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September 6, 2016

Herb Pollard, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon 97220-1384

RE: Agenda Item B.1: Open Comment – Submission of Groundfish Essential Fish Habitat Analysis

Dear Chair Pollard:

The protection of Essential Fish Habitat (EFH) is fundamental to the sustainability and productivity of the Pacific Coast groundfish fishery, and the health of the marine ecosystem. In April 2016, the Pacific Fishery Management Council (Council) adopted a range of alternatives for EFH and trawl Rockfish Conservation Areas (RCA). The attached analysis compares the protection of habitat afforded by each of the stand-alone EFH alternatives when combined with the alternative that would remove the entire trawl Rockfish Conservation Area south of Point Chehalis. It is based on publicly available spatial data produced for the Council's EFH five year review, and focuses on priority habitats as defined in Amendment 19 to the Pacific Coast Groundfish FMP. Thank you for your consideration.

Sincerely,



Geoffrey Shester, Ph.D.
California Campaign Director

Attachment: Oceana Analysis: Comparative Geospatial Analysis of Combined U.S. West Coast Essential Fish Habitat and Trawl Rockfish Conservation Area Alternatives (28 pp.)

Comparative Geospatial Analysis of Combined U.S. West Coast

Essential Fish Habitat and Trawl Rockfish Conservation Area Alternatives

The protection of Essential Fish Habitat is fundamental to the sustainability and productivity of the Pacific Coast Groundfish Fishery, and the health of the marine ecosystem. The Pacific Fishery Management Council (“Council”) recently adopted a range of alternatives to protect marine habitat off the West Coast, including Essential Fish Habitat (EFH). In November, the Council will select a preliminary preferred alternative for this action. The range of alternatives includes reopening some EFH Conservation Areas and trawl Rockfish Conservation Areas (RCA). The Council and the National Marine Fisheries Service (“NMFS”) must take action based on the best available science to minimize adverse impacts and adopt actions to ensure the conservation and enhancement of EFH. The Council must consider the effects of lifting RCA protections together with revisions to EFH Conservation Areas. Our analysis shows that combined with the reopening of the RCA, some alternatives would result in a net conservation loss in some regions off the West Coast, as measured according to several metrics. The Council should take action that would result in a net conservation gain. EFH Conservation Areas and RCAs should not be reopened unless such action is well supported by science and would not adversely affect EFH.

In this document we present the results of a Geographic Information Systems (GIS) analysis of EFH and trawl RCA identified by the Council in April 2016 and subsequently finalized by the EFH Project Team in July 2016 (available on the [EFH Data Portal](#)).¹ All results presented here are based on analysis of publicly available spatial data produced for the Council’s EFH Five Year Review. This includes spatial data compiled by the Phase 1 effort of the EFH review and by the NMFS Northwest Fisheries Science Center in its 2013 EFH Synthesis Report², both of which were adopted by the Council as the basis for decision-making and for soliciting proposals to modify EFH Conservation Areas. We focus this analysis on “priority habitats” - as defined in Amendment 19 to the Pacific Coast Groundfish FMP (i.e., hard substrate, corals, sponges, habitat for overfished groundfish species, etc.) for which data exist.

Here we present the percentage of each feature (e.g. total area, substrate type, biogenic habitat) protected from bottom trawling under each of the three stand-alone EFH alternatives identified by the Council -- status quo management (baseline) including the core trawl RCA, the Oceana proposed EFH Conservation Area changes (modified by Oceana and excluding changes in Usual and Accustomed Fishing Areas (U&As) off Washington), and the Collaborative proposed EFH Conservation Area changes (as modified by the Collaborative and excluding changes in U&As). The Oceana and Collaborative EFH alternatives are analyzed in combination with the RCA alternative to remove the entire trawl RCA south of Point Chehalis, WA in order to examine the net changes from the status quo baseline. While the Council has indicated it will also consider an alternative to retain some portions of the trawl RCA for overfished groundfish species, no explicitly spatial boundaries have been defined at this time. The baseline includes current year-round non-tribal bottom trawl closures: EFH Conservation Areas, state water areas closed to bottom trawling, and the trawl RCA. Off Southern California the baseline also includes the Western Cowcod Conservation Area, which would remain closed as an EFH Conservation Area under the Oceana proposal.

¹ <http://efh-catalog.coas.oregonstate.edu/overview/>

² NMFS. 2013. Groundfish Essential Fish Habitat Synthesis Report. Northwest Fisheries Science Center. PFMC Agenda Item D.6.b. April 2013. Available at http://www.pcouncil.org/wp-content/uploads/D6b_NMFS_SYNTH_ELECTRIC_ONLY_APR2013BB.pdf

This analysis divides the West Coast Exclusive Economic Zone into biogeographic regions consistent with the coastwide biogeographic areas and depth zones identified in the National Marine Fisheries Service Groundfish EFH Synthesis Report prepared for the Council EFH review process (PFMC 2013, see map below). NMFS identified large biogeographic regions (Northern, Central, Southern and the Salish Sea) and further divided these into three depth zones: a) Continental Shelf

(coastline to continental shelf break (approximately 200 m (110 fathoms)), b) Upper Slope (shelf break to 1,280 m/ 700 fathoms, which is the shoreward boundary of the “Bottom Trawl Footprint Closure” and the Lower Slope (1,280 m to the seaward EEZ boundary). However we only present analysis for the shelf and upper slope (shortened here as “slope”), because the lower slope effects do not vary across the three alternatives and are dependent primarily on the deepwater closure off California. The deepwater closure would close all waters deeper than 3,500 meters to bottom contact fishing, through discretionary authority under the Magnuson-Stevens Act. It is currently (as of April 2016) a component of the Council’s Preliminary Preferred Alternative for this action. We did not include the Salish Sea in our analysis as no EFH or RCA modifications alternatives would affect this area. We summarize differences for key selected features across alternatives in terms of the proportion of the total available feature within bottom trawl closures in the graphs below, and also present the full numerical results of the analysis in the Appendix of this document.

Baseline (Status Quo) = EFH Conservation Areas + state waters that are closed to bottom trawling + the core trawl RCA + Western Cowcod Conservation Area.

Collaborative (modified) = Baseline – coastwide trawl RCA – proposed EFHCA openings + proposed EFHCA closures

Oceana (Oceana/ NRDC/ OC modified) = Baseline – coastwide trawl RCA – proposed EFHCA openings + proposed EFHCA closures + deep-water closure (when showing changes to the lower slope biogeographic region).

Key findings of this analysis include:

- The Oceana alternative combined with the opening of the core trawl RCA south of Pt. Chehalis, WA would result in a net increase in habitat conservation across all regions and would restore previously displaced trawl effort.
- Both the Oceana and Collaborative EFH alternatives would result in a net increase in bottom trawl fishing opportunity, when combined with the removal of the trawl RCA south of Point Chehalis, WA.
- The Oceana alternative combined with removal of the RCA south of Pt. Chehalis would result in a net increase in total area and all priority habitat features closed to trawling in all biogeographic subregions and coastwide.
- The Oceana alternative combined with removal of the RCA south of Pt. Chehalis would maintain 95% of the hard substrate within the trawl RCA closed to bottom trawling.
- The Collaborative alternative combined with removal of the RCA south of Pt. Chehalis would reopen to trawling over half of the hard substrate that is currently closed within the trawl RCA.
- The Collaborative alternative combined with removal of the RCA south of Pt. Chehalis would result in a loss of total area closed to trawling in all biogeographic regions and coastwide.

Additionally, under the Collaborative alternative there would be either a net increase or a net decrease in the protection of particular priority habitats depending on region, if the trawl RCA is opened South of Pt. Chehalis.

- The absence of new EFH conservation areas from the Collaborative proposal off Newport, Oregon and Southern California would result in a net loss of several priority habitat features if the RCA is opened.

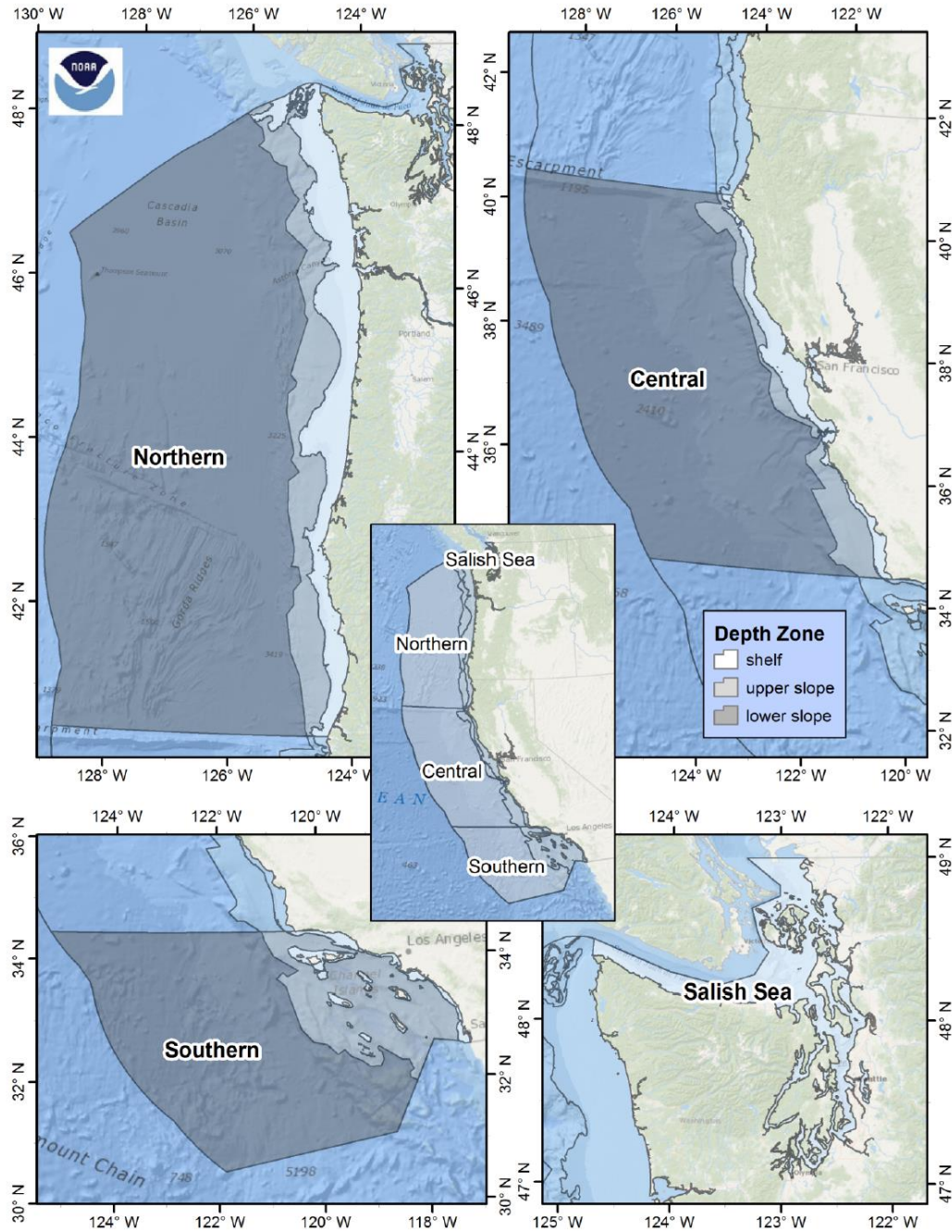
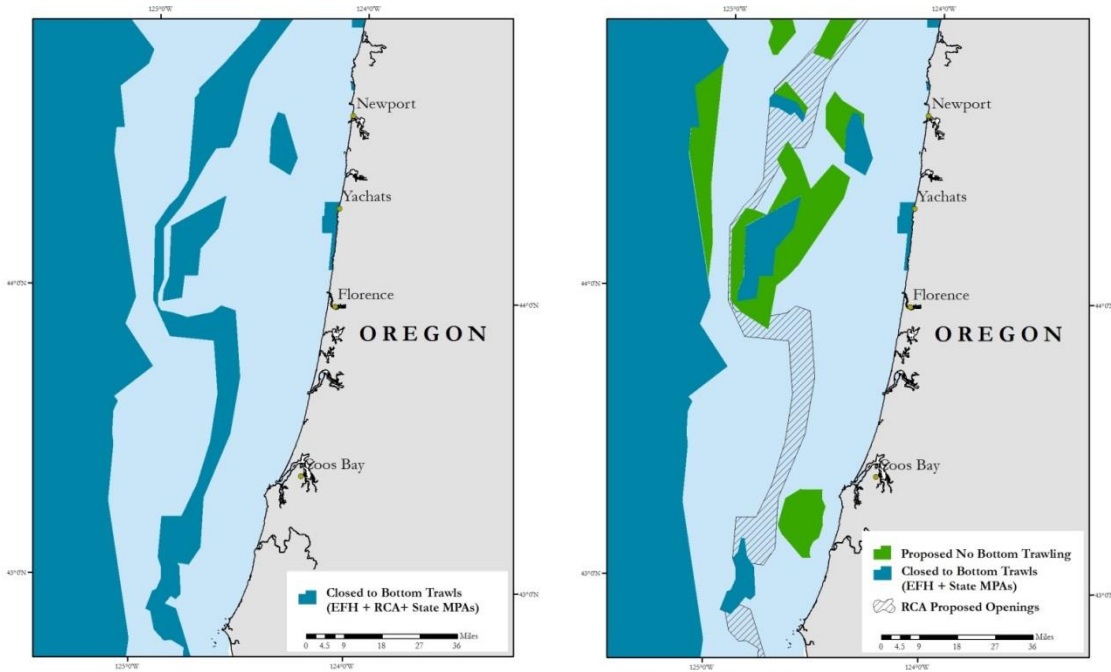


Figure 2.1. Map showing the spatial stratification, including four biogeographic sub-regions and three depth zones.

Biogeographic sub-regions as analyzed in this document. Developed by NMFS in the 2013 EFH Synthesis Report for use by the PFMC in decision making. Only the shelf and upper slope (hereafter referred to simply as "slope") for the Northern, Central, and Southern Regions are presented.



Example off Central Oregon showing analysis of closed areas under status quo “Baseline” (left) versus “Oceana” alternative combined with reopening of the Trawl Rockfish Conservation Area (Right). Tables reflect the proportion of each feature contained within closed areas, enabling comparison of the net changes relative to the status quo for each alternative when paired with the coastwide reopening of the Trawl RCA.

