

NATIONAL MARINE FISHERIES SERVICE REPORT

Background information for Essential Fish Habitat

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Part 1 –Current Habitat Information

1a – NMFS Habitat Synthesis Report (April 2013)

The April 2013 Groundfish Essential Fish Habitat Synthesis: A Report to the Pacific Fishery Management Council (Synthesis Report)(NMFS 2013a,b) described the results of the Northwest and Southwest Fisheries Science Center’s (NWFSC’s, SWFSC’s) efforts to summarize the data compiled in the Phase 1 effort of the Groundfish Essential Fish Habitat Review process (PFMC 2012). The NMFS Synthesis Report was not a comprehensive EFH analysis, but rather provided summaries and some interpretation of newly available information that supplemented previous EFH work and can be used by stakeholders to assess and propose changes to existing spatial management boundaries.

The report was intended to set the stage for proposals to articulate any perceived need for changes and to lay the groundwork for Groundfish EFH Request for Proposals. We provided five types of analyses or summarizations: a) the spatial distribution of physical and biogenic habitats of the West Coast across bioregions, depth zones, and areas with different regulatory protections; b) the association of representative species with habitat characteristics including depth, temperature and substrate; c) the distribution of fishing and non-fishing threats across habitat types; d) analyses of the overlap of high likelihood of species occurrence and threats to habitat; and e) a summary of the diets of select groundfishes.

- Different types of habitats (by depth, by substrate type, by biogeographic region) are differentially subject to fishing regulations and other protections. A logical argument for any change in EFH or related spatially-driven protections includes an articulation of the relative amount of different types of protected and unprotected habitat.
- All areas are likely important when the entire assemblage of 91 groundfishes is considered. We focused on 6 ecologically distinct groundfish species that were selected to be generally representative of the west coast groundfish complex. Our analyses reveal that virtually all the marine habitat along the U.S. West Coast is likely to have a high probability of occurrence for the subadult through adult stage of at least one of these species. [Note that since species are not distributed randomly, we use the probability of occurrence based on habitat characteristics as a proxy for habitat preferences.] Moreover, the value of all areas will likely increase as additional life stages and species are more quantitatively considered. Because species are distributed across habitat types, any difference in protections among habitat types will have varying impacts on species, depending on their affinity to particular habitats. In some cases, such as when a species is subject to very little fishing pressure or other non-fishing stressors, this variance may be acceptable, at least to some stakeholders. Alternately, stakeholders may feel that protections for habitats where certain species are likely to be found are insufficient. Examining: a) the habitat characteristics associated with particular groundfish species;

and b) the protections for habitats of those types (as described above) provides a first cut at whether particular species are likely to be affected by the differences in habitat protections.

- Current levels of impact from both fishing and other threats to habitat can affect the degree of risk or protection that is tolerable to stakeholders or the Council. For example, areas or habitats that are relatively unaffected by human activities may be in little need of additional EFH-related protection; however, if such areas are important for some species, they might be protected now to prevent future degradation. Some habitats or areas subject to both high fishing pressures and high levels of other impacts could be considered for regulations to improve the overall quality of the habitat.
- Ultimately, it is the combination of habitat type, the probability of seeing a species in that habitat, and the threats to which a habitat is subjected, that should inform decisions about changes to existing EFH protections. Protecting areas in which there is a low probability of occurrence for a particular species will have little impact on the long-term persistence and productivity of a species. Thus, probability of occurrence, and associations of species with habitat characteristics can be used to prioritize areas for species of particular concern. The combination of current ecological importance and fishing pressure allows stakeholders to evaluate how much ‘important’ habitat has fishing protection. The inclusion of non-fisheries stressors allows consideration of the suitability of areas for protection. For example, managers may choose to protect areas of the highest quality by prioritizing areas subject to low levels of pollution over areas with high levels of these threats. Or, they may determine that non-fishing threats are so great in some areas that reductions in fishing pressure might be needed to maintain the health of the species. Our ‘occurrence by exposure’ graphs provide a means of gauging how much total habitat is and is not protected where there is a high probability of finding a species.
- The definition of EFH includes waters and substrate necessary to fish for feeding, and the presence of prey makes waters and substrate function as feeding habitat. Therefore, activities, both fishing and non-fishing, that reduce the availability of a major prey species, either through direct harm or capture or through adverse impacts to the prey species’ habitat, may be considered adverse effects on EFH if such activities reduce the quality of EFH. While abundant prey can be an important component of EFH, the prey species themselves cannot be designated as EFH. In addition, EFH cannot be designated for prey species that are not managed by the Council. In this synthesis, we reviewed the available quantitative data for a representative subset of groundfish species and identified their major prey species, with greater taxonomic resolution than in the 2005 EFH designation process. Proposals that address prey abundance and availability (i.e., the quality of the foraging habitat) should focus on these major prey types, at this taxonomic resolution.

All EFH-related documents, as well as the underlying data layers for the Synthesis Report, are available online:

- Phase 1 Report:
www.pcouncil.org/groundfish/background/document-library/pacific-coast-groundfish-5-year-review-of-efh/
- Synthesis data layers and data developed during Phase 1:
<http://efh-catalog.coas.oregonstate.edu/synthesis>
- Groundfish EFH Environmental Impact Statement (2005):
www.nwr.noaa.gov/publications/nepa/groundfish/final_groundfish_efh_eis.html
- Synthesis Report:
http://www.pcouncil.org/wp-content/uploads/Groundfish_EFH_Synthesis_Report_to_PFMC_FINAL.pdf
- Synthesis Report Appendix:
http://www.pcouncil.org/wp-content/uploads/Appendix_to_Groundfish_EFH_Synthesis_Report_to_PFMC_FINAL.pdf

Habitat protections vary by species

Along the U.S. West Coast, habitat types have received differential protection from fishing effort. The proportion of habitat with a high probability of occurrence of representative groundfish species and also included within an EFH conservation area varies widely among species. These conclusions were derived from the analysis in the Groundfish EFH Synthesis (see discussion in EFH-S [Section 2, pg. 22-38], EFH-P2 [Section 3, pg. 13-17]). Those species that occur in rocky or deeper areas (e.g., yelloweye rockfish, sablefish, and longspine thornyhead) have a relatively higher proportion of their habitat included within the EFH conservation areas than fish that are generally found in shallower or softer habitats (petrale sole, greenstriped rockfish, darkblotched rockfish). In addition, fishing pressure was high in high-probability habitat for adults of some groundfish species but not in other areas. Species vary in the coincidence of habitat suitability and fishing pressure from the groundfish fishery. For example from the Synthesis Report, sablefish has the highest proportion of areas that are heavily targeted by the fishery and also have a high probability of occurrence. Petrale sole has high probability of occurrence and high fishing pressure near the mouth of the Columbia River (Washington/Oregon border) and near San Francisco, California, but areas of lower fishery pressure (from federally observed fisheries) nearshore. The estimated threat to yelloweye rockfish is generally low since yelloweye have a high probability of occurrence only in areas with a low exposure to bottom trawl fishing. Given the insufficient amount of information on survival, fecundity, growth, or other life history parameters across habitat types at each life stage, an approach that works to protect a variety of habitats is consistent with precautionary fisheries management.

1b – Comparing Current Understanding/Information to 2006

What is the change in the state of knowledge about groundfish habitat?

Maps showing areas that changed in attribution

Pacific coast-wide comparative maps of bathymetry, acoustic coverage, and seafloor substrate in 2005 and 2011 were compiled for the U.S. Exclusive Economic Zone (EEZ) off Washington, Oregon and California as part of the *Phase I Report of the Pacific Coast Groundfish 5-Year Review of Essential Fish Habitat* (http://www.pcouncil.org/wp-content/uploads/H6b_EFHRC_RPT_1_SEP2012BB.pdf). The map products, GIS shape files and metadata are currently available online at: <http://efh-catalog.coas.oregonstate.edu/overview/>.

