt. - U.S./Mexico Border (Monterey) ^u	4/6-10/6	29,265	10,172	None	NA	Non-Retention		

TOTALS TO DATE (through 10/31)	Effort			Chinook Catch			Coho Catch		
	2013	2012	2011	2013	2012	2011	2013	2012	2011
TROLL									
Treaty Indian	1,024	1,144	874	49,406	57,406	34,584	47,611	37,271	13,618
Washington Non-Indian	2,235	2,060	2,064	40,112	36,855	26,902	6,042	3,268	3,053
Oregon	8,010	6,137	3,513	101,471	72,418	30,086	452	624	464
California	12,938	14,423	6,973	298,454	214,808	70,028	0	0	0
Total Troll	24,207	23,764	13,424	489,443	381,487	161,600	54,105	41,163	17,135
RECREATIONAL									
Washington	80,179	77,659	73,569	29,031	33,729	29,203	46,184	31,434	39,582
Oregon	80,842	67,274	48,740	29,225	18,772	5,158	10,472	16,079	18,832
California	130,737	145,926	91,676	106,095	122,211	49,822	0	110	316
Total Recreational	291,758	290,859	213,985	164,351	174,712	84,183	56,656	47,623	58,730
PFMC Total	315,965	314,623	227,409	653,794	556,199	245,783	110,761	88,786	75,865

- a/ Inseason estimates are preliminary.
- b/ Non-Indian coho fisheries prior to September are mark-selective. Non-mark-selective recreational fisheries occur in September, see the regulations for details.
- c/ Treaty Indian season closed early due to attainment of quotas. Effort is reported as landings. Chinook summer quota of 26,250 reduced on an impact neutral basis by 5,757 fish.
- d/ Numbers shown as Chinook quotas for non-Indian troll and rec. fisheries North of Falcon are guidelines not quotas; only the total Chinook allowable catch is a quota.
- e/ 14,700 preseason Chinook quota plus spring fishery rollover of 4,600 plus 2,000 Chinook as converted from a 3,200 Chinook trade from the rec. fishery. Preseason coho quota of 14,220 minus transfer of 4,000 to the recreational fisheries.
- f/ 3,000 preseason Chinook quota plus impact neutral roll-over from June of 1,782 in the Humbug Mt. to OR/CA border commercial troll fishery.
- g/ 2,000 preseason Chinook quota plus impact neutral roll-over from July of 714 in the Humbug Mt. to OR/CA border commercial troll fishery.
- h/ 3,000 preseason Chinook quota plus impact neutral roll-over from May of 352 in the OR/CA border to Humboldt South Jetty commercial troll fishery.
- i/ 2,000 preseason Chinook quota plus impact neutral roll-over from June of 547 in the OR/CA border to Humboldt South Jetty commercial troll fishery.
- j/ 1,500 preseason Chinook quota plus impact neutral roll-over from July of 192 in the OR/CA border to Humboldt South Jetty commercial troll fishery.
- k/ Mark-selective fishery for Chinook
- l/ 7,780 preseason quota plus a transfer of 420 coho from the non-Indian commercial troll fishery.
- m/ 1,890 preseason quota plus a transfer of 1,100 coho from the non-Indian commercial troll fishery.
- n/ 27,660 preseason quota plus a transfer of 1,480 coho from the non-Indian commercial troll fishery.
- o/ 23,500 preseason quota less a transfer of 3,200 Chinook to the non-Indian commercial troll fishery.
- p/ Coho quota will be remainder of the 29,140 mark-selective coho quota converted to an impact equivalent non-mark-selective coho quota (not yet avail.).
- q/ 37,380 preseason quota plus a transfer of 1,000 coho from the non-Indian commercial troll fishery.
- r/ 19,570 coho remainder of the 38,380 mark-selective coho quota converted to an impact equivalent non-mark-selective coho quota of (not yet avail.).
- s/ 16,000 preseason quota plus 3,580 impact equivalent roll-over from the July Cape Falcon to OR/CA border mark-selective recreational coho fishery.
- t/ An additional 3,547 angler trips with 814 Chinook landed occurred in the 10/1-13 State waters fishery off the Chetco R.
- u/ Recreational fishery estimates south of Horse Mountain are through September 30.

PFMC

10/24/13