Habitat Analysis: The following compare the amount of each habitat feature protected inside bottom trawl closures within each biogeographic subregion under each of the two EFH stand-alone alternatives (Oceana and Collaborative) combined with the alternative with the RCA fully removed to the baseline of existing closures, which includes the RCA.

Total Area and Substrate Type

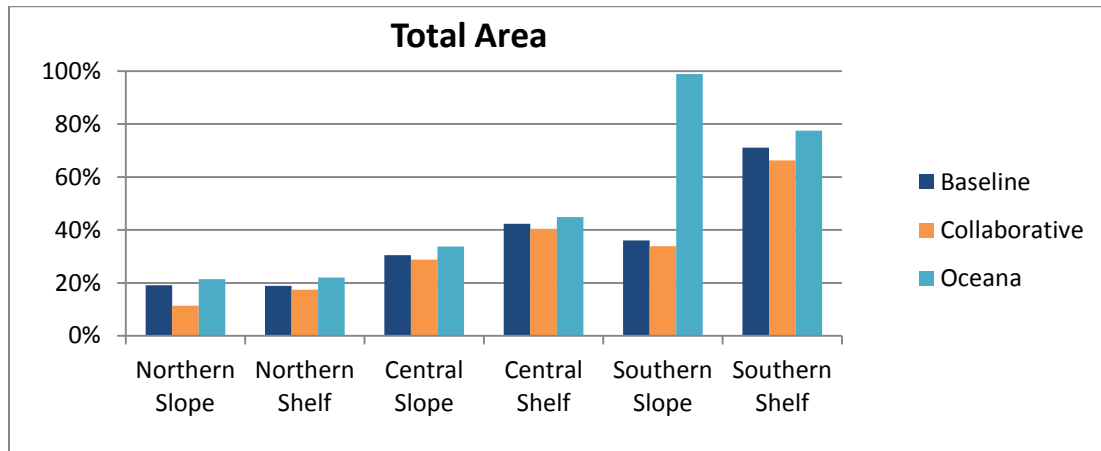


Figure 1. Proportion of *total area* in the Northern, Central and Southern biogeographic regions closed to bottom trawling (upper slope and shelf depth zones) under the baseline (status quo management) compared with adoption of the Collaborative and Oceana EFH alternatives, with removal of the RCA south of Pt. Chehalis, WA.

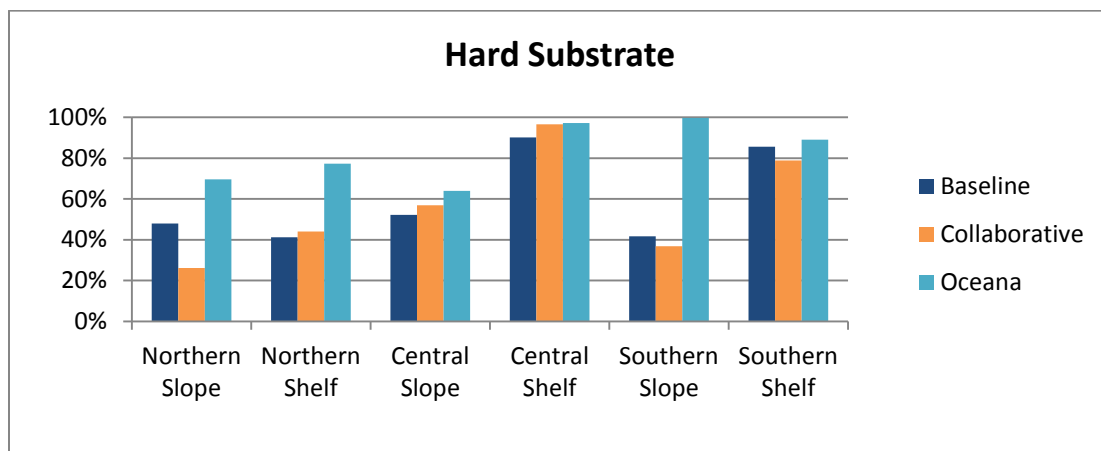


Figure 2. Proportion of *hard substrate* in the Northern, Central and Southern biogeographic regions closed to bottom trawling (upper slope and shelf depth zones) under the baseline (status quo management) compared with adoption of the Collaborative and Oceana EFH alternatives, with removal of the RCA south of Pt. Chehalis, WA.

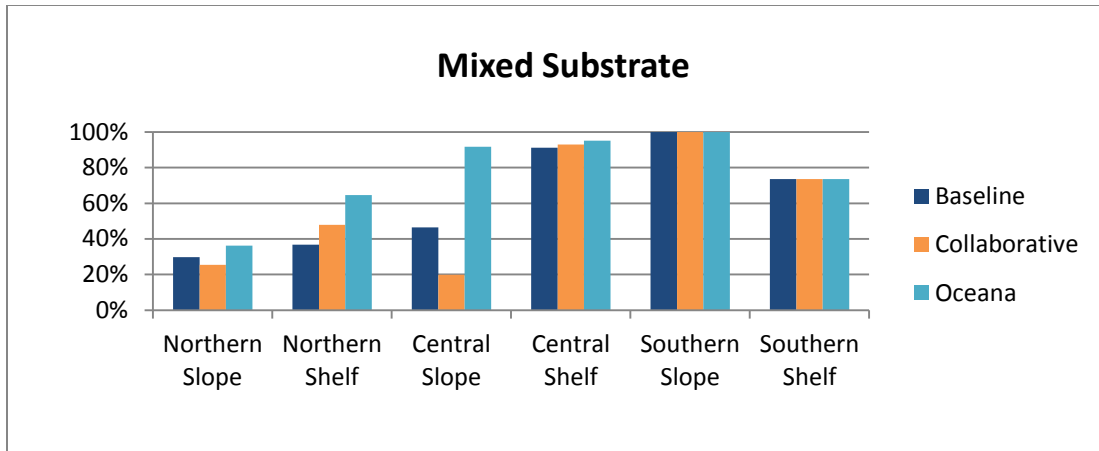


Figure 3. Proportion of *mixed substrate* in the Northern, Central and Southern biogeographic regions closed to bottom trawling (upper slope and shelf depth zones) under the baseline (status quo management) compared with adoption of the Collaborative and Oceana EFH alternatives, with removal of the RCA south of Pt. Chehalis, WA.

Biogenic Habitat Features:

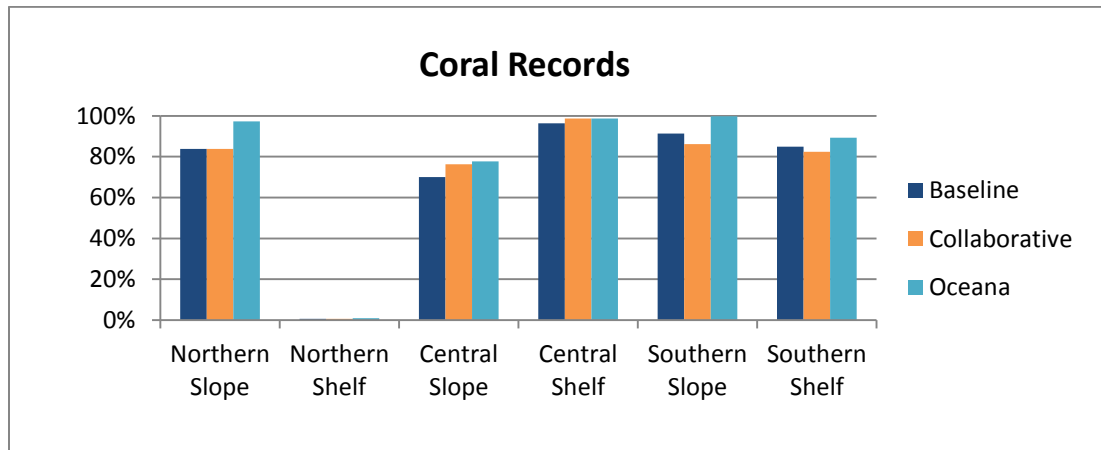


Figure 4. Proportion of *the number of coral observations* in the Northern, Central and Southern biogeographic regions closed to bottom trawling (upper slope and shelf depth zones) under the baseline (status quo management) compared with adoption of the Collaborative and Oceana EFH alternatives, with removal of the RCA south of Pt. Chehalis, WA.

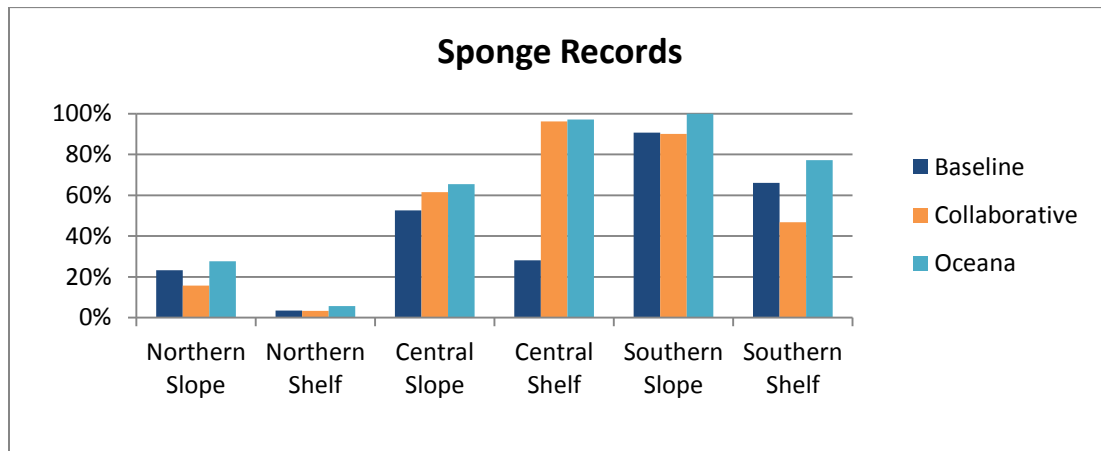


Figure 5. Proportion of *the number of sponge records* in the Northern, Central and Southern biogeographic regions closed to bottom trawling (upper slope and shelf depth zones) under the baseline (status quo management) compared with adoption of the Collaborative and Oceana EFH alternatives, with removal of the RCA south of Pt. Chehalis, WA.

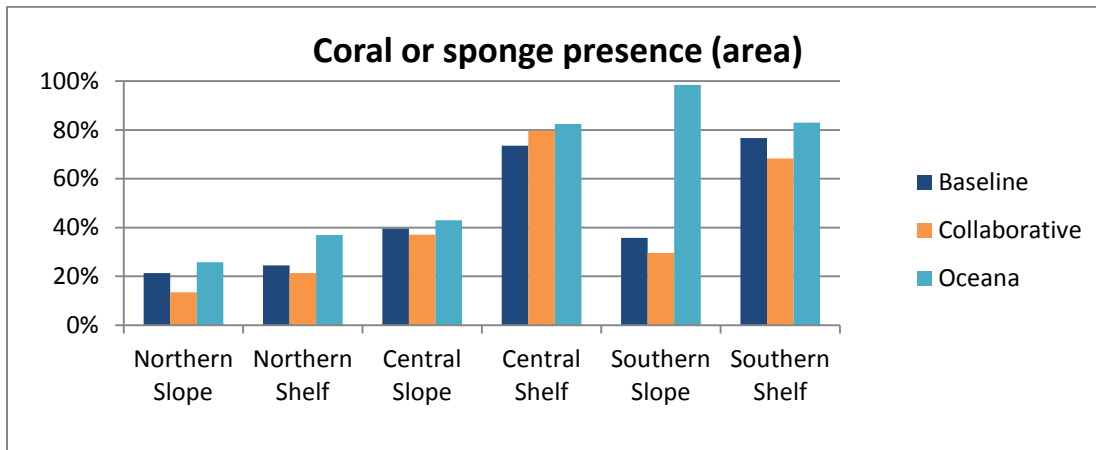


Figure 6. Proportion of *coral/sponge presence (area)* in the Northern, Central and Southern biogeographic regions closed to bottom trawling (upper slope and shelf depth zones) under the baseline (status quo management) compared with adoption of the Collaborative and Oceana EFH alternatives, with removal of the RCA south of Pt. Chehalis, WA.

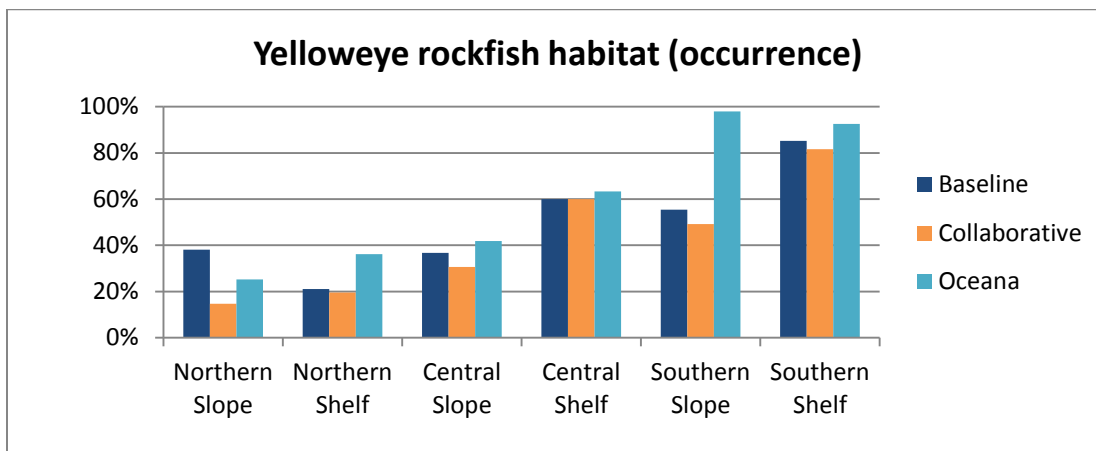


Figure 7. Proportion of yelloweye rockfish habitat -- based on Northwest Fishery Science Center modeled probability of occurrence -- contained within areas closed to bottom trawling under each scenario.