Bathymetry - A set of two comparison map panels (“plates”) of regional bathymetry were constructed at a scale of 1 to 750,000 and encompassed the U.S. EEZ of the U.S. Pacific Coast. Pre-2005 and post-2005 Coast-wide bathymetric coverage was available to the PFMC as contour data (10m interval) in 2005, whereas gridded bathymetric coverage (100m X 100m) was available in 2011 (Figure 1 is an example for northern Washington).

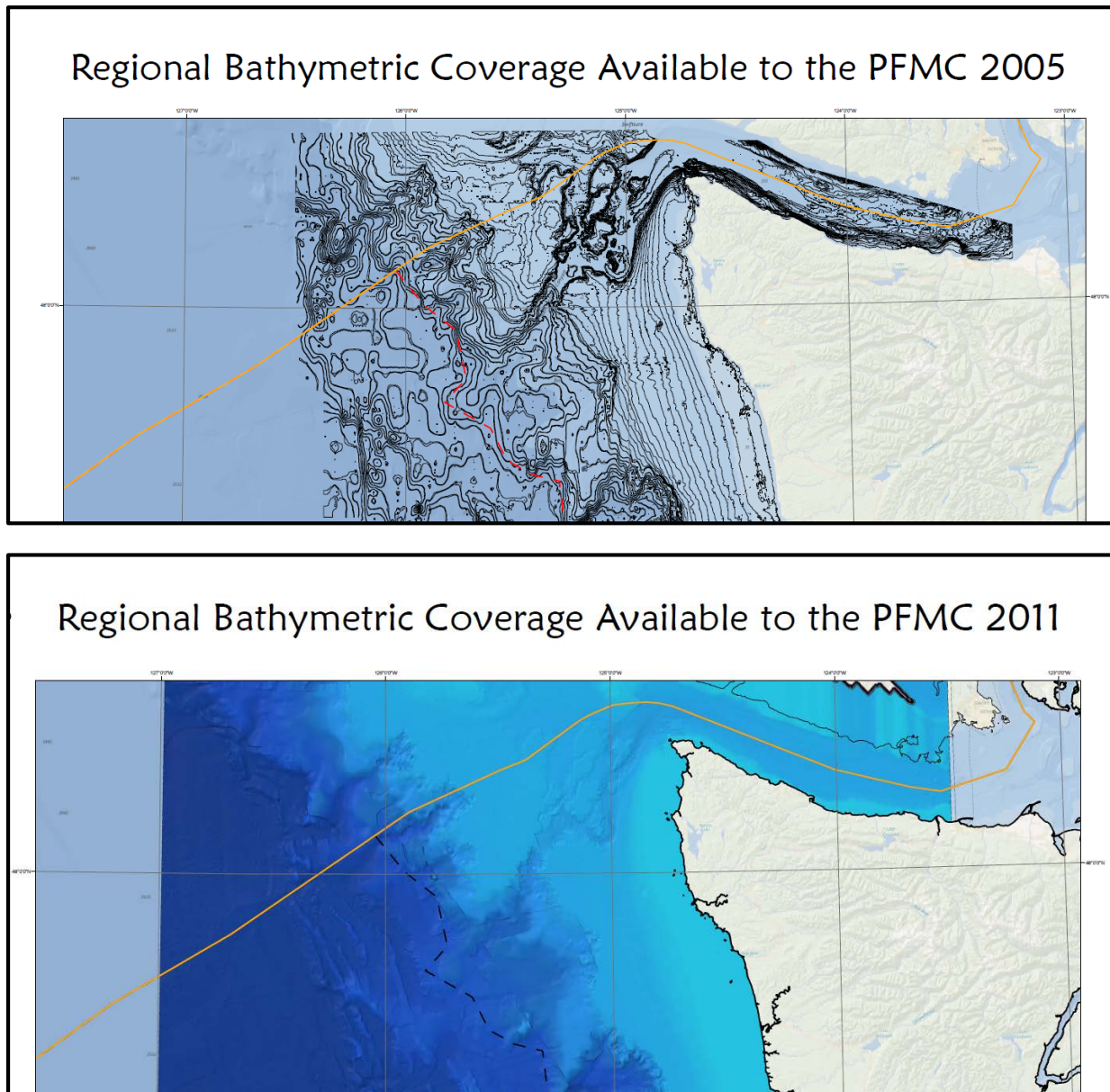


Figure 1. Regional bathymetric coverage available as contours to the PFMC in 2005 (Upper Panel, dataset native resolution = 10m contour interval; for display purposes 0-200m water depth = 10m contours and >200m water depth = 100m contours) and gridded bathymetric data to the PFMC in 2011 (Lower Panel data gridded at 100m X 100m).

Coverage of geophysical acoustic data - A set of 24 comparison map panels (“plates”) of coverage of geophysical acoustic data were constructed at a scale of 1:500,000 and encompassed the EEZ of the southern U.S. Pacific Coast (see Figure 2). Each plate presents a geographic comparison of components over two time intervals: Pre 2005 and 2005-2011. Geophysical coverage can also be viewed as a data quality layer.