Economic Analysis (Coastwide)

We present data on displaced bottom trawl fishing effort, as provided in the EFH Synthesis Report, which is consistent with the method and criteria used by the Council and NMFS in Amendment 19 to evaluate economic effects and practicability of EFH alternatives. The configuration of closed areas is overlaid over the bottom trawl effort over the period from 2000-2005 (“before”) and the period from 2006-2010 (“after”) as provided in the EFH Synthesis Report. Since the current baseline closures result in a displacement of fishing effort, this analysis enables evaluation of whether net bottom trawl effort (a proxy for fishing opportunity) is increased or decreased. Using data from before or after 2006, this analysis indicates that both the Oceana alternative and the collaborative alternative, combined with the Trawl RCA removal alternative result in a net increase in bottom trawl fishing effort relative to the status quo. In other words, the two alternatives restore more previously displaced fishing effort than they displace current fishing effort). Net Overall Restored Bottom Trawl Effort is calculated as the difference in each alternative from the baseline, as a percentage of the total baseline. This can be interpreted as the percentage of the displaced bottom trawl effort resulting from the current closures that would be restored.

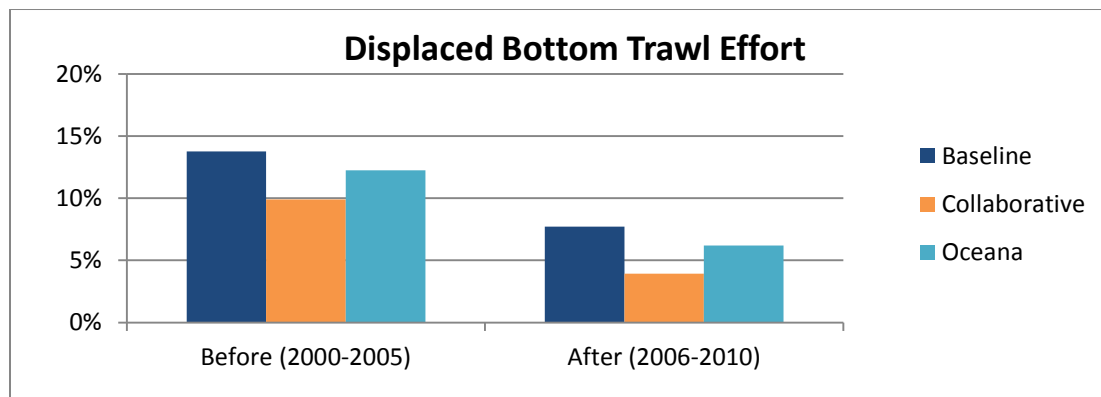


Figure 8. Percentage of total coastwide bottom trawl effort over two time periods contained within bottom trawl closures under each of three scenarios, based on data from EFH Synthesis Report.

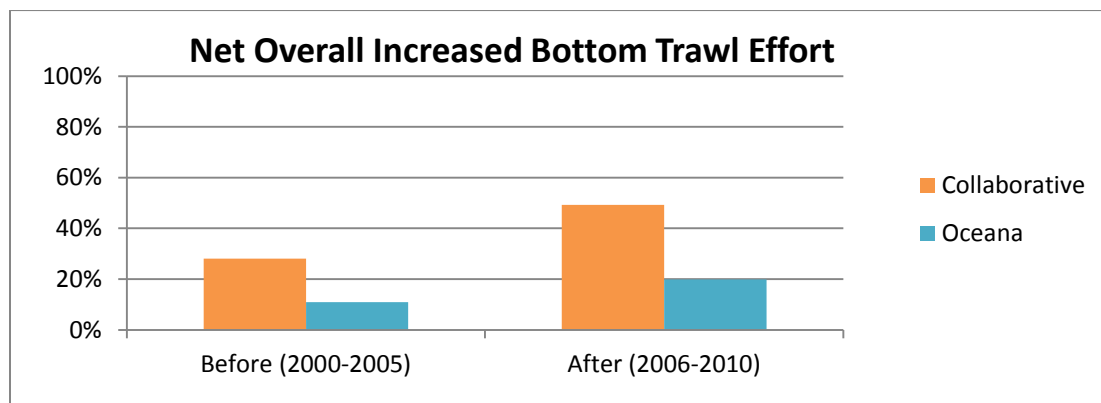


Figure 9. Net increased coastwide bottom trawl effort as a percentage of bottom trawl effort displaced by existing status quo bottom trawl closures, indicating a net increase in bottom trawl opportunity.

RCA-focused analysis (Coastwide)

This analysis examines only the habitats and features contained within the current core trawl RCA, for the purpose of evaluating which features within the trawl RCA would remain closed under each of three scenarios. The first scenario is the full reopening of the trawl RCA south of Pt. Chehalis with no changes to EFH Conservation Areas. The second and third scenarios examine the full reopening of the trawl RCA south of point Chehalis combined with the Collaborative EFH alternative and the Oceana EFH alternative respectively. The Oceana alternative would keep significant portions of the RCA closed (still reopening half of it), resulting in higher protections for priority habitats (e.g., hard substrate, corals, yelloweye habitat). In contrast to the Oceana proposal, the Collaborative alternative does not significantly add to protections within the RCA relative to what would remain closed by existing EFH Conservation Areas, marine protected areas, and state waters closures. Notably, with the lifting of the RCA, the existing status quo bottom trawl closures and Collaborative alternatives would reopen over half of all hard substrate inside the RCA.

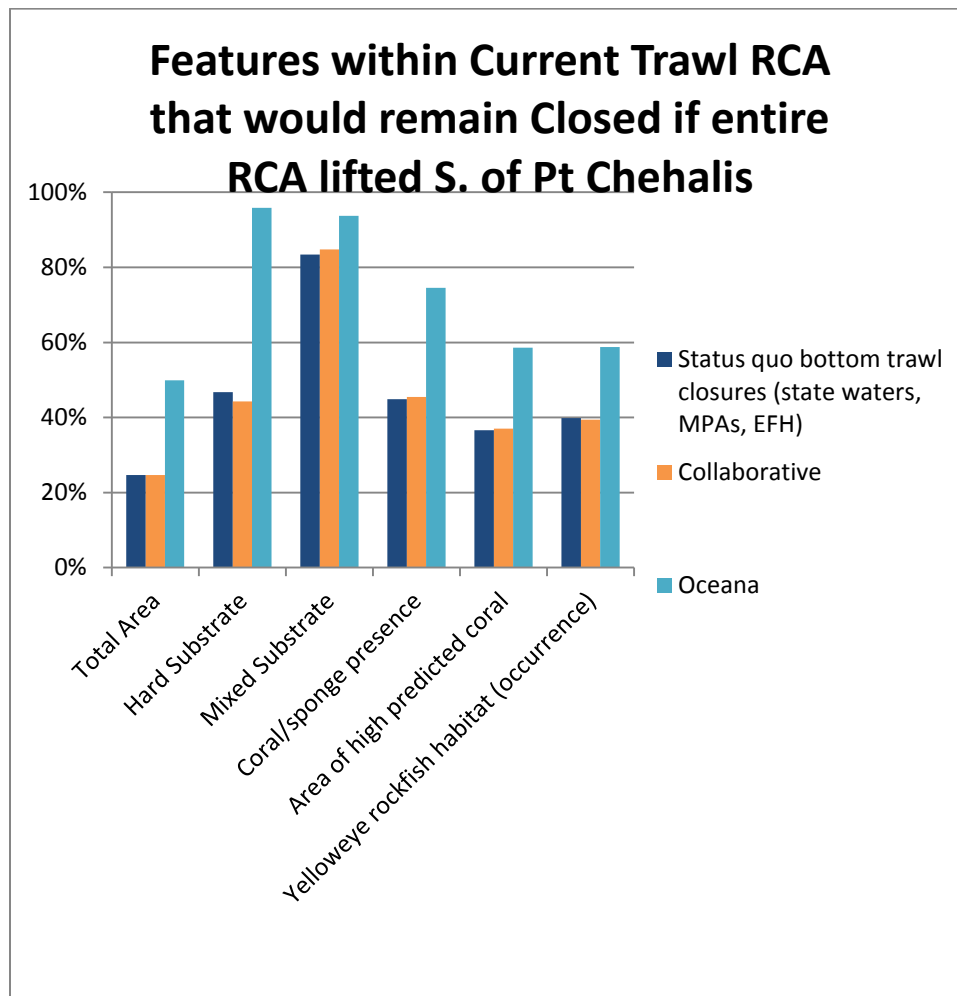
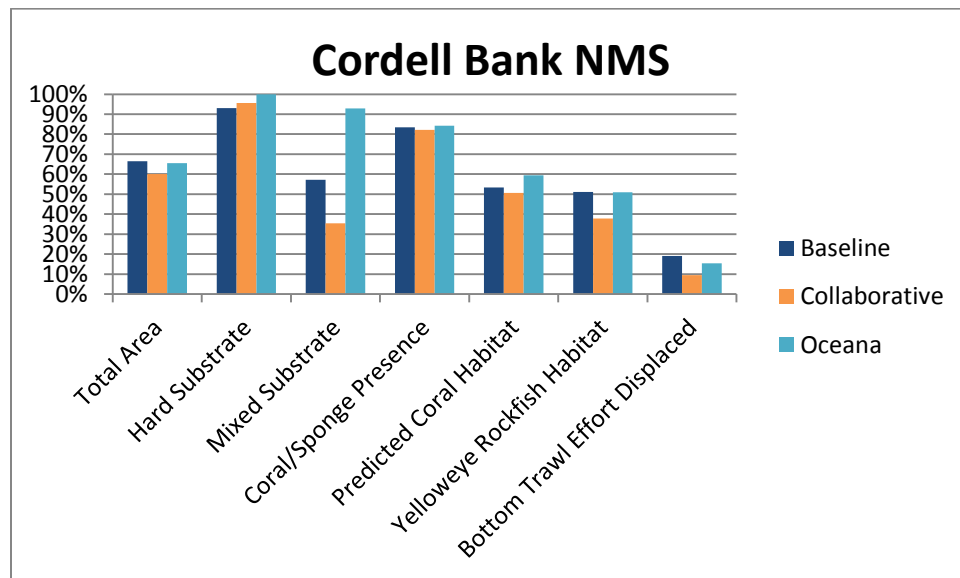
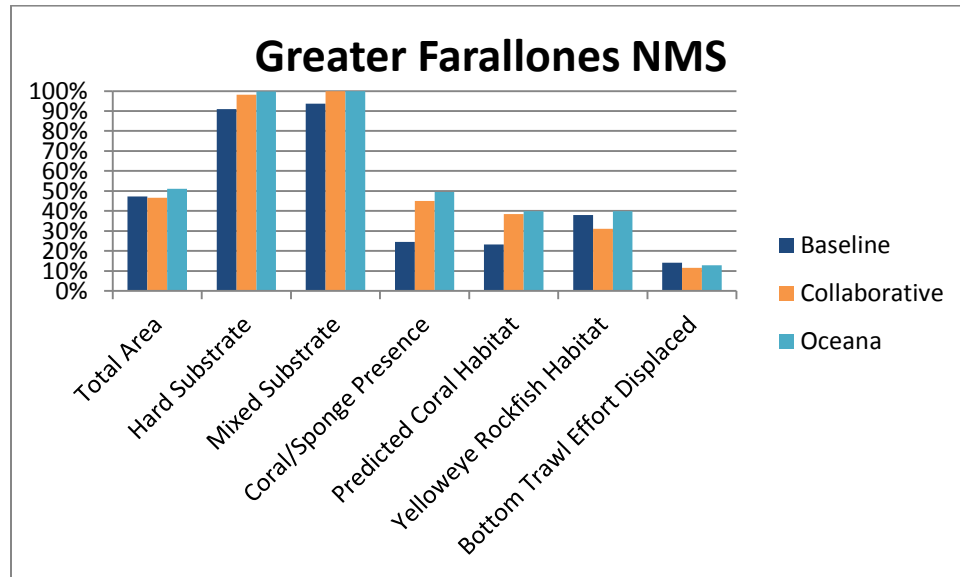


Figure 10. Comparative analysis of the proportion of each feature within the current Trawl RCA that would remain closed to trawling under each scenario.

Comparative Analysis within National Marine Sanctuaries

In addition to the analyses by biogeographic subregion, we also conducted an analysis of net changes in habitat features closed to bottom trawling within each of the five U.S. West Coast National Marine Sanctuaries under each of the three alternatives. We include in the Appendix results for the Olympic Coast NMS, but do not include a graph here because all three alternatives are identical with respect to this Sanctuary, which lies within Tribal U&As, which are excluded from this action. Analyses for Greater Farallones NMS and Cordell Bank NMS use the new revised sanctuary boundaries as finalized in 2015.



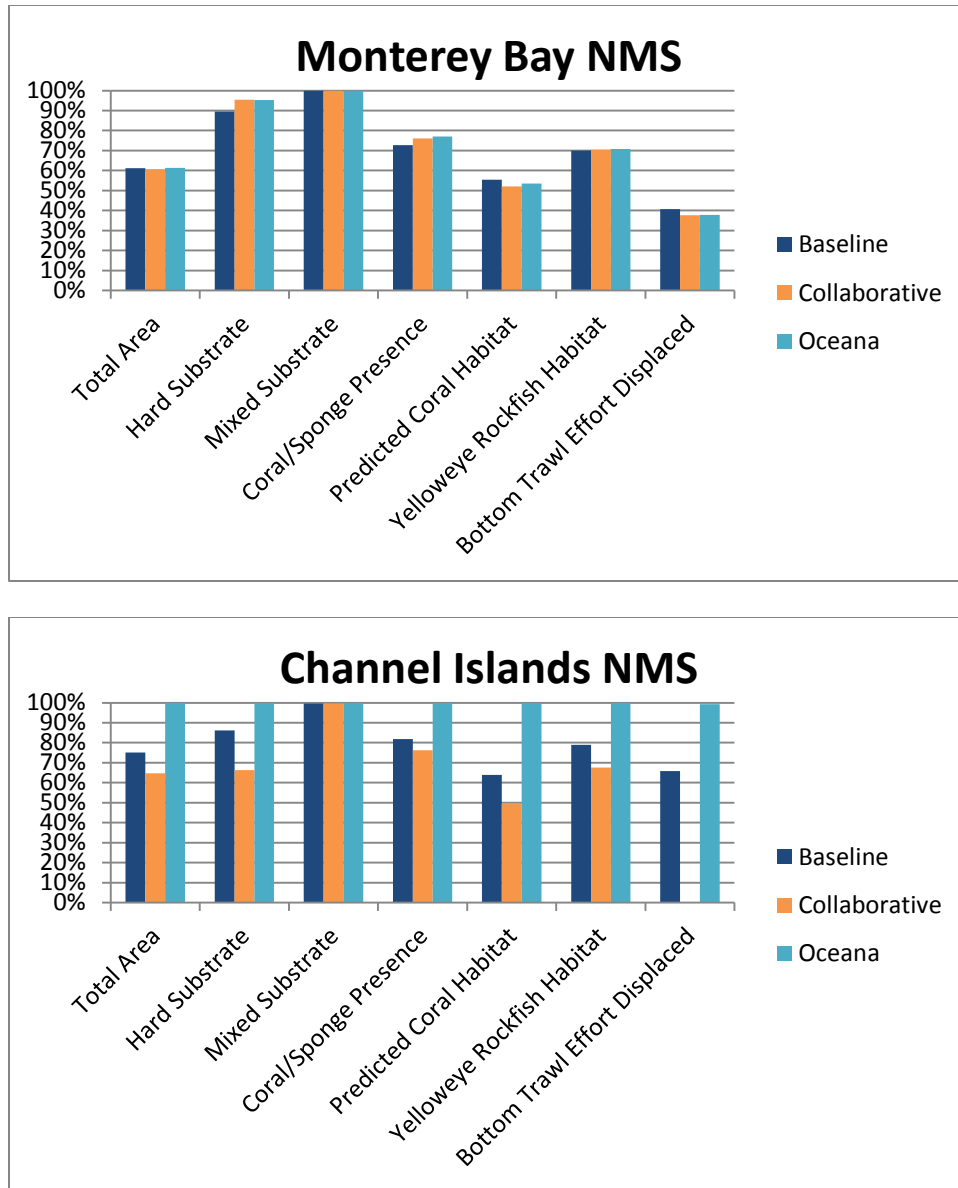


Figure 11. Percentage of each feature closed to bottom trawling within boundaries of each of four National Marine Sanctuaries in California. Bottom Trawl Effort Displaced refers to “Before 2000-2005”.

The following Appendix Tables contain the full analysis broken down coastwide, by biogeographic subregion, by state, by National Marine Sanctuary, and within Usual & Accustomed Fishing Areas. The total numerical amount of each habitat feature, economic indicator, NWFSC-modeled groundfish habitat, or observer bycatch dataset is provided for each geographic region, as well as the amount inside and outside bottom trawl closed areas under each of three scenarios.

APPENDIX Geographic Area	Area closed to bottom trawling (mi2)			Hard Substrate (mi2)		
	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	11,642.0	11,642.0	11,642.0	79.5	79.5	79.5
Inside Closure	2,226.3	1,328.1	2,497.9	38.1	20.7	55.4
Outside	9,415.7	10,313.9	9,144.2	41.4	58.8	24.2
Northern - Shelf	13,121.6	13,121.6	13,121.6	645.1	645.1	645.1
Inside Closure	2,477.4	2,283.7	2,888.5	265.8	283.9	498.1
Outside	10,644.3	10,837.9	10,233.1	379.3	361.2	147.0
Northern - Lower Slope	93,376.9	93,376.9	93,376.9	98.5	98.5	98.5
Inside Closure	93,363.6	93,363.6	93,363.6	98.5	98.5	98.5
Outside	13.4	13.4	13.4	0.0	0.0	0.0
Central - Upper Slope	9,217.1	9,217.1	9,217.1	1,031.8	1,031.8	1,031.8
Inside Closure	2,812.0	2,647.6	3,113.7	539.1	586.7	660.0
Outside	6,405.1	6,569.5	6,103.5	492.7	445.1	371.8
Central - Shelf	6,614.6	6,614.6	6,614.6	400.1	400.1	400.1
Inside Closure	2,798.3	2,668.8	2,964.8	360.4	386.5	388.6
Outside	3,816.3	3,945.8	3,649.8	39.7	13.6	11.4
Central - Lower Slope	97,508.0	97,508.0	97,508.0	551.8	551.8	551.8
Inside Closure	22,717.6	22,706.9	97,508.0	551.8	551.5	551.8
Outside	74,790.4	74,801.1	0.0	0.0	0.3	0.0
Southern - Upper Slope	18,049.1	18,049.1	18,049.1	935.1	935.1	935.1
Inside Closure	6,511.5	6,100.2	17,845.6	389.2	343.9	932.5
Outside	11,537.5	11,948.8	203.4	545.9	591.2	2.6
Southern - Shelf	2,996.5	2,996.5	2,996.5	200.3	200.3	200.3
Inside Closure	2,128.3	1,986.6	2,321.7	171.4	158.0	178.3
Outside	868.3	1,010.0	674.8	28.9	42.4	22.1
Southern - Lower Slope	62,438.8	62,438.8	62,438.8	2,235.3	2,235.3	2,235.3
Inside Closure	14,105.4	14,105.3	62,438.8	2,235.3	2,235.3	2,235.3
Outside	48,333.4	48,333.5	0.0	0.0	0.0	0.0
EEZ	317,958.5	317,958.5	317,958.5	6,237.6	6,237.6	6,237.6
Inside Closure	152,021.3	150,071.8	287,918.1	4,709.6	4,725.2	5,658.0
Outside	165,937.2	167,886.7	30,040.5	1,528.0	1,512.4	579.6
Washington	26,219.5	26,219.5	26,219.5	160.0	160.0	160.0
Inside Closure	20,582.2	20,698.6	20,930.5	114.6	115.0	120.6
Outside	5,637.3	5,520.9	5,289.0	45.4	45.0	39.4
Oregon	70,412.8	70,412.8	70,412.8	593.0	593.0	593.0
Inside Closure	59,444.2	58,253.9	59,520.2	229.6	229.2	462.0
Outside	10,968.6	12,159.0	10,892.6	363.4	363.8	131.0
California	221,096.6	221,096.6	221,096.6	5,484.6	5,484.6	5,484.6
Inside Closure	71,971.6	71,096.1	207,444.5	4,365.4	4,380.6	5,075.3
Outside	149,125.0	150,000.5	13,652.1	1,119.1	1,103.9	409.3
Olympic Coast NMS	3,185.6	3,185.6	3,185.6	79.3	79.3	79.3
Inside Closure	860.2	860.2	860.2	56.0	56.0	55.2
Outside	2,325.5	2,325.5	2,325.5	23.3	23.3	24.1
Greater Farallones NMS	3,295.0	3,295.0	3,295.0	98.3	98.3	98.3
Inside Closure	1,558.0	1,535.2	1,682.2	89.4	96.5	98.1
Outside	1,737.1	1,759.9	1,612.8	8.9	1.8	0.2
Cordell Bank NMS	1,285.5	1,285.5	1,285.5	16.8	16.8	16.8
Inside Closure	855.0	772.5	841.4	15.6	16.0	16.8
Outside	430.5	513.0	444.1	1.2	0.7	0.0
Monterey Bay NMS	6,092.2	6,092.2	6,092.2	403.8	403.8	403.8
Inside Closure	3,723.2	3,689.8	3,736.0	361.5	385.6	384.7
Outside	2,369.0	2,402.4	2,356.2	42.3	18.2	19.1
Channel Islands NMS	1,469.8	1,469.8	1,469.8	92.4	92.4	92.4
Inside Closure	1,104.8	951.2	1,469.7	79.6	61.2	92.4
Outside	365.0	518.6	0.0	12.8	31.2	0.0
Tribal U&As	5,527.0	5,527.0	5,527.0	83.4	83.4	83.4
Inside Closure	1,896.7	1,896.6	1,896.7	59.0	59.0	59.0
Outside	3,630.4	3,630.5	3,630.4	24.4	24.4	24.4

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APPENDIX Geographic Area	Mixed Substrate (mi2)			Soft Substrate (mi2)		
	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	406.9	406.9	406.9	10,858.7	10,858.7	10,858.7
Inside Closure	120.9	103.7	147.2	2,042.7	1,189.4	2,231.6
Outside	285.9	303.1	259.7	8,816.0	9,669.3	8,627.1
Northern - Shelf	375.4	375.4	375.4	6,266.7	6,266.7	6,266.7
Inside Closure	137.8	180.0	242.7	2,045.2	1,791.3	2,126.5
Outside	237.6	195.4	132.7	4,221.5	4,475.4	4,140.2
Northern - Lower Slope	0.0	0.0	0.0	10,125.6	10,125.6	10,125.6
Inside Closure	0.0	0.0	0.0	10,123.1	10,123.1	10,123.1
Outside	0.0	0.0	0.0	2.5	2.5	2.5
Central - Upper Slope	12.3	12.3	12.3	8,128.9	8,128.9	8,128.9
Inside Closure	5.7	2.4	11.2	2,231.9	2,022.9	2,407.1
Outside	6.6	9.8	1.0	5,897.1	6,106.0	5,721.8
Central - Shelf	19.7	19.7	19.7	5,672.2	5,672.2	5,672.2
Inside Closure	18.0	18.3	18.7	2,410.6	2,254.8	2,548.3
Outside	1.7	1.4	1.0	3,261.6	3,417.4	3,124.0
Central - Lower Slope	0.0	0.0	0.0	10,343.5	10,343.5	10,343.5
Inside Closure	0.0	0.0	0.0	10,092.2	10,081.8	10,343.5
Outside	0.0	0.0	0.0	251.2	261.6	0.0
Southern - Upper Slope	71.7	71.7	71.7	17,009.0	17,009.0	17,009.0
Inside Closure	71.6	71.6	71.7	6,048.7	5,683.7	16,808.5
Outside	0.1	0.1	0.0	10,960.3	11,325.3	200.5
Southern - Shelf	61.0	61.0	61.0	2,672.6	2,672.6	2,672.6
Inside Closure	44.9	44.9	44.9	1,865.5	1,737.3	2,051.0
Outside	16.2	16.2	16.2	807.0	935.3	621.6
Southern - Lower Slope	0.0	0.0	0.0	8,186.5	8,186.5	8,186.5
Inside Closure	0.0	0.0	0.0	6,577.4	6,577.4	8,186.5
Outside	0.0	0.0	0.0	1,609.1	1,609.1	0.0
EEZ	975.7	975.7	975.7	80,096.0	80,096.0	80,096.0
Inside Closure	427.6	449.7	565.2	44,260.8	42,284.9	57,645.9
Outside	548.1	526.0	410.5	35,835.3	37,811.1	22,450.1
Washington	332.0	332.0	332.0	12,358.9	12,358.9	12,358.9
Inside Closure	189.4	189.4	189.4	6,924.9	7,040.9	7,267.1
Outside	142.6	142.6	142.6	5,434.0	5,318.0	5,091.8
Oregon	475.5	475.5	475.5	9,798.3	9,798.3	9,798.3
Inside Closure	97.6	121.8	227.7	5,429.0	4,225.0	5,110.5
Outside	377.9	353.7	247.8	4,369.4	5,573.3	4,687.8
California	168.2	168.2	168.2	57,939.3	57,939.3	57,939.3
Inside Closure	140.6	138.5	148.0	31,907.0	31,015.5	45,268.6
Outside	27.6	29.7	20.1	26,032.3	26,923.8	12,670.6
Olympic Coast NMS	323.3	323.3	323.3	2,779.3	2,779.3	2,779.3
Inside Closure	180.9	180.9	180.9	622.1	622.1	622.1
Outside	142.4	142.4	142.4	2,157.2	2,157.2	2,157.2
Greater Farallones NMS	6.6	6.6	6.6	3,172.6	3,172.6	3,172.6
Inside Closure	6.2	6.6	6.6	1,446.9	1,416.6	1,562.0
Outside	0.4	0.0	0.0	1,725.7	1,756.1	1,610.6
Cordell Bank NMS	15.3	15.3	15.3	1,095.0	1,095.0	1,095.0
Inside Closure	8.8	5.4	14.2	672.1	592.6	651.9
Outside	6.6	9.9	1.1	422.8	502.4	443.0
Monterey Bay NMS	2.0	2.0	2.0	5,298.9	5,298.9	5,298.9
Inside Closure	2.0	2.0	2.0	2,973.6	2,916.8	2,963.2
Outside	0.0	0.0	0.0	2,325.3	2,382.1	2,335.7
Channel Islands NMS	26.2	26.2	26.2	1,346.4	1,346.4	1,346.4
Inside Closure	26.1	26.1	26.2	995.4	860.2	1,346.4
Outside	0.1	0.1	0.0	351.0	486.2	0.0
Tribal U&As	323.9	323.9	323.9	5,106.9	5,106.9	5,106.9
Inside Closure	181.5	181.5	181.5	1,647.0	1,646.9	1,647.0
Outside	142.5	142.5	142.5	3,459.8	3,459.9	3,459.8