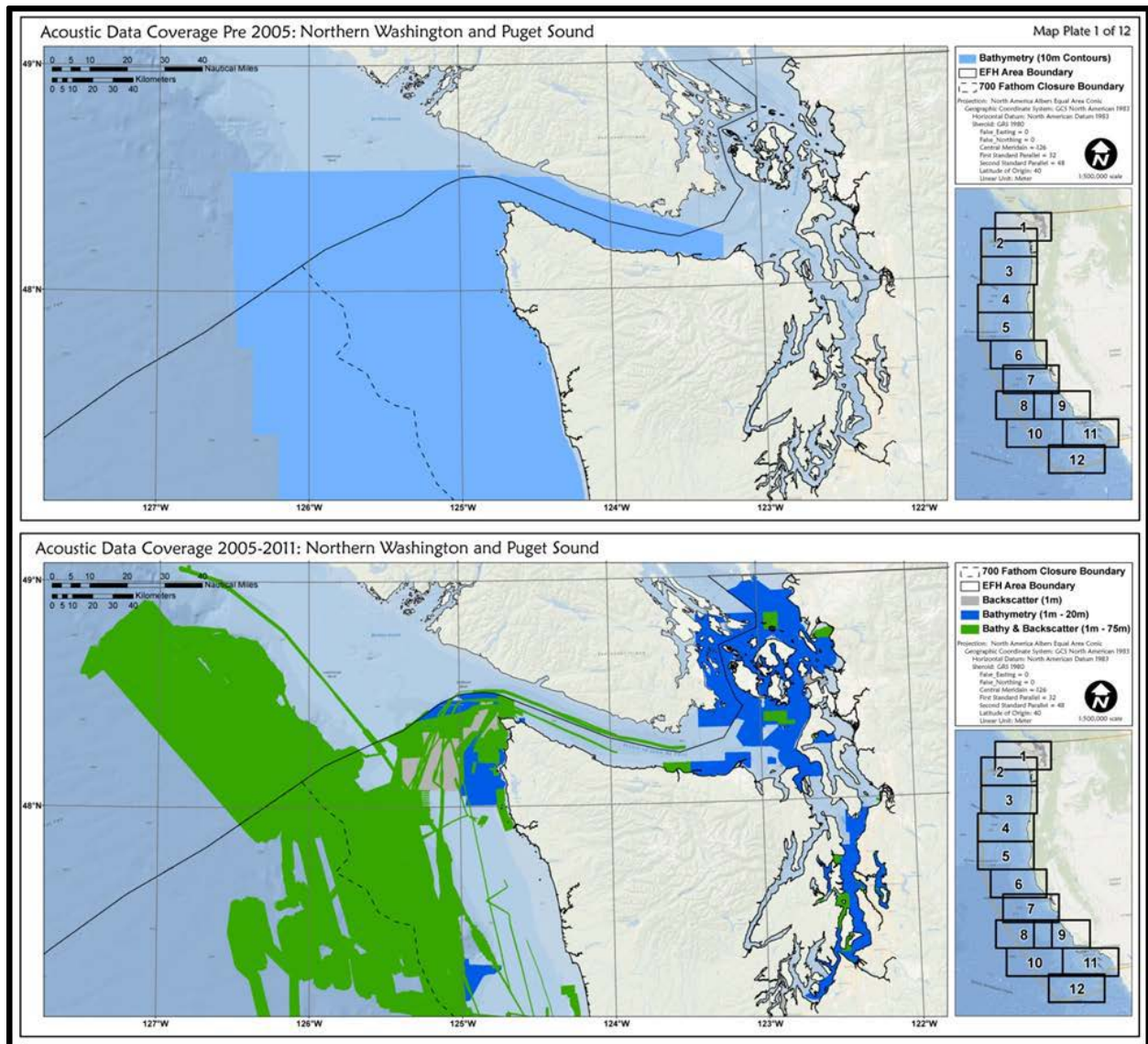


Figure 2. Geographic comparison of geophysical acoustic data coverage over two time intervals: Pre 2005 and 2005-2011 (combined overlay of Pre 2005 and 2005-2011 data).

Seafloor type - A set of 24 comparison map panels (“plates”) of seafloor type were constructed at a scale of 1:500,000 and encompassed the EEZ of the southern U.S. Pacific Coast (see Figure 3). Each plate presents a geographic comparison of project components over two time intervals: Pre 2005 and 2005-2011.

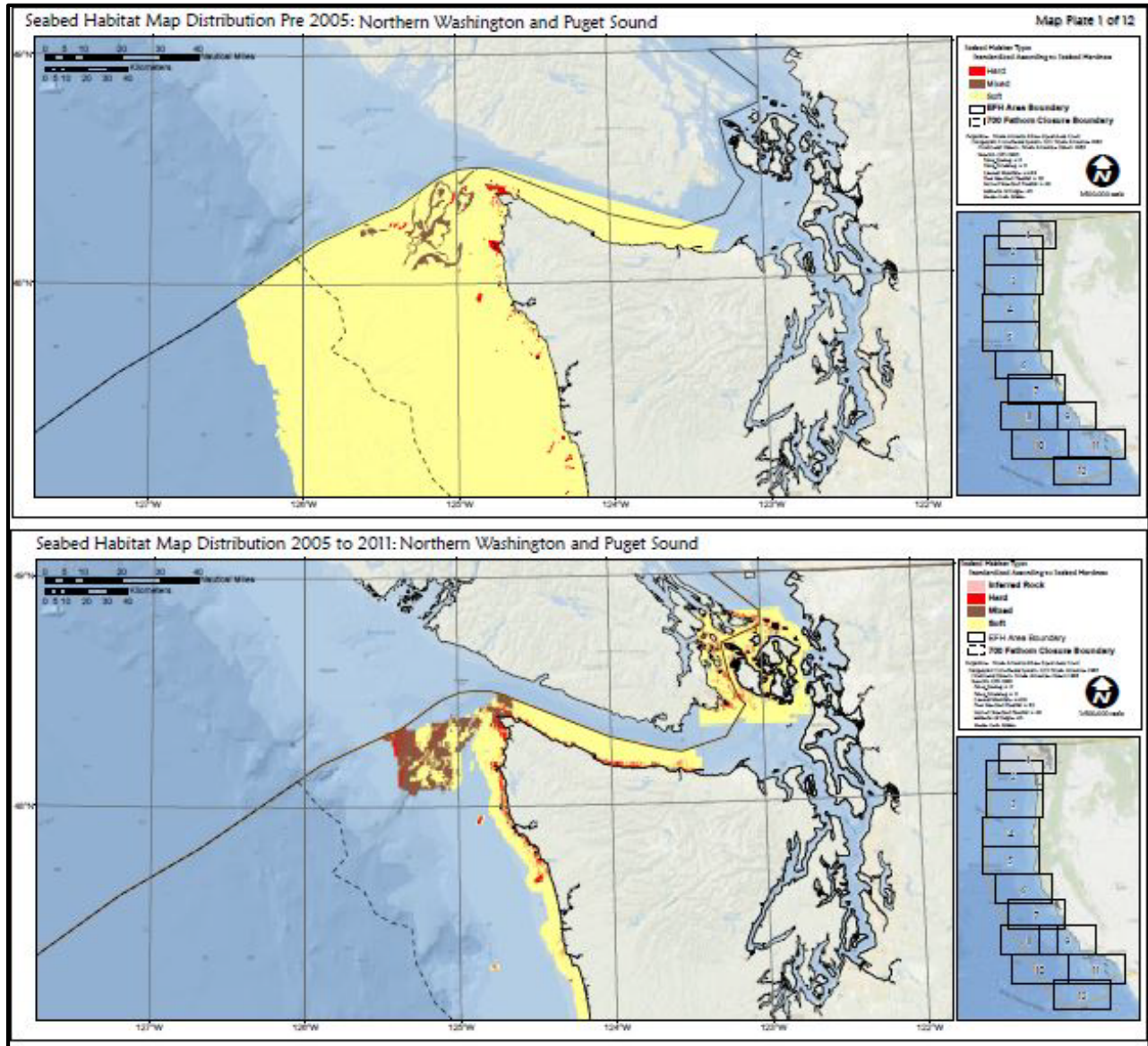


Figure 3. Geographic comparison over two time intervals: Pre 2005 and 2005-2011.

Summary of change tables

Table 1. Summary of changes in knowledge of physical habitat proportions (units: ha) by physiographic strata (i.e., water depth) between 2005 and 2011.

			2011			
			hard	mixed	soft	unknown
2005	Shelf	hard	222,239	47,654	108,423	265
		soft	110,589	72,984	5,119,888	6,970
		unknown	282	5	779	2,903
	Upper Slope	hard	603,327	30,809	44,050	34
		soft	9,923	96,417	9,275,222	135
		unknown	0	0	32	5,530
	Lower Slope	hard	1,034,975	0	8,339	712
		soft	8,445	0	7,316,817	2,928
		unknown	0	0	24	536

Table 2. Summary of changes in knowledge of physical habitat proportions (units: ha) by geographical sub-region between 2005 and 2011.

			2011			
			hard	mixed	soft	unknown
2005	Salish Sea	hard	434	1,526	224	16
		soft	7,490	4,416	102,651	3,649
		unknown	0	0		0
	Northern	hard	542,910	68,527	49,785	88
		soft	53,463	131,398	8,276,831	3,766
		unknown	4	0	9	53
	Central	hard	467,859	1,384	31,325	194
		soft	46,295	7,007	6,222,810	1,730
		unknown	85	1	105	5,405
	Southern	hard	849,338	7,025	79,477	712
		soft	21,709	26,580	7,109,634	888
		unknown	193	4	721	3,512

Table 3. Summary of changes in knowledge of physical habitat proportions (units: %) by physiographic strata (i.e., water depth) between 2005 and 2011. The proportions in this table mirror the areal units in Table 1, above. For example, the upper left cell shows that 58.7 % of habitat classified as “hard” in 2005 remains hard in 2011.