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APPENDIX Geographic Area	Coral (# Observations)			Sponge (# Observations)		
	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	18,573	18,573	18,573	1,676	1,676	1,676
Inside Closure	15,583	15,562	18,064	389	263	462
Outside	2,990	3,011	509	1,287	1,413	1,214
Northern - Shelf	7,417	7,417	7,417	3,272	3,272	3,272
Inside Closure	36	47	67	115	111	184
Outside	7,381	7,370	7,350	3,157	3,161	3,088
Northern - Lower Slope	246	246	246	10	10	10
Inside Closure	246	246	246	10	10	10
Outside	0	0	0	0	0	0
Central - Upper Slope	5,591	5,591	5,591	426	426	426
Inside Closure	3,915	4,265	4,346	224	262	279
Outside	1,676	1,326	1,245	202	164	147
Central - Shelf	13,911	13,911	13,911	1,423	1,423	1,423
Inside Closure	13,407	13,735	13,738	401	1,368	1,382
Outside	504	176	173	1,022	55	41
Central - Lower Slope	37,398	37,398	37,398	0	0	0
Inside Closure	37,299	37,299	37,398	0	0	0
Outside	99	99	0	0	0	0
Southern - Upper Slope	3,160	3,160	3,160	5,996	5,996	5,996
Inside Closure	2,887	2,724	3,153	5,434	5,399	5,989
Outside	273	436	7	562	597	7
Southern - Shelf	2,150	2,150	2,150	171	171	171
Inside Closure	1,825	1,772	1,919	113	80	132
Outside	325	378	231	58	91	39
Southern - Lower Slope	13,820	13,820	13,820	10	10	10
Inside Closure	13,724	13,724	13,820	10	10	10
Outside	96	96	0	0	0	0
EEZ	102,289	102,289	102,289	12,988	12,988	12,988
Inside Closure	88,945	89,397	92,774	6,700	7,507	8,451
Outside	13,344	12,892	9,515	6,288	5,481	4,537
Washington	22,861	22,861	22,861	3,427	3,427	3,427
Inside Closure	15,479	15,492	15,496	282	280	314
Outside	7,382	7,369	7,365	3,145	3,147	3,113
Oregon	1,121	1,121	1,121	1,368	1,368	1,368
Inside Closure	339	302	716	227	99	307
Outside	782	819	405	1,141	1,269	1,061
California	78,307	78,307	78,307	8,193	8,193	8,193
Inside Closure	73,127	73,604	76,562	6,191	7,128	7,830
Outside	5,180	4,703	1,745	2,002	1,065	363
Olympic Coast NMS	22,529	22,529	22,529	145	145	145
Inside Closure	15,395	15,395	15,395	51	51	51
Outside	7,134	7,134	7,134	94	94	94
Greater Farallones NMS	181	181	181	1,039	1,039	1,039
Inside Closure	21	162	163	30	1,003	1,010
Outside	160	19	18	1,009	36	29
Cordell Bank NMS	1,378	1,378	1,378	12	12	12
Inside Closure	1,178	1,365	1,371	5	5	5
Outside	200	13	7	7	7	7
Monterey Bay NMS	38,862	38,862	38,862	626	626	626
Inside Closure	37,174	37,525	37,529	513	563	568
Outside	1,688	1,337	1,333	113	63	58
Channel Islands NMS	2,517	2,517	2,517	5,313	5,313	5,313
Inside Closure	2,437	2,436	2,517	5,296	5,286	5,313
Outside	80	81	0	17	27	0
Tribal U&As	22,774	22,774	22,774	3,245	3,245	3,245
Inside Closure	15,439	15,439	15,439	211	211	211
Outside	7,335	7,335	7,335	3,034	3,034	3,034

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APPENDIX Geographic Area	Pennatulid (# Observations)			Coral/Sponge - Presence (mi2)		
	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	2,802	2,802	2,802	558.0	558.0	558.0
Inside Closure	314	273	1,070	119.4	75.0	144.3
Outside	2,488	2,529	1,732	438.6	483.0	413.7
Northern - Shelf	666	666	666	164.0	164.0	164.0
Inside Closure	36	13	40	40.1	35.0	60.7
Outside	630	653	626	123.8	129.0	103.3
Northern - Lower Slope	1,243	1,243	1,243	33.5	33.5	33.5
Inside Closure	1,243	1,243	1,243	33.5	33.5	33.5
Outside	0	0	0	0.0	0.0	0.0
Central - Upper Slope	21,151	21,151	21,151	153.6	153.6	153.6
Inside Closure	3,234	3,403	3,511	60.8	56.9	66.0
Outside	17,917	17,748	17,640	92.8	96.7	87.6
Central - Shelf	18,160	18,160	18,160	150.8	150.8	150.8
Inside Closure	10,213	9,819	10,375	111.0	120.2	124.3
Outside	7,947	8,341	7,785	39.9	30.6	26.5
Central - Lower Slope	10,771	10,771	10,771	92.0	92.0	92.0
Inside Closure	9,638	9,638	10,771	75.6	75.6	92.0
Outside	1,133	1,133	0	16.4	16.4	0.0
Southern - Upper Slope	1,323	1,323	1,323	269.2	269.2	269.2
Inside Closure	709	663	1,212	96.2	79.5	265.1
Outside	614	660	111	173.1	189.7	4.1
Southern - Shelf	275	275	275	124.8	124.8	124.8
Inside Closure	119	114	128	95.7	85.2	103.6
Outside	156	161	147	29.0	39.6	21.2
Southern - Lower Slope	873	873	873	30.0	30.0	30.0
Inside Closure	865	865	873	27.7	27.7	30.0
Outside	8	8	0	2.3	2.3	0.0
EEZ	57,297	57,297	57,297	1,582.0	1,582.0	1,582.0
Inside Closure	26,404	26,063	29,256	666.1	594.6	925.6
Outside	30,893	31,234	28,041	915.9	987.4	656.4
Washington	686	686	686	213.0	213.0	213.0
Inside Closure	251	255	279	88.8	87.6	97.2
Outside	435	431	407	124.2	125.4	115.8
Oregon	2,543	2,543	2,543	465.0	465.0	465.0
Inside Closure	647	555	757	96.2	47.2	117.9
Outside	1,896	1,988	1,786	368.8	417.8	347.1
California	54,068	54,068	54,068	904.0	904.0	904.0
Inside Closure	25,506	25,253	28,220	481.1	459.9	710.5
Outside	28,562	28,815	25,848	423.0	444.1	193.6
Olympic Coast NMS	132	132	132	67.1	67.1	67.1
Inside Closure	22	22	22	25.0	25.0	25.0
Outside	110	110	110	42.1	42.1	42.1
Greater Farallones NMS	238	238	238	23.7	23.7	23.7
Inside Closure	79	63	91	5.8	10.7	11.7
Outside	159	175	147	17.9	13.0	12.0
Cordell Bank NMS	3,600	3,600	3,600	25.8	25.8	25.8
Inside Closure	642	251	706	21.6	21.2	21.8
Outside	2,958	3,349	2,894	4.3	4.6	4.1
Monterey Bay NMS	41,246	41,246	41,246	225.4	225.4	225.4
Inside Closure	19,453	19,647	19,658	163.7	171.5	173.5
Outside	21,793	21,599	21,588	61.7	53.9	51.9
Channel Islands NMS	686	686	686	44.2	44.2	44.2
Inside Closure	629	624	686	36.1	33.7	44.2
Outside	57	62	0	8.1	10.5	0.0
Tribal U&As	410	410	410	148.0	148.0	148.0
Inside Closure	154	154	154	66.3	66.3	66.3
Outside	256	256	256	81.7	81.7	81.7

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APPENDIX Geographic Area	Coral/Sponge - Abundance (sum mean count)			Area of High Coral Habitat Suitability (4) - mi2		
	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	5,121.9	5,121.9	5,121.9	3,091.8	3,091.8	3,091.8
Inside Closure	4,712.3	4,686.3	4,970.9	567.2	374.2	563.5
Outside	409.6	435.6	151.0	2,524.6	2,717.6	2,528.3
Northern - Shelf	6,842.1	6,842.1	6,842.1	226.1	226.1	226.1
Inside Closure	1,184.0	1,889.6	1,980.3	82.6	54.4	75.4
Outside	5,658.1	4,952.5	4,861.8	143.5	171.7	150.7
Northern - Lower Slope	129.2	129.2	129.2	1,704.5	1,704.5	1,704.5
Inside Closure	129.2	129.2	129.2	1,704.2	1,704.2	1,704.2
Outside	0.0	0.0	0.0	0.2	0.2	0.2
Central - Upper Slope	1,604.8	1,604.8	1,604.8	2,501.1	2,501.1	2,501.1
Inside Closure	1,143.2	1,316.6	1,387.3	755.5	739.5	878.7
Outside	461.6	288.2	217.5	1,745.7	1,761.6	1,622.5
Central - Shelf	12,181.5	12,181.5	12,181.5	302.7	302.7	302.7
Inside Closure	8,861.1	10,622.1	11,302.1	213.1	198.6	218.4
Outside	3,320.3	1,559.3	879.3	89.6	104.2	84.3
Central - Lower Slope	13,365.6	13,365.6	13,365.6	1,115.4	1,115.4	1,115.4
Inside Closure	13,350.2	13,350.2	13,365.6	1,114.3	1,108.6	1,115.4
Outside	15.5	15.5	0.0	1.1	6.9	0.0
Southern - Upper Slope	28,595.3	28,595.3	28,595.3	2,473.3	2,473.3	2,473.3
Inside Closure	20,768.7	19,268.7	24,847.1	1,075.1	970.9	2,388.7
Outside	7,826.6	9,326.7	3,748.2	1,398.2	1,502.4	84.6
Southern - Shelf	16,291.7	16,291.7	16,291.7	278.0	278.0	278.0
Inside Closure	11,065.9	10,975.0	11,119.8	231.5	216.4	246.4
Outside	5,225.8	5,316.8	5,171.9	46.6	61.6	31.6
Southern - Lower Slope	5,334.6	5,334.6	5,334.6	1,659.8	1,659.8	1,659.8
Inside Closure	5,240.6	5,240.6	5,334.6	1,651.5	1,651.5	1,659.8
Outside	94.0	94.0	0.0	8.4	8.4	0.0
EEZ	89,467.7	89,467.7	89,467.7	13,359.2	13,359.2	13,359.2
Inside Closure	66,455.7	67,478.8	74,427.0	7,399.4	7,022.6	8,850.1
Outside	23,012.0	21,988.9	15,040.7	5,959.8	6,336.6	4,509.0
Washington	10,343.5	10,343.5	10,343.5	1,852.3	1,852.3	1,852.3
Inside Closure	5,624.4	5,624.0	5,624.4	718.3	754.6	794.8
Outside	4,719.1	4,719.5	4,719.1	1,134.0	1,097.7	1,057.5
Oregon	1,545.1	1,545.1	1,545.1	2,205.5	2,205.5	2,205.5
Inside Closure	361.8	1,031.6	1,264.3	1,121.0	933.7	1,053.3
Outside	1,183.2	513.5	280.8	1,084.5	1,271.8	1,152.2
California	77,579.1	77,579.1	77,579.1	9,301.1	9,301.1	9,301.1
Inside Closure	60,469.5	60,823.1	67,538.3	5,560.0	5,334.3	7,002.2
Outside	17,109.6	16,756.0	10,040.8	3,741.1	3,966.8	2,298.9
Olympic Coast NMS	8,394.2	8,394.2	8,394.2	339.8	339.8	339.8
Inside Closure	5,621.2	5,621.1	5,621.2	94.2	94.2	94.2
Outside	2,773.1	2,773.1	2,773.1	245.6	245.6	245.6
Greater Farallones NMS	1,879.7	1,879.7	1,879.7	538.3	538.3	538.3
Inside Closure	79.3	1,005.0	1,677.4	125.0	206.7	214.4
Outside	1,800.4	874.7	202.2	413.3	331.6	323.9
Cordell Bank NMS	432.5	432.5	432.5	211.3	211.3	211.3
Inside Closure	362.5	380.6	409.3	112.8	106.8	125.4
Outside	70.0	51.9	23.2	98.5	104.5	85.9
Monterey Bay NMS	18,954.7	18,954.7	18,954.7	1,360.9	1,360.9	1,360.9
Inside Closure	17,214.4	18,213.1	18,213.5	754.0	708.9	728.9
Outside	1,740.3	741.6	741.2	606.9	652.0	632.1
Channel Islands NMS	19,325.9	19,325.9	19,325.9	262.1	262.1	262.1
Inside Closure	19,177.0	19,120.3	19,325.9	167.3	129.6	262.0
Outside	148.9	205.6	0.0	94.8	132.5	0.0
Tribal U&As	10,340.5	10,340.5	10,340.5	953.9	953.9	953.9
Inside Closure	5,622.4	5,622.3	5,622.4	243.1	243.0	243.1
Outside	4,718.1	4,718.2	4,718.1	710.8	710.8	710.8

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APPENDIX Geographic Area	Darkblotched Rockfish - Occurrence (sum)			Darkblotched Rockfish - Abundance (sum)		
	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	1,367.44	1,367.44	1,367.44	7,228.72	7,228.72	7,228.72
Inside Closure	527.74	93.09	217.85	3,896.22	503.82	1,342.92
Outside	839.70	1,274.35	1,149.59	3,332.50	6,724.90	5,885.80
Northern - Shelf	1,597.48	1,597.48	1,597.48	4,551.62	4,551.62	4,551.62
Inside Closure	232.09	113.67	226.70	1,683.41	450.22	882.36
Outside	1,365.39	1,483.81	1,370.79	2,868.20	4,101.39	3,669.26
Northern - Lower Slope	0.54	0.54	0.54	0.00	0.00	0.00
Inside Closure	0.54	0.54	0.54	0.00	0.00	0.00
Outside	0.00	0.00	0.00	0.00	0.00	0.00
Central - Upper Slope	373.92	373.92	373.92	1,059.08	1,059.08	1,059.08
Inside Closure	132.12	53.95	88.18	536.13	198.26	361.43
Outside	241.79	319.97	285.74	522.95	860.82	697.65
Central - Shelf	356.35	356.35	356.35	499.80	499.80	499.80
Inside Closure	102.11	63.25	93.03	228.00	120.01	170.20
Outside	254.24	293.10	263.32	271.80	379.80	329.61
Central - Lower Slope	0.16	0.16	0.16	0.00	0.00	0.00
Inside Closure	0.16	0.16	0.16	0.00	0.00	0.00
Outside	0.00	0.01	0.00	0.00	0.00	0.00
Southern - Upper Slope	338.20	338.20	338.20	1,029.93	1,029.93	1,029.93
Inside Closure	205.83	175.14	325.68	826.83	763.21	1,011.02
Outside	132.37	163.06	12.52	203.11	266.73	18.91
Southern - Shelf	73.26	73.26	73.26	163.22	163.22	163.22
Inside Closure	58.09	49.42	64.30	149.18	139.23	155.42
Outside	15.18	23.84	8.97	14.03	23.99	7.80
Southern - Lower Slope	0.04	0.04	0.04	0.00	0.00	0.00
Inside Closure	0.04	0.04	0.04	0.00	0.00	0.00
Outside	0.00	0.00	0.00	0.00	0.00	0.00
EEZ	4,107.40	4,107.40	4,107.40	14,532.37	14,532.37	14,532.37
Inside Closure	1,258.74	549.05	1,016.37	7,319.77	2,175.98	3,923.02
Outside	2,848.66	3,558.35	3,091.03	7,212.60	12,356.40	10,609.35
Washington	700.62	700.62	700.62	2,868.26	2,868.26	2,868.26
Inside Closure	147.34	121.37	139.21	1,084.68	691.93	872.71
Outside	553.28	579.25	561.41	1,783.58	2,176.33	1,995.55
Oregon	1,922.23	1,922.23	1,922.23	7,127.77	7,127.77	7,127.77
Inside Closure	545.66	78.30	270.32	3,652.80	231.59	1,091.12
Outside	1,376.57	1,843.93	1,651.92	3,474.97	6,896.17	6,036.65
California	1,484.61	1,484.61	1,484.61	4,536.81	4,536.81	4,536.81
Inside Closure	565.74	349.51	606.83	2,582.37	1,251.14	1,959.90
Outside	918.87	1,135.11	877.79	1,954.43	3,285.67	2,576.91
Olympic Coast NMS	327.14	327.14	327.14	985.47	985.47	985.47
Inside Closure	71.91	71.91	71.91	336.85	336.84	336.85
Outside	255.23	255.23	255.23	648.61	648.63	648.61
Greater Farallones NMS	165.67	165.67	165.67	206.53	206.53	206.53
Inside Closure	52.95	17.30	35.80	117.75	32.50	65.74
Outside	112.72	148.37	129.87	88.78	174.03	140.79
Cordell Bank NMS	72.75	72.75	72.75	87.14	87.14	87.14
Inside Closure	28.26	11.10	19.75	49.11	8.29	23.56
Outside	44.49	61.65	52.99	38.03	78.85	63.58
Monterey Bay NMS	148.63	148.63	148.63	215.32	215.32	215.32
Inside Closure	50.70	33.39	37.21	112.57	62.52	69.03
Outside	97.93	115.24	111.42	102.74	152.80	146.28
Channel Islands NMS	45.48	45.48	45.48	82.33	82.33	82.33
Inside Closure	36.31	24.78	45.48	72.70	51.05	82.32
Outside	9.18	20.70	0.00	9.62	31.28	0.00
Tribal U&As	484.86	484.86	484.86	1,639.25	1,639.25	1,639.25
Inside Closure	109.07	109.06	109.07	611.14	611.10	611.14
Outside	375.79	375.80	375.79	1,028.11	1,028.15	1,028.11

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APPENDIX Geographic Area	Greenstriped Rockfish - Occurrence (sum)			Greenstriped Rockfish - Abundance (sum)		
	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	1,004.78	1,004.78	1,004.78	5,463.14	5,463.14	5,463.14
Inside Closure	475.65	107.56	202.07	3,434.71	1,152.70	1,898.49
Outside	529.13	897.23	802.71	2,028.43	4,310.45	3,564.66
Northern - Shelf	2,652.49	2,652.49	2,652.49	17,625.94	17,625.94	17,625.94
Inside Closure	333.81	230.24	450.97	3,851.11	2,593.16	5,846.80
Outside	2,318.68	2,422.25	2,201.51	13,774.83	15,032.79	11,779.14
Northern - Lower Slope	0.15	0.15	0.15	0.00	0.00	0.00
Inside Closure	0.15	0.15	0.15	0.00	0.00	0.00
Outside	0.00	0.00	0.00	0.00	0.00	0.00
Central - Upper Slope	392.65	392.65	392.65	635.75	635.75	635.75
Inside Closure	175.44	68.83	111.27	453.79	172.40	252.45
Outside	217.21	323.83	281.38	181.97	463.35	383.31
Central - Shelf	990.25	990.25	990.25	2,076.70	2,076.70	2,076.70
Inside Closure	273.82	222.72	296.11	721.03	586.99	742.50
Outside	716.43	767.53	694.14	1,355.67	1,489.71	1,334.21
Central - Lower Slope	0.06	0.06	0.06	0.00	0.00	0.00
Inside Closure	0.06	0.06	0.06	0.00	0.00	0.00
Outside	0.00	0.00	0.00	0.00	0.00	0.00
Southern - Upper Slope	735.63	735.63	735.63	1,594.82	1,594.82	1,594.82
Inside Closure	497.85	397.98	694.20	1,356.94	1,038.76	1,499.42
Outside	237.78	337.64	41.43	237.88	556.06	95.40
Southern - Shelf	391.50	391.50	391.50	1,062.39	1,062.39	1,062.39
Inside Closure	294.31	249.42	334.47	914.74	720.02	994.37
Outside	97.19	142.09	57.04	147.65	342.37	68.02
Southern - Lower Slope	0.07	0.07	0.07	0.00	0.00	0.00
Inside Closure	0.07	0.07	0.07	0.00	0.00	0.00
Outside	0.00	0.00	0.00	0.00	0.00	0.00
EEZ	6,167.59	6,167.59	6,167.59	28,458.76	28,458.76	28,458.76
Inside Closure	2,051.17	1,277.02	2,089.08	10,732.33	6,263.46	11,233.31
Outside	4,116.42	4,890.57	4,078.51	17,726.43	22,195.30	17,225.44
Washington	1,040.16	1,040.16	1,040.16	8,235.20	8,235.20	8,235.20
Inside Closure	184.37	158.73	177.06	2,101.30	1,854.76	2,045.15
Outside	855.79	881.43	863.10	6,133.90	6,380.44	6,190.05
Oregon	2,280.83	2,280.83	2,280.83	13,943.56	13,943.56	13,943.56
Inside Closure	563.86	168.64	443.26	4,968.03	1,880.91	5,590.44
Outside	1,716.97	2,112.19	1,837.56	8,975.53	12,062.65	8,353.12
California	2,846.67	2,846.67	2,846.67	6,280.34	6,280.34	6,280.34
Inside Closure	1,302.95	949.66	1,486.07	3,663.09	2,527.69	3,596.81
Outside	1,543.72	1,897.01	1,360.61	2,617.25	3,752.65	2,683.53
Olympic Coast NMS	586.44	586.44	586.44	5,625.77	5,625.77	5,625.77
Inside Closure	111.45	111.45	111.45	1,285.59	1,285.57	1,285.59
Outside	474.99	475.00	474.99	4,340.18	4,340.21	4,340.18
Greater Farallones NMS	383.62	383.62	383.62	560.81	560.81	560.81
Inside Closure	103.61	57.22	95.96	160.80	65.49	130.98
Outside	280.02	326.40	287.66	400.02	495.33	429.84
Cordell Bank NMS	153.47	153.47	153.47	311.44	311.44	311.44
Inside Closure	60.65	32.94	51.28	189.99	115.84	166.28
Outside	92.82	120.53	102.19	121.44	195.60	145.16
Monterey Bay NMS	381.42	381.42	381.42	1,051.94	1,051.94	1,051.94
Inside Closure	121.35	95.27	104.15	471.49	348.59	380.13
Outside	260.07	286.15	277.27	580.44	703.35	671.81
Channel Islands NMS	198.02	198.02	198.02	353.67	353.67	353.67
Inside Closure	157.15	116.65	198.00	298.06	203.60	353.64
Outside	40.87	81.36	0.02	55.60	150.07	0.03
Tribal U&As	770.91	770.91	770.91	6,760.28	6,760.28	6,760.28
Inside Closure	145.75	145.74	145.75	1,673.97	1,673.95	1,673.97
Outside	625.16	625.17	625.16	5,086.31	5,086.33	5,086.31

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APPENDIX Geographic Area	Longspine Thornyhead - Occurrence (sum)			Longspine Thornyhead - Abundance (sum)		
	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	5,221.51	5,221.51	5,221.51	181,824	181,824	181,824
Inside Closure	479.55	552.04	1,120.09	12,846	22,363	45,845
Outside	4,741.95	4,669.46	4,101.42	168,979	159,461	135,979
Northern - Shelf	113.34	113.34	113.34	128	128	128
Inside Closure	39.13	28.14	35.35	25	13	34
Outside	74.21	85.20	77.98	103	115	94
Northern - Lower Slope	1,189.22	1,189.22	1,189.22	55,379	55,379	55,379
Inside Closure	1,188.44	1,188.45	1,188.45	55,347	55,347	55,347
Outside	0.78	0.77	0.77	32	31	31
Central - Upper Slope	4,606.71	4,606.71	4,606.71	128,538	128,538	128,538
Inside Closure	1,319.22	1,445.92	1,641.91	41,440	45,819	51,804
Outside	3,287.49	3,160.79	2,964.80	87,098	82,720	76,734
Central - Shelf	112.06	112.06	112.06	936	936	936
Inside Closure	89.27	85.65	88.54	773	751	760
Outside	22.79	26.41	23.53	163	185	177
Central - Lower Slope	728.49	728.49	728.49	31,033	31,033	31,033
Inside Closure	728.44	721.92	728.49	31,031	30,775	31,033
Outside	0.05	6.58	0.00	2	258	0
Southern - Upper Slope	7,976.74	7,976.74	7,976.74	115,204	115,204	115,204
Inside Closure	2,541.35	2,528.32	7,968.70	34,400	34,382	115,185
Outside	5,435.38	5,448.42	8.04	80,804	80,822	19
Southern - Shelf	66.17	66.17	66.17	78	78	78
Inside Closure	59.09	57.56	64.82	48	47	78
Outside	7.07	8.61	1.35	30	31	0
Southern - Lower Slope	136.70	136.70	136.70	3,574	3,574	3,574
Inside Closure	136.70	136.70	136.70	3,574	3,574	3,574
Outside	0.00	0.00	0.00	0	0	0
EEZ	20,151.06	20,151.06	20,151.06	516,695	516,695	516,695
Inside Closure	6,581.27	6,745.79	12,969.17	179,484	193,093	303,563
Outside	13,569.79	13,405.27	7,181.89	337,211	323,603	213,132
Washington	1,538.30	1,538.30	1,538.30	49,257	49,257	49,257
Inside Closure	605.29	662.03	774.22	22,312	24,880	28,998
Outside	933.01	876.27	764.08	26,945	24,377	20,259
Oregon	3,568.61	3,568.61	3,568.61	108,844	108,844	108,844
Inside Closure	962.64	885.10	1,211.94	37,746	38,558	50,690
Outside	2,605.98	2,683.52	2,356.67	71,098	70,286	58,154
California	15,044.27	15,044.27	15,044.27	358,598	358,598	358,598
Inside Closure	5,013.36	5,197.62	10,983.30	119,427	129,633	223,886
Outside	10,030.91	9,846.65	4,060.97	239,172	228,965	134,712
Olympic Coast NMS	121.16	121.16	121.16	2,182	2,182	2,182
Inside Closure	21.45	21.45	21.45	24	24	24
Outside	99.71	99.71	99.71	2,157	2,157	2,157
Greater Farallones NMS	360.54	360.54	360.54	8,376	8,376	8,376
Inside Closure	76.44	133.50	136.36	1,776	3,224	3,237
Outside	284.09	227.04	224.17	6,600	5,152	5,139
Cordell Bank NMS	116.78	116.78	116.78	2,936	2,936	2,936
Inside Closure	44.68	43.41	49.69	1,311	1,311	1,417
Outside	72.09	73.36	67.09	1,625	1,625	1,519
Monterey Bay NMS	1,207.45	1,207.45	1,207.45	31,317	31,317	31,317
Inside Closure	505.97	521.42	529.57	15,459	16,176	16,489
Outside	701.48	686.02	677.88	15,859	15,141	14,829
Channel Islands NMS	186.77	186.77	186.77	1,265	1,265	1,265
Inside Closure	102.12	97.39	186.77	647	641	1,265
Outside	84.65	89.37	0.00	619	624	0
Tribal U&As	822.95	822.95	822.95	24,930	24,930	24,930
Inside Closure	379.89	379.83	379.89	12,942	12,940	12,942
Outside	443.06	443.12	443.06	11,988	11,990	11,988

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APPENDIX Geographic Area	Petrage Sole - Occurrence (sum)			Petrage Sole - Abundance (sum)		
	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	843.24	843.24	843.24	2,017.63	2,017.63	2,017.63
Inside Closure	424.69	101.20	183.90	1,128.75	310.99	505.30
Outside	418.56	742.04	659.34	888.88	1,706.64	1,512.33
Northern - Shelf	7,002.37	7,002.37	7,002.37	25,008.28	25,008.28	25,008.28
Inside Closure	1,150.69	1,104.58	1,418.03	2,218.50	2,212.04	3,526.39
Outside	5,851.68	5,897.79	5,584.35	22,789.77	22,796.24	21,481.89
Northern - Lower Slope	1.36	1.36	1.36	0.02	0.02	0.02
Inside Closure	1.36	1.36	1.36	0.02	0.02	0.02
Outside	0.00	0.00	0.00	0.00	0.00	0.00
Central - Upper Slope	529.29	529.29	529.29	1,393.67	1,393.67	1,393.67
Inside Closure	225.89	89.84	140.45	839.40	251.81	437.89
Outside	303.40	439.45	388.84	554.27	1,141.86	955.77
Central - Shelf	3,437.19	3,437.19	3,437.19	15,044.26	15,044.26	15,044.26
Inside Closure	1,503.90	1,448.45	1,610.91	5,219.99	4,917.45	5,853.58
Outside	1,933.30	1,988.74	1,826.29	9,824.28	10,126.81	9,190.68
Central - Lower Slope	1.78	1.78	1.78	0.07	0.07	0.07
Inside Closure	1.78	1.74	1.78	0.07	0.06	0.07
Outside	0.00	0.04	0.00	0.00	0.01	0.00
Southern - Upper Slope	512.56	512.56	512.56	1,062.64	1,062.64	1,062.64
Inside Closure	356.94	282.30	467.57	807.69	596.24	939.55
Outside	155.62	230.26	45.00	254.95	466.40	123.09
Southern - Shelf	1,300.80	1,300.80	1,300.80	2,663.06	2,663.06	2,663.06
Inside Closure	898.47	845.21	989.90	1,825.90	1,636.59	2,144.35
Outside	402.33	455.59	310.90	837.16	1,026.47	518.71
Southern - Lower Slope	0.32	0.32	0.32	0.03	0.03	0.03
Inside Closure	0.32	0.32	0.32	0.03	0.03	0.03
Outside	0.00	0.00	0.00	0.00	0.00	0.00
EEZ	13,629.18	13,629.18	13,629.18	47,189.78	47,189.78	47,189.78
Inside Closure	4,564.21	3,875.12	4,814.00	12,040.43	9,925.86	13,406.17
Outside	9,064.97	9,754.06	8,815.17	35,149.35	37,263.92	33,783.61
Washington	2,637.13	2,637.13	2,637.13	7,727.21	7,727.21	7,727.21
Inside Closure	581.97	559.82	578.01	809.82	762.55	809.41
Outside	2,055.16	2,077.31	2,059.12	6,917.39	6,964.66	6,917.80
Oregon	4,199.95	4,199.95	4,199.95	14,961.89	14,961.89	14,961.89
Inside Closure	637.97	339.88	693.97	1,736.09	1,176.18	2,515.70
Outside	3,561.98	3,860.07	3,505.98	13,225.81	13,785.71	12,446.20
California	6,792.24	6,792.24	6,792.24	24,501.04	24,501.04	24,501.04
Inside Closure	3,344.30	2,972.76	3,542.03	9,494.55	7,974.54	10,080.92
Outside	3,447.94	3,819.48	3,250.21	15,006.49	16,526.50	14,420.11
Olympic Coast NMS	1,531.37	1,531.37	1,531.37	4,675.03	4,675.03	4,675.03
Inside Closure	391.55	391.54	391.55	642.22	642.21	642.22
Outside	1,139.82	1,139.82	1,139.82	4,032.82	4,032.82	4,032.82
Greater Farallones NMS	1,158.17	1,158.17	1,158.17	5,613.47	5,613.47	5,613.47
Inside Closure	413.55	359.82	441.95	1,594.15	1,306.21	1,809.52
Outside	744.62	798.35	716.22	4,019.33	4,307.26	3,803.95
Cordell Bank NMS	272.35	272.35	272.35	1,921.19	1,921.19	1,921.19
Inside Closure	101.78	62.30	92.92	732.59	462.79	679.93
Outside	170.57	210.05	179.43	1,188.60	1,458.40	1,241.25
Monterey Bay NMS	1,179.34	1,179.34	1,179.34	4,379.83	4,379.83	4,379.83
Inside Closure	529.44	509.99	527.33	1,679.17	1,621.68	1,710.68
Outside	649.90	669.35	652.01	2,700.65	2,758.14	2,669.15
Channel Islands NMS	495.45	495.45	495.45	1,305.60	1,305.60	1,305.60
Inside Closure	407.72	373.74	495.44	1,018.92	918.23	1,305.58
Outside	87.73	121.71	0.01	286.67	387.37	0.02
Tribal U&As	1,917.57	1,917.57	1,917.57	5,748.09	5,748.09	5,748.09
Inside Closure	454.56	454.54	454.56	703.91	703.90	703.91
Outside	1,463.02	1,463.03	1,463.02	5,044.18	5,044.19	5,044.18