			2011			
			hard	mixed	soft	unknown
2005	Shelf	hard	58.70%	12.59%	28.64%	0.07%
		soft	2.08%	1.37%	96.41%	0.13%
		unknown	7.11%	0.13%	19.63%	73.13%
	Upper Slope	hard	88.96%	4.54%	6.49%	0.01%
		soft	0.11%	1.03%	98.87%	0.00%
		unknown	0.00%	0.00%	0.57%	99.43%
	Lower Slope	hard	99.13%	0.00%	0.80%	0.07%
		soft	0.12%	0.00%	99.84%	0.04%
		unknown	0.00%	0.00%	4.29%	95.71%

Table 4. Summary of changes in knowledge of physical habitat proportions (units: %) by geographical sub-region between 2005 and 2011. The proportions in this table mirror the areal units in Table 2, above. For example, the upper left cell shows that 19.71 % of habitat classified as “hard” in 2005 remains hard in 2011.

			2011			
			hard	mixed	soft	unknown
2005	Salish Sea	hard	19.71%	69.36%	10.19%	0.75%
		soft	6.34%	3.74%	86.84%	3.09%
		unknown	49.87%	0.00%	0.00%	50.13%
	Northern	hard	82.10%	10.36%	7.53%	0.01%
		soft	0.63%	1.55%	97.77%	0.04%
		unknown	5.38%	0.11%	13.49%	81.02%
	Central	hard	93.43%	0.28%	6.26%	0.04%
		soft	0.74%	0.11%	99.12%	0.03%
		unknown	1.52%	0.02%	1.88%	96.58%
	Southern	hard	90.69%	0.75%	8.49%	0.08%
		soft	0.30%	0.37%	99.31%	0.01%
		unknown	4.37%	0.08%	16.28%	79.27%

Magnuson-Stevens Reauthorization Act and the EFH framework

The Magnuson-Stevens Conservation and Management Reauthorization Act (MSRA) requires NMFS and the Fishery Management Councils (FMCs) to designate EFH for Federally managed species and to minimize fishing effects on EFH as practicable in Fishery Management Plans (FMPs). EFH is defined as “...those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity”. For the purposes of interpreting the definition of EFH, “waters” include aquatic areas and their associated physical, chemical, and biological properties that are used that are used by fish and may include aquatic areas historically used by fish where appropriate; “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle.

Fishery Management Councils must identify and describe in their Fishery Management Plans (FMPs) the habitats used by all life history stages of each managed species in their fishery management units. EFH that is judged to be particularly important to the long-term productivity of populations of one or more managed species, or to be particularly vulnerable to degradation, should be identified as “habitat areas of particular concern” (HAPC) to help provide additional focus for conservation efforts. After identifying and describing EFH, FMCs must assess the potential adverse effects of all fishing activities and gear types to EFH and must include management measures to minimize adverse effects, to the extent practicable, in FMPs. The FMCs are also directed to examine non-fishing sources of adverse impacts that may affect the quantity or quality of EFH and to consider actions to reduce or eliminate the effects. FMC’s are further directed to identify proactive means to further the conservation and enhancement of EFH.

FMCs are required to obtain information to describe and identify EFH from the best available sources, including peer-reviewed literature, unpublished scientific reports, data files of government resource agencies, fisheries landing reports, and other sources. FMPs should identify gaps in habitat data and deficiencies in data quality (including considerations of scale and resolution; relevance; and potential biases in collection and interpretation) and must demonstrate that the best scientific information available was used in the identification and description of EFH, consistent with National Standard 2. The information necessary to identify and describe EFH is organized according to a series of data levels:

Level 1: Distribution data are available for some or all portions of the geographic range of the species. At this level, only distribution data are available to describe the geographic range of a species (or life stage).

Level 2: Habitat-related densities of the species are available. At this level, quantitative data (i.e. density or relative abundance) are available for the habitats occupied by a species or life stage.

Level 3: Growth, reproduction, or survival rates within habitats are available. At this level, data are available on habitat-related growth, reproduction, and/or survival by life stage. The habitats contributing the most to productivity should be those that support the highest growth, reproduction, and survival of the species (or life stage).

Level 4: Production rates by habitat are available. At this level, data are available that directly relate the production rates of a species or life stage to habitat type, quantity, quality, and location. Essential habitats are those necessary to maintain fish production consistent with a sustainable fishery and the managed species' contribution to a healthy ecosystem.

For the California Current Ecosystem, we are currently limited to Level 1 and 2 information for groundfish species.

1c – Current Distribution of Habitat Types

Map of data types

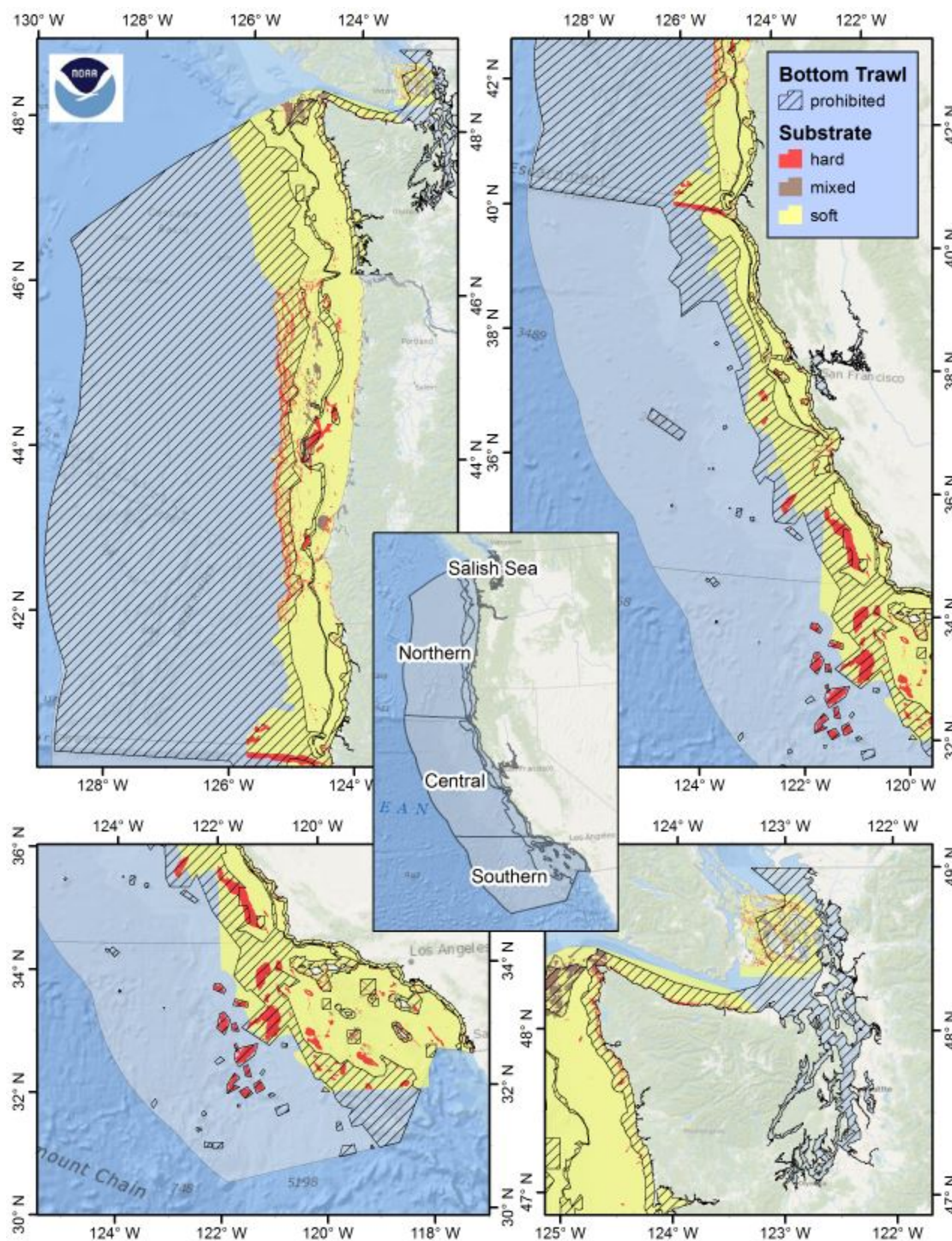


Figure 4. Spatial distribution of three major seabed habitat types: hard, mixed and soft; diagonal lines indicate areas where bottom trawl is prohibited.