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APPENDIX Geographic Area	Sablefish - Occurrence (sum)			Sablefish - Abundance (sum)		
	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	6,855.00	6,855.00	6,855.00	77578	77578	77578
Inside Closure	1,218.95	675.39	1,391.83	13905	6177	13562
Outside	5,636.05	6,179.61	5,463.18	63674	71402	64016
Northern - Shelf	3,014.86	3,014.86	3,014.86	14201	14201	14201
Inside Closure	369.33	215.86	414.37	2731	1210	2314
Outside	2,645.53	2,798.99	2,600.48	11470	12991	11887
Northern - Lower Slope	1,120.12	1,120.12	1,120.12	5200	5200	5200
Inside Closure	1,119.37	1,119.37	1,119.37	5196	5196	5196
Outside	0.75	0.75	0.74	4	4	4
Central - Upper Slope	5,372.07	5,372.07	5,372.07	52153	52153	52153
Inside Closure	1,566.11	1,506.57	1,765.68	13761	13358	15281
Outside	3,805.97	3,865.51	3,606.39	38392	38795	36872
Central - Shelf	1,033.24	1,033.24	1,033.24	3009	3009	3009
Inside Closure	299.23	229.49	309.62	1110	761	1012
Outside	734.02	803.75	723.63	1900	2248	1998
Central - Lower Slope	683.30	683.30	683.30	2861	2861	2861
Inside Closure	683.25	677.11	683.30	2861	2827	2861
Outside	0.05	6.19	0.00	0	34	0
Southern - Upper Slope	5,128.93	5,128.93	5,128.93	30906	30906	30906
Inside Closure	1,619.32	1,572.99	5,107.33	10511	10324	30824
Outside	3,509.61	3,555.95	21.61	20396	20582	82
Southern - Shelf	62.02	62.02	62.02	199	199	199
Inside Closure	45.10	36.61	51.49	156	132	179
Outside	16.92	25.41	10.53	43	67	20
Southern - Lower Slope	110.86	110.86	110.86	473	473	473
Inside Closure	110.86	110.86	110.86	473	473	473
Outside	0.00	0.00	0.00	0	0	0
EEZ	23,380.46	23,380.46	23,380.46	186582	186582	186582
Inside Closure	7,031.54	6,143.57	10,950.38	50702	40439	71683
Outside	16,348.92	17,236.89	12,430.08	135880	146143	114898
Washington	2,626.69	2,626.69	2,626.69	21210	21210	21210
Inside Closure	795.73	817.09	948.10	6138	6045	7173
Outside	1,830.95	1,809.60	1,678.58	15072	15165	14038
Oregon	6,400.70	6,400.70	6,400.70	55355	55355	55355
Inside Closure	1,675.62	959.54	1,572.79	13650	4602	9855
Outside	4,725.08	5,441.17	4,827.92	41706	50753	45500
California	14,353.28	14,353.28	14,353.28	110019	110019	110019
Inside Closure	4,560.21	4,367.45	8,429.74	30915	29792	54659
Outside	9,793.07	9,985.83	5,923.54	79104	80226	55360
Olympic Coast NMS	690.39	690.39	690.39	5551	5551	5551
Inside Closure	142.73	142.73	142.73	1540	1540	1540
Outside	547.66	547.66	547.66	4012	4012	4012
Greater Farallones NMS	745.72	745.72	745.72	3100	3100	3100
Inside Closure	171.81	174.08	213.37	604	542	666
Outside	573.91	571.64	532.35	2496	2558	2434
Cordell Bank NMS	285.78	285.78	285.78	1382	1382	1382
Inside Closure	104.62	69.75	95.93	403	224	345
Outside	181.16	216.03	189.85	979	1159	1038
Monterey Bay NMS	1,627.54	1,627.54	1,627.54	16034	16034	16034
Inside Closure	591.06	562.92	581.90	4984	4770	4930
Outside	1,036.48	1,064.62	1,045.64	11050	11264	11104
Channel Islands NMS	144.19	144.19	144.19	704	704	704
Inside Closure	79.29	61.37	144.18	380	303	704
Outside	64.89	82.82	0.00	325	402	0
Tribal U&As	1,608.37	1,608.37	1,608.37	12912	12912	12912
Inside Closure	534.58	534.52	534.58	4557	4557	4557
Outside	1,073.79	1,073.85	1,073.79	8354	8355	8354

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APPENDIX	Yelloweye Rockfish - Occurrence (sum)			Bottom Trawl Effort - Intensity (before 2005)		
Geographic Area	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	182	182	182	37339660	37339660	37339660
Inside Closure	70	27	46	2851851	450424	1911769
Outside	113	156	136	34487809	36889236	35427891
Northern - Shelf	567	567	567	16986110	16986110	16986110
Inside Closure	120	110	205	839594	287993	622275
Outside	447	456	362	16146516	16698117	16363835
Northern - Lower Slope	2	2	2	111201	111201	111201
Inside Closure	2	2	2	101399	101397	101402
Outside	0	0	0	9802	9804	9799
Central - Upper Slope	74	74	74	12710090	12710090	12710090
Inside Closure	27	23	31	577568	237726	621461
Outside	47	51	43	12132522	12472364	12088629
Central - Shelf	154	154	154	2094054	2094054	2094054
Inside Closure	92	92	97	663198	543701	1231575
Outside	61	62	56	1430856	1550353	862479
Central - Lower Slope	1	1	1	43744	43744	43744
Inside Closure	1	1	1	43744	43614	43744
Outside	0	0	0	0	129	0
Southern - Upper Slope	94	94	94	108500	108500	108500
Inside Closure	52	46	93	26666	20216	39599
Outside	42	48	2	81834	88284	68901
Southern - Shelf	63	63	63	4624098	4624098	4624098
Inside Closure	54	52	58	647211	643260	647321
Outside	9	12	5	3976887	3980838	3976777
Southern - Lower Slope	0	0	0	0	0	0
Inside Closure	0	0	0	0	0	0
Outside	0	0	0	0	0	0
EEZ	1138	1138	1138	99429040	99429040	99429040
Inside Closure	418	353	533	13674928	9839415	12176801
Outside	720	784	604	85754112	89589625	87252239
Washington	239	239	239	23824100	23824100	23824100
Inside Closure	46	42	46	3441921	3176089	3434715
Outside	193	197	193	20382179	20648011	20389385
Oregon	467	467	467	29325520	29325520	29325520
Inside Closure	136	91	198	2286678	204964	1281579
Outside	331	376	269	27038842	29120556	28043941
California	432	432	432	46279420	46279420	46279420
Inside Closure	236	220	289	7946329	6454285	7460500
Outside	196	212	143	38333091	39825135	38818920
Olympic Coast NMS	156	156	156	11218420	11218420	11218420
Inside Closure	33	33	33	1152296	1152084	1152296
Outside	123	123	123	10066124	10066336	10066124
Greater Farallones NMS	34	34	34	4883565	4883565	4883565
Inside Closure	13	10	13	689718	566852	622288
Outside	21	23	20	4193847	4316713	4261277
Cordell Bank NMS	10	10	10	1182324	1182324	1182324
Inside Closure	5	4	5	225548	111017	181833
Outside	5	6	5	956777	1071307	1000491
Monterey Bay NMS	97	97	97	10344230	10344230	10344230
Inside Closure	68	68	69	4206963	3895034	3902561
Outside	29	29	28	6137267	6449196	6441669
Channel Islands NMS	23	23	23	10489	10489	10489
Inside Closure	18	15	23	6908	0	10407
Outside	5	7	0	3581	10489	82
Tribal U&As	186	186	186	15882857	15882857	15882857
Inside Closure	39	39	39	2038980	2038745	2038980
Outside	147	147	147	13843877	13844112	13843877

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APPENDIX	Bottom Trawl Effort - Intensity (after 2005)			OR Shrimp Trawl Effort - Intensity (before 2005)		
	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	63560660	63560660	63560660	0.462	0.462	0.462
Inside Closure	2823770	313355	2065624	0.253	0.000	0.021
Outside	60736890	63247305	61495036	0.209	0.462	0.441
Northern - Shelf	21618100	21618100	21618100	1.889	1.889	1.889
Inside Closure	669068	114443	396178	0.083	0.008	0.074
Outside	20949032	21503657	21221922	1.806	1.881	1.815
Northern - Lower Slope	63796	63796	63796	0.000	0.000	0.000
Inside Closure	63550	63551	63550	0.000	0.000	0.000
Outside	246	245	246	0.000	0.000	0.000
Central - Upper Slope	12645470	12645470	12645470	0.002	0.002	0.002
Inside Closure	407986	40003	353439	0.001	0.000	0.001
Outside	12237484	12605467	12292031	0.000	0.002	0.001
Central - Shelf	5819230	5819230	5819230	0.070	0.070	0.070
Inside Closure	393746	260548	605023	0.024	0.022	0.023
Outside	5425484	5558682	5214207	0.046	0.048	0.047
Central - Lower Slope	17306	17306	17306	0.000	0.000	0.000
Inside Closure	11001	11001	11001	0.000	0.000	0.000
Outside	6305	6305	6305	0.000	0.000	0.000
Southern - Upper Slope	54018	54018	54018	0.000	0.000	0.000
Inside Closure	10720	2421	14931	0.000	0.000	0.000
Outside	43298	51597	39087	0.000	0.000	0.000
Southern - Shelf	3653963	3653963	3653963	0.000	0.000	0.000
Inside Closure	433732	426235	428993	0.000	0.000	0.000
Outside	3220231	3227728	3224970	0.000	0.000	0.000
Southern - Lower Slope	0	0	0	0.000	0.000	0.000
Inside Closure	0	0	0	0.000	0.000	0.000
Outside	0	0	0	0.000	0.000	0.000
EEZ	107563060	107563060	107563060	2.500	2.500	2.500
Inside Closure	8304135	4211709	6649718	0.362	0.031	0.120
Outside	99258925	103351351	100913342	2.138	2.469	2.380
Washington	24828540	24828540	24828540	0.199	0.199	0.199
Inside Closure	2007103	1724562	1875092	0.005	0.003	0.003
Outside	22821437	23103978	22953448	0.195	0.197	0.197
Oregon	45748420	45748420	45748420	2.228	2.228	2.228
Inside Closure	2247471	157733	1279657	0.332	0.006	0.094
Outside	43500949	45590687	44468763	1.896	2.222	2.134
California	36986100	36986100	36986100	0.072	0.072	0.072
Inside Closure	4049561	2329414	3494959	0.025	0.022	0.024
Outside	32936539	34656686	33491141	0.047	0.050	0.049
Olympic Coast NMS	6788052	6788052	6788052	0.078	0.078	0.078
Inside Closure	614992	614973	614992	0.001	0.000	0.000
Outside	6173060	6173079	6173060	0.077	0.078	0.077
Greater Farallones NMS	3218302	3218302	3218302	0.000	0.000	0.000
Inside Closure	342317	227399	276176	0.000	0.000	0.000
Outside	2875984	2990903	2942126	0.000	0.000	0.000
Cordell Bank NMS	977392	977392	977392	0.000	0.000	0.000
Inside Closure	163843	88242	149129	0.000	0.000	0.000
Outside	813549	889150	828262	0.000	0.000	0.000
Monterey Bay NMS	6842050	6842050	6842050	0.000	0.000	0.000
Inside Closure	1507534	1069881	1065636	0.000	0.000	0.000
Outside	5334516	5772169	5776414	0.000	0.000	0.000
Channel Islands NMS	7438	7438	7438	0.000	0.000	0.000
Inside Closure	3605	0	7311	0.000	0.000	0.000
Outside	3833	7438	127	0.000	0.000	0.000
Tribal U&As	14614719	14614719	14614719	0.120	0.120	0.120
Inside Closure	1501544	1501552	1501544	0.001	0.001	0.001
Outside	13113175	13113167	13113175	0.118	0.118	0.119