Table 5. Distribution of physical habitat types (units: ha) by geographical sub-region (rows) and physiographic strata (columns) for areas prohibiting bottom trawling. The last column summarizes the total amount of habitat type for each sub-region.

hectares		Shelf	Upper Slope	Lower Slope	Total
Puget Sound	Hard	15,701	0	0	15,701
	Mixed	7,469	0	0	7,469
	Soft	213,668	0	0	213,668
	Unknown	503,119	0	0	503,119
North	Hard	67,292	14,221	324,537	406,050
	Mixed	35,513	26,438	0	61,951
	Soft	506,031	407,935	2,524,792	3,438,758
	Unknown	12,812	2	21,401,872	21,414,686
Central	Hard	94,048	139,669	143,068	376,786
	Mixed	5,056	1,485	0	6,541
	Soft	633,595	575,869	2,616,542	3,826,006
	Unknown	135,986	9,176	3,134,357	3,279,518
South	Hard	41,382	43,463	578,992	663,838
	Mixed	10,769	12,293	0	23,061
	Soft	519,144	594,203	1,703,013	2,816,360
	Unknown	16,037	497	1,369,403	1,385,937

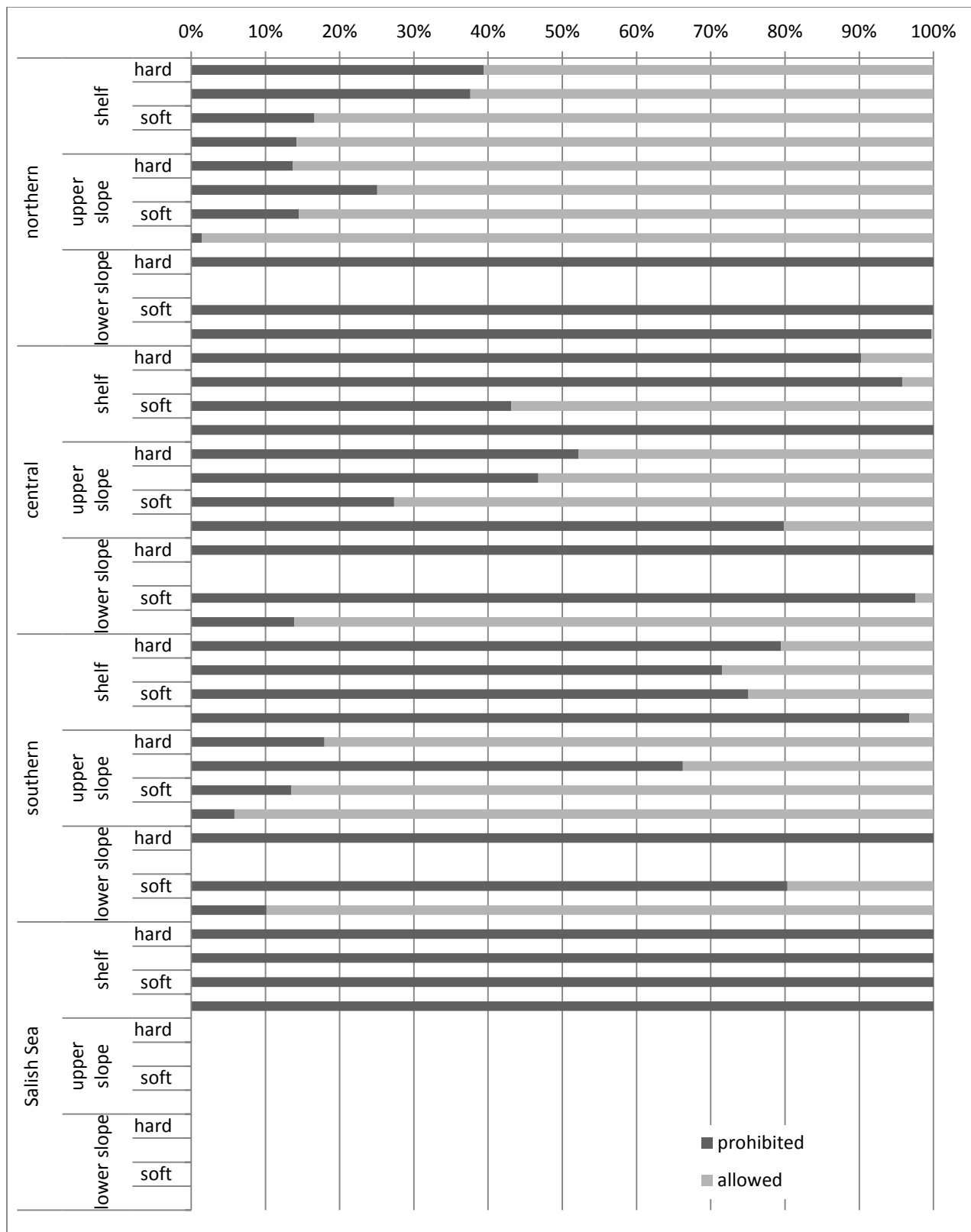


Figure 5. Percentages of seabed habitat areas by depth zone and biogeographic sub-regions where bottom trawling is prohibited. The Salish Sea only encompasses continental shelf water depths.

Total area in each category for two aspects

Table 6. Distribution of physical habitat types (units: ha) by geographical sub-region (rows) and physiographic strata (columns). The last column summarizes the total amount of habitat type for each sub-region.

hectares		Shelf	Upper Slope	Lower Slope	Total
Puget Sound	Hard	15,701	0	0	15,701
	Mixed	7,469	0	0	7,469
	Soft	213,668	0	0	213,668
	Unknown	503,119	0	0	503,119
North	Hard	170,661	103,766	324,537	598,964
	Mixed	94,430	105,496	0	199,926
	Soft	3,049,609	2,811,725	2,525,125	8,386,459
	Unknown	90,167	138	21,461,420	21,551,724
Central	Hard	104,228	267,468	143,068	514,764
	Mixed	5,277	3,175	0	8,453
	Soft	1,469,779	2,107,156	2,681,556	6,258,491
	Unknown	135,986	11,493	22,556,521	22,704,000
South	Hard	52,064	242,023	578,992	873,080
	Mixed	15,054	18,555	0	33,609
	Soft	691,704	4,400,561	2,119,680	7,211,945
	Unknown	16,574	8,495	13,485,704	13,510,772

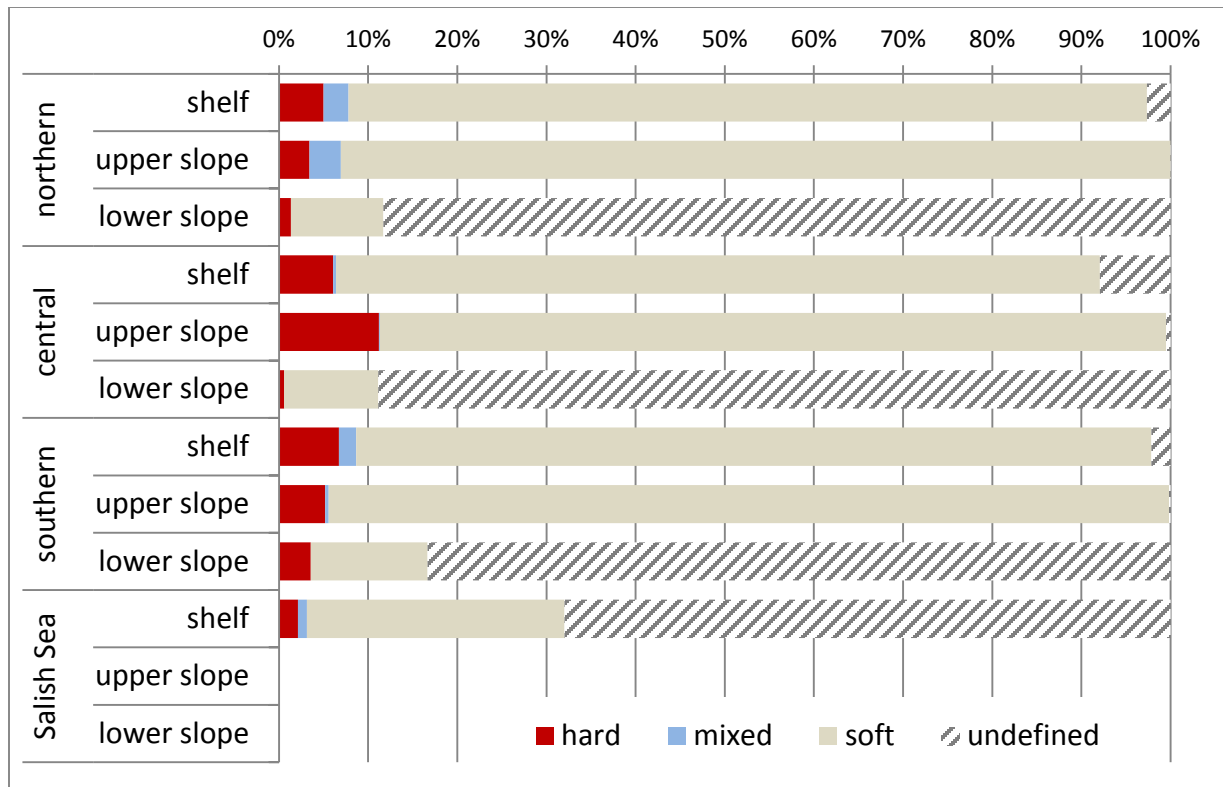


Figure 6. Distribution of physical habitat types (units: ha) by geographical sub-region and physiographic strata. The Salish Sea only encompasses continental shelf water depths.