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APPENDIX	OR Shrimp Trawl Effort - Intensity (after 2005)			Coral Bycatch (Standardized by Effort)		
	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	0.403	0.403	0.403	1,236.1	1,236.1	1,236.1
Inside Closure	0.139	0.000	0.008	33.3	111.6	376.7
Outside	0.264	0.403	0.395	1,202.7	1,124.4	859.4
Northern - Shelf	1.700	1.700	1.700	174.8	174.8	174.8
Inside Closure	0.019	0.005	0.018	9.4	0.7	56.9
Outside	1.681	1.695	1.681	165.5	174.1	117.9
Northern - Lower Slope	0.000	0.000	0.000	0.2	0.2	0.2
Inside Closure	0.000	0.000	0.000	0.2	0.2	0.2
Outside	0.000	0.000	0.000	0.0	0.0	0.0
Central - Upper Slope	0.000	0.000	0.000	6.7	6.7	6.7
Inside Closure	0.000	0.000	0.000	0.3	0.2	1.3
Outside	0.000	0.000	0.000	6.4	6.5	5.4
Central - Shelf	0.000	0.000	0.000	0.1	0.1	0.1
Inside Closure	0.000	0.000	0.000	0.0	0.0	0.0
Outside	0.000	0.000	0.000	0.0	0.1	0.1
Central - Lower Slope	0.000	0.000	0.000	0.0	0.0	0.0
Inside Closure	0.000	0.000	0.000	0.0	0.0	0.0
Outside	0.000	0.000	0.000	0.0	0.0	0.0
Southern - Upper Slope	0.000	0.000	0.000	0.0	0.0	0.0
Inside Closure	0.000	0.000	0.000	0.0	0.0	0.0
Outside	0.000	0.000	0.000	0.0	0.0	0.0
Southern - Shelf	0.000	0.000	0.000	0.0	0.0	0.0
Inside Closure	0.000	0.000	0.000	0.0	0.0	0.0
Outside	0.000	0.000	0.000	0.0	0.0	0.0
Southern - Lower Slope	0.000	0.000	0.000	0.0	0.0	0.0
Inside Closure	0.000	0.000	0.000	0.0	0.0	0.0
Outside	0.000	0.000	0.000	0.0	0.0	0.0
EEZ	2.221	2.221	2.221	1,417.8	1,417.8	1,417.8
Inside Closure	0.159	0.006	0.027	60.5	127.6	451.5
Outside	2.062	2.214	2.193	1,357.3	1,290.2	966.3
Washington	0.236	0.236	0.236	272.1	272.1	272.1
Inside Closure	0.001	0.001	0.001	17.6	17.5	77.1
Outside	0.235	0.235	0.234	254.5	254.6	195.0
Oregon	1.894	1.894	1.894	676.1	676.1	676.1
Inside Closure	0.157	0.005	0.025	33.7	0.9	8.8
Outside	1.737	1.889	1.870	642.4	675.2	667.3
California	0.090	0.090	0.090	469.6	469.6	469.6
Inside Closure	0.001	0.000	0.001	9.2	109.2	365.6
Outside	0.090	0.090	0.089	460.4	360.3	104.0
Olympic Coast NMS	0.118	0.118	0.118	54.3	54.3	54.3
Inside Closure	0.000	0.000	0.000	8.3	8.3	8.3
Outside	0.117	0.118	0.118	46.0	46.0	46.0
Greater Farallones NMS	0.000	0.000	0.000	0.1	0.1	0.1
Inside Closure	0.000	0.000	0.000	0.0	0.0	0.0
Outside	0.000	0.000	0.000	0.1	0.1	0.1
Cordell Bank NMS	0.000	0.000	0.000	0.0	0.0	0.0
Inside Closure	0.000	0.000	0.000	0.0	0.0	0.0
Outside	0.000	0.000	0.000	0.0	0.0	0.0
Monterey Bay NMS	0.000	0.000	0.000	1.9	1.9	1.9
Inside Closure	0.000	0.000	0.000	0.2	0.0	0.0
Outside	0.000	0.000	0.000	1.7	1.9	1.9
Channel Islands NMS	0.000	0.000	0.000	0.0	0.0	0.0
Inside Closure	0.000	0.000	0.000	0.0	0.0	0.0
Outside	0.000	0.000	0.000	0.0	0.0	0.0
Tribal U&As	0.183	0.183	0.183	123.7	123.7	123.7
Inside Closure	0.000	0.000	0.000	17.2	17.2	17.2
Outside	0.183	0.183	0.183	106.5	106.5	106.5

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APPENDIX	Sponge Bycatch (Standardized by Effort)			Sea Pens/Whips Bycatch (Standardized by Effort)		
	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013	Baseline - Existing EFH Closures	Collaborative	Oceana et al. 2013
Northern - Upper Slope	25,238.5	25,238.5	25,238.5	50.4	50.4	50.4
Inside Closure	2,090.0	96.2	3,598.1	8.4	0.2	9.1
Outside	23,148.5	25,142.3	21,640.4	42.0	50.2	41.3
Northern - Shelf	463.8	463.8	463.8	45.6	45.6	45.6
Inside Closure	97.9	6.4	164.0	2.6	0.0	0.1
Outside	365.8	457.4	299.7	42.9	45.5	45.5
Northern - Lower Slope	3.2	3.2	3.2	0.6	0.6	0.6
Inside Closure	3.2	3.2	3.2	0.6	0.6	0.6
Outside	0.0	0.0	0.0	0.0	0.0	0.0
Central - Upper Slope	115.0	115.0	115.0	1.8	1.8	1.8
Inside Closure	9.1	0.1	22.0	0.0	0.0	0.0
Outside	105.9	114.9	93.0	1.7	1.8	1.7
Central - Shelf	3.3	3.3	3.3	0.8	0.8	0.8
Inside Closure	1.2	0.3	0.5	0.0	0.0	0.1
Outside	2.1	2.9	2.8	0.8	0.8	0.7
Central - Lower Slope	0.0	0.0	0.0	0.0	0.0	0.0
Inside Closure	0.0	0.0	0.0	0.0	0.0	0.0
Outside	0.0	0.0	0.0	0.0	0.0	0.0
Southern - Upper Slope	0.0	0.0	0.0	0.0	0.0	0.0
Inside Closure	0.0	0.0	0.0	0.0	0.0	0.0
Outside	0.0	0.0	0.0	0.0	0.0	0.0
Southern - Shelf	0.0	0.0	0.0	0.0	0.0	0.0
Inside Closure	0.0	0.0	0.0	0.0	0.0	0.0
Outside	0.0	0.0	0.0	0.0	0.0	0.0
Southern - Lower Slope	0.0	0.0	0.0	0.0	0.0	0.0
Inside Closure	0.0	0.0	0.0	0.0	0.0	0.0
Outside	0.0	0.0	0.0	0.0	0.0	0.0
EEZ	25,823.8	25,823.8	25,823.8	99.1	99.1	99.1
Inside Closure	2,253.1	157.9	3,839.8	12.5	1.8	10.6
Outside	23,570.7	25,665.9	21,983.9	86.6	97.3	88.5
Washington	678.4	678.4	678.4	14.2	14.2	14.2
Inside Closure	69.3	89.7	100.0	1.2	0.8	1.4
Outside	609.1	588.8	578.5	13.0	13.5	12.9
Oregon	23,656.6	23,656.6	23,656.6	74.8	74.8	74.8
Inside Closure	2,136.9	14.0	3,527.0	11.1	0.9	8.1
Outside	21,519.6	23,642.6	20,129.6	63.7	73.8	66.7
California	1,488.8	1,488.8	1,488.8	10.1	10.1	10.1
Inside Closure	46.8	54.3	212.9	0.2	0.1	1.2
Outside	1,441.9	1,434.5	1,275.9	9.9	10.0	8.9
Olympic Coast NMS	121.9	121.9	121.9	5.4	5.4	5.4
Inside Closure	29.3	29.3	29.3	0.0	0.0	0.0
Outside	92.6	92.6	92.6	5.3	5.4	5.4
Greater Farallones NMS	4.3	4.3	4.3	0.1	0.1	0.1
Inside Closure	1.6	0.0	0.8	0.0	0.0	0.0
Outside	2.6	4.3	3.5	0.1	0.1	0.1
Cordell Bank NMS	0.0	0.0	0.0	0.3	0.3	0.3
Inside Closure	0.0	0.0	0.0	0.0	0.0	0.1
Outside	0.0	0.0	0.0	0.3	0.3	0.2
Monterey Bay NMS	10.4	10.4	10.4	1.2	1.2	1.2
Inside Closure	0.0	0.0	0.3	0.2	0.1	0.1
Outside	10.3	10.4	10.0	1.0	1.1	1.1
Channel Islands NMS	0.0	0.0	0.0	0.0	0.0	0.0
Inside Closure	0.0	0.0	0.0	0.0	0.0	0.0
Outside	0.0	0.0	0.0	0.0	0.0	0.0
Tribal U&As	349.9	349.9	349.9	9.5	9.5	9.5
Inside Closure	51.6	51.6	51.6	0.7	0.6	0.7
Outside	298.2	298.2	298.2	8.8	8.9	8.8

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	Total				North of 40° 10'				South of 40° 10'			
Geographic	Year Round Trawl RCA	RCA Opening – Existing Closure	RCA Opening - Oceana	RCA Opening - Collaborative	Year Round Trawl RCA	RCA Opening – Existing Closure	RCA Opening - Oceana	RCA Opening - Collaborative	Year Round Trawl RCA	RCA Opening – Existing Closure	RCA Opening - Oceana	RCA Opening - Collaborative
Area (mi2)	3,574.2	2,693.2	1,789.4	2,693.8	2,153.2	1,606.9	1,325.4	1,613.1	1,421.0	1,086.3	464.0	1,080.6
Hard Substrate (mi2)	146.0	77.7	6.0	81.4	43.3	12.1	4.7	21.8	102.6	65.6	1.4	59.6
Mixed Substrate (mi2)	193.0	32.0	12.1	29.4	183.8	26.5	11.7	26.1	9.3	5.5	0.3	3.3
Soft Substrate (mi2)	3,218.6	2,569.2	1,759.2	2,568.0	1,910.5	1,555.0	1,296.9	1,550.4	1,308.1	1,014.2	462.3	1,017.6
Coral (#)	18,554	340	48	290	15,511	51	31	54	3,043.0	289.0	17.0	236.0
Sponge (#)	514	251	107	260	279	155	89	167	235.0	96.0	18.0	93.0
Pennatulid (#)	1,119	406	307	393	133	105	79	107	986.0	301.0	228.0	286.0
Coral/Sponge Presence (mi2)	184.2	101.6	46.9	100.5	104.0	59.7	37.3	61.8	80.2	41.9	9.6	38.7
	10,840.4	1,769.5	563.0	1,689.0	5,706.7	12.1	11.3	37.6	5,133.8	1,757.4	551.7	1,651.4
High Coral Habitat Suitability (mi2)	953.2	604.0	394.4	599.9	494.4	309.0	244.9	312.0	458.8	295.0	149.5	287.9
Coral Bycatch (Std. by Effort)	53.6	39.3	38.9	37.5	53.4	39.1	38.7	37.3	0.2	0.2	0.2	0.1
Sponge Bycatch (Std. by Effort)	2,115.9	2,109.2	716.1	1,974.8	2,108.7	2,102.0	712.0	1,968.1	7.2	7.2	4.1	6.8
Sea Pens/Whip Bycatch (Std. by Effort)	11.0	10.9	6.5	10.4	10.9	10.8	6.4	10.2	0.1	0.1	0.1	0.1
Bottom Trawl Effort (Before)	5,620,831	4,097,621	3,337,466	4,172,449	4,635,795	3,213,739	2,675,372	3,274,160	985,036	883,882	662,094	898,289
Bottom Trawl Effort (After)	5,593,547	4,176,119	3,438,881	4,337,529	4,529,553	3,170,197	2,618,191	3,330,039	1,063,994	1,005,922	820,690	1,007,491
OR Shrimp Trawl Effort (Before)	0.3325	0.3276	0.3065	0.3306	0.3311	0.3271	0.3061	0.3296	0.0014	0.0005	0.0004	0.0010
OR Shrimp Trawl Effort (After)	0.1556	0.1552	0.1484	0.1549	0.1556	0.1552	0.1484	0.1549	0.0000	0.0000	0.0000	0.0000
Darkblotched Rockfish Occurrence	876.6	718.3	560.5	721.7	696.9	573.9	476.4	576.2	179.7	144.4	84.1	145.4
Darkblotched Rockfish Abundance	6,061.4	5,174.5	4,159.0	5,171.3	5,495.2	4,704.1	3,850.5	4,693.0	566.2	470.4	308.5	478.2
Greenstriped Rockfish Occurrence	1,058.2	808.6	557.2	808.8	679.4	513.4	428.9	515.0	378.8	295.1	128.4	293.8
Greenstriped Rockfish Abundance	6,983.0	4,675.6	3,161.1	4,649.9	5,764.3	3,730.4	2,816.7	3,726.8	1,218.7	945.2	344.3	923.1
Longspine Thornyhead Occurrence	216.2	153.2	110.4	153.5	155.1	115.9	93.1	116.8	61.0	37.3	17.3	36.7
Longspine Thornyhead Abundance	1,177.8	528.1	405.3	519.1	906.7	377.4	311.3	373.9	271.1	150.7	94.0	145.2
Petrale Sole Occurrence	1,052.5	785.4	540.9	782.9	629.5	461.5	384.0	461.4	423.0	323.8	156.9	321.5
Petrale Sole Abundance	3,546.4	2,521.2	1,676.8	2,487.8	1,792.4	1,216.7	997.7	1,203.1	1,754.0	1,304.5	679.0	1,284.8
Sablefish Occurrence	1,530.7	1,221.4	953.4	1,224.5	1,139.2	906.9	750.4	910.9	391.6	314.5	202.9	313.6
Sablefish Abundance	15,966.2	12,829.0	10,323.3	12,910.5	13,403.8	10,840.8	8,913.7	10,922.2	2,562.4	1,988.2	1,409.6	1,988.3
Yelloweye Rockfish Occurrence	130.8	78.7	53.9	79.3	100.2	61.6	47.0	62.5	30.6	17.1	6.9	16.8

Appendix Table: RCA-focused analysis, presented Coastwide (total), north, and south of 40° 10'. Each set of four columns includes the total amount of each feature within the current Year-Round Trawl RCAs, the amount of each feature within the Trawl RCAs that would be reopened if the RCA is removed but other existing closures remain in effect, the amount of each feature that would be reopened if the trawl RCA is removed and the Oceana EFH Alternative is adopted, and the amount of each feature that would be reopened if the trawl RCA is removed and the Collaborative EFH Alternative is adopted.