1d – Fishing Effort in Three Time Frames

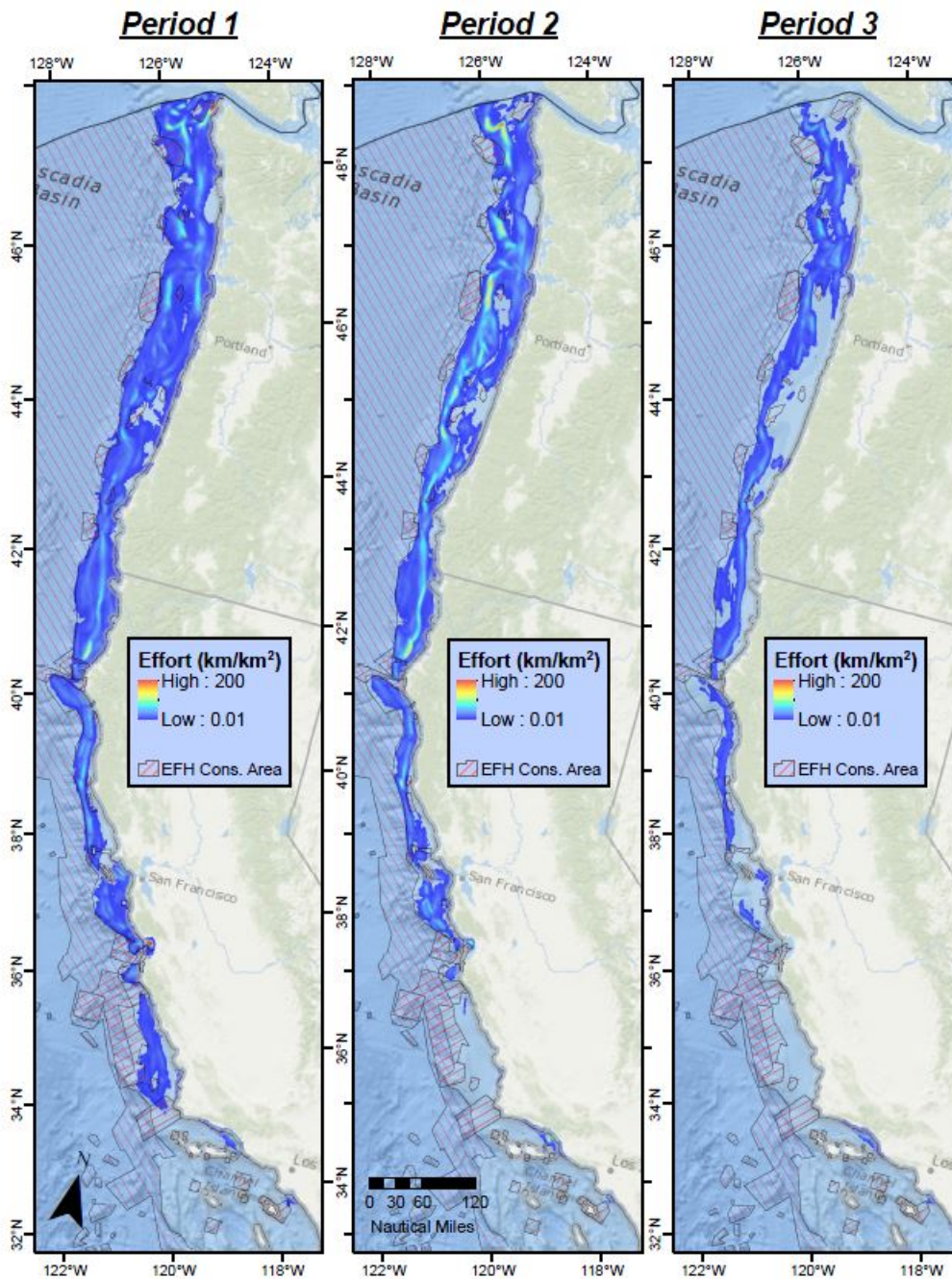


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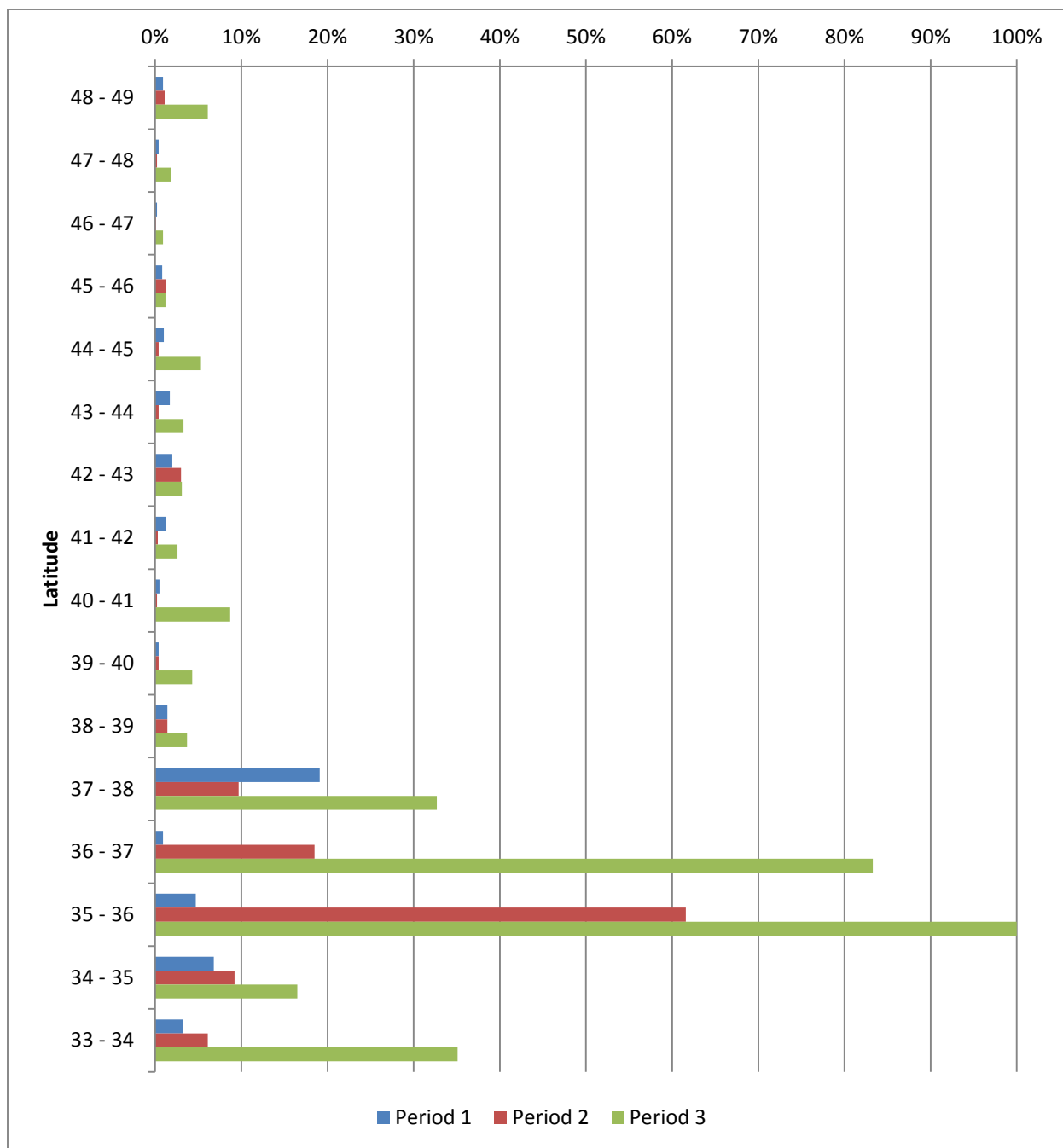


Figure 8. Relative proportion of bottom trawl fishing effort (km) by degree of latitude excluded from map figures due to confidentiality requirements. Time periods are defined as “Period 1” = 1 Jan 2002 - 11 Jun 2006; “Period 2” = 12 Jun 2006 – 31 Dec 2010; “Period 3” = 1 Jan 2011 – 31 Dec 2013, representing major eras in regulatory regimes (Amendment 19 [EFH] and 20 [IFQ]).

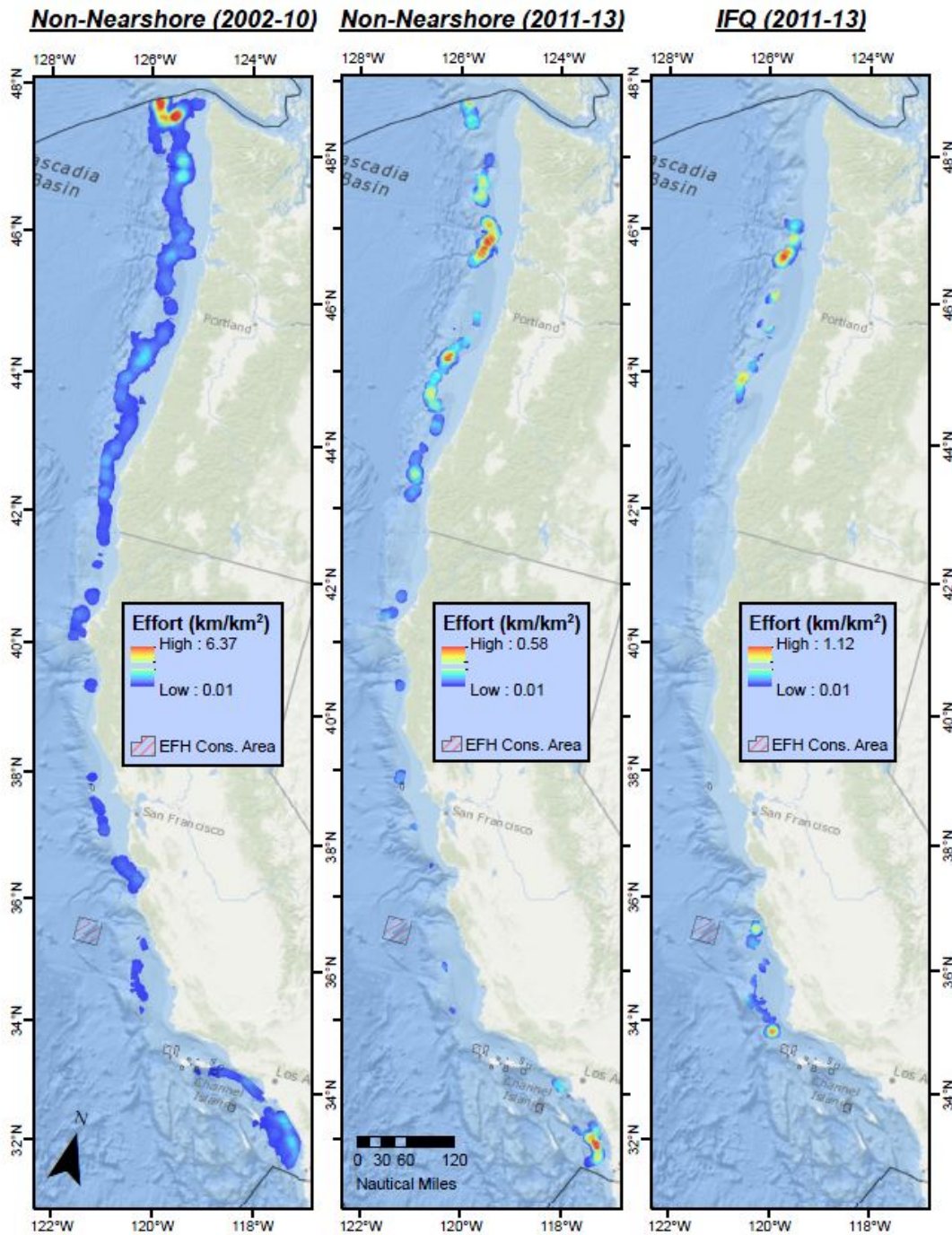


Figure 9. Spatial distribution and intensity of non-confidential longline fishing effort for three relevant sectors/time periods. The “non-nearshore” moniker represents the non-IFQ sectors including sablefish primary, open access, and daily trip limit. To depict intensity, we used a line density algorithm (ArcGIS™ v.10.2 Geographical Information System Software [Environmental System Research Institute, Inc., Redlands, California]). The density values for the color ramps for each map panel are not equal, so pixel-by-pixel comparisons cannot be made. The highest 0.5% of the data values for each sector/time period is depicted in red.

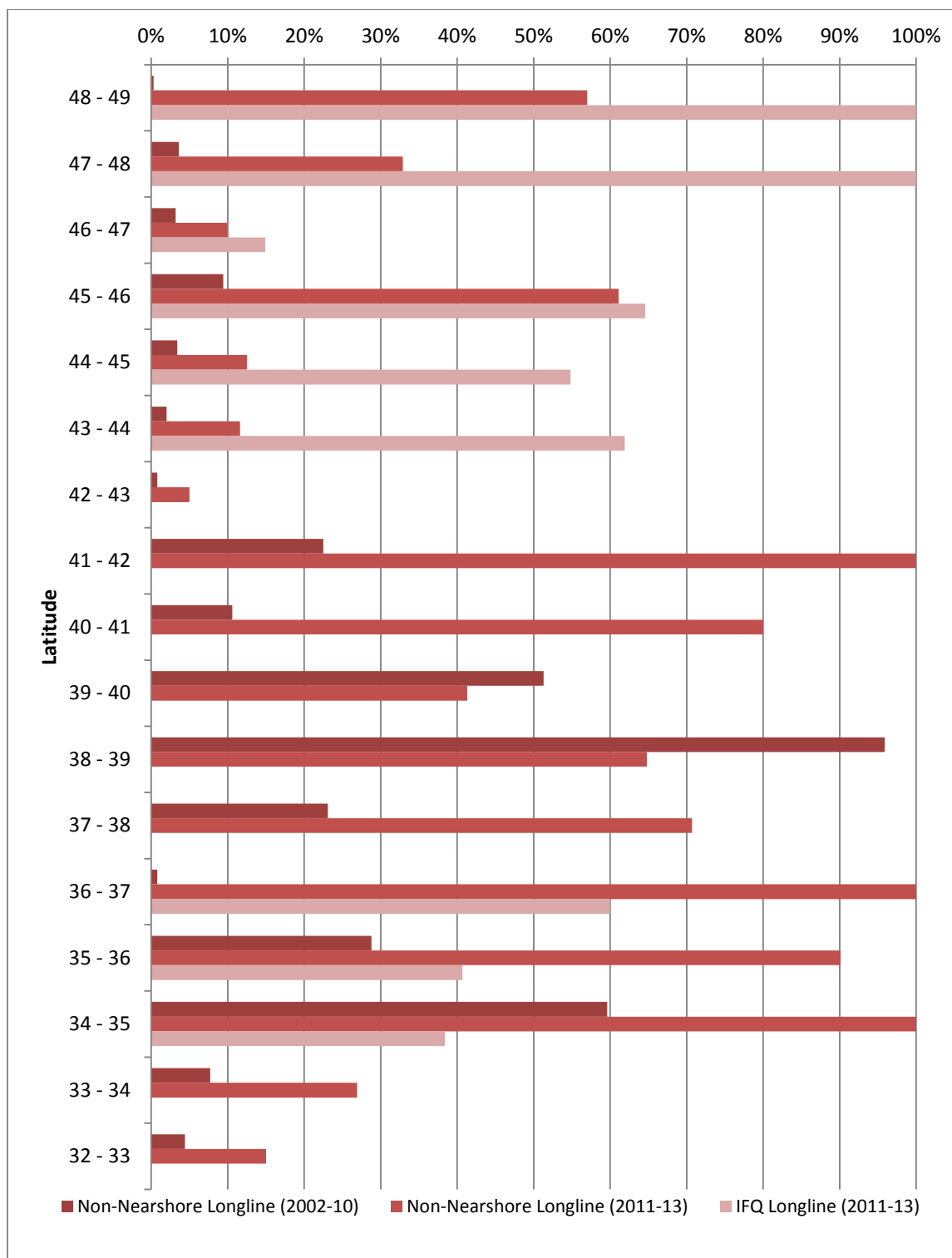


Figure 10. Relative proportion of longline fishing effort (km) by degree of latitude excluded from map figures due to confidentiality requirements. The “non-nearshore” moniker represents the non-IFQ sectors including sablefish primary, open access and daily trip limit.

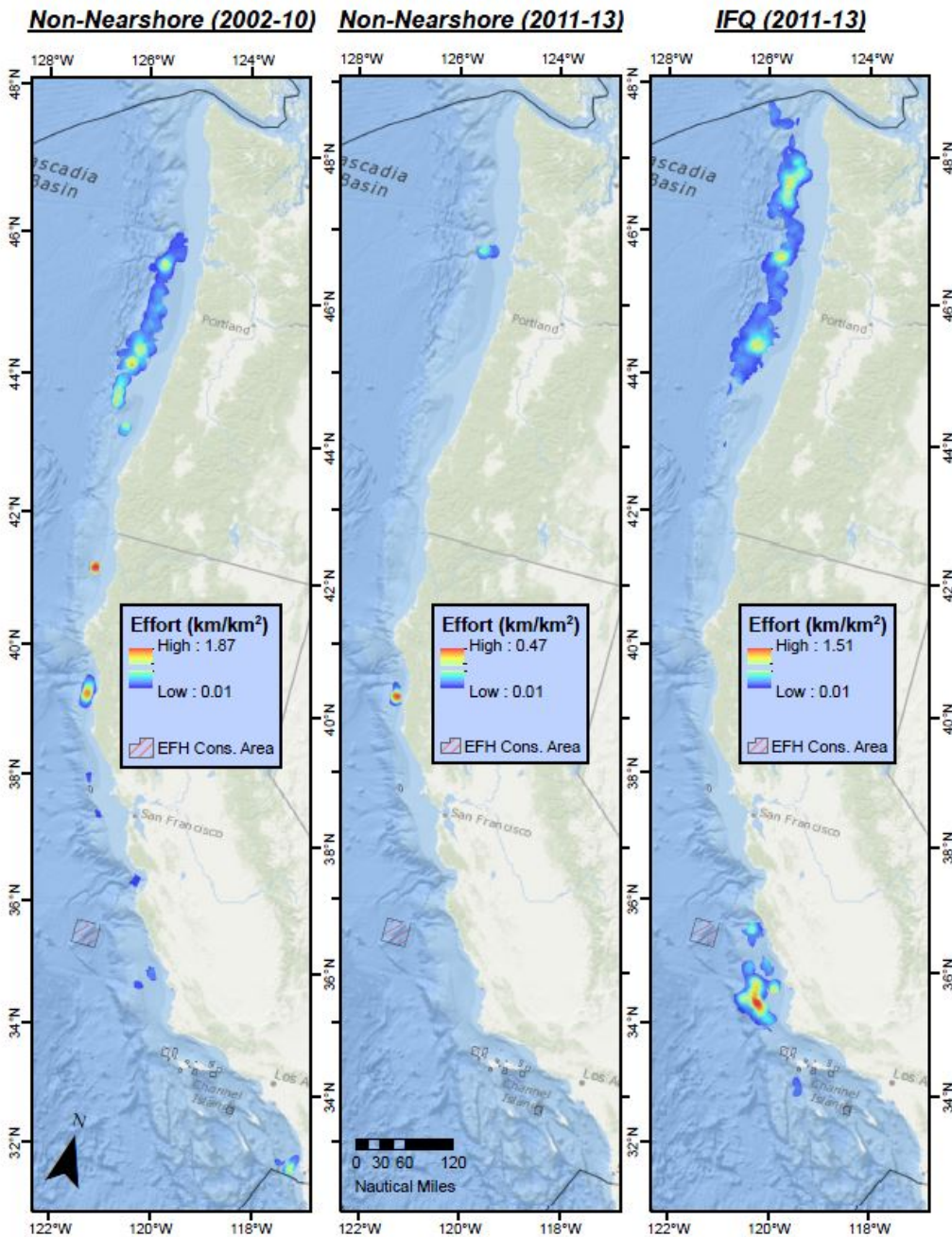


Figure 11. Spatial distribution and intensity of non-confidential pot fishing effort for three relevant sectors/time periods. The “non-nearshore” moniker represents the non-IFQ fixed gear sectors including sablefish primary, open access, and daily trip limit. To depict intensity, we used a line density algorithm (ArcGIS™ v.10.2 Geographical Information System Software [Environmental System Research Institute, Inc., Redlands, California]). The density values for the color ramps for each map panel are not equal, so pixel-by-pixel comparisons cannot be made. The highest 0.5% of the data values for each sector/time period is depicted in red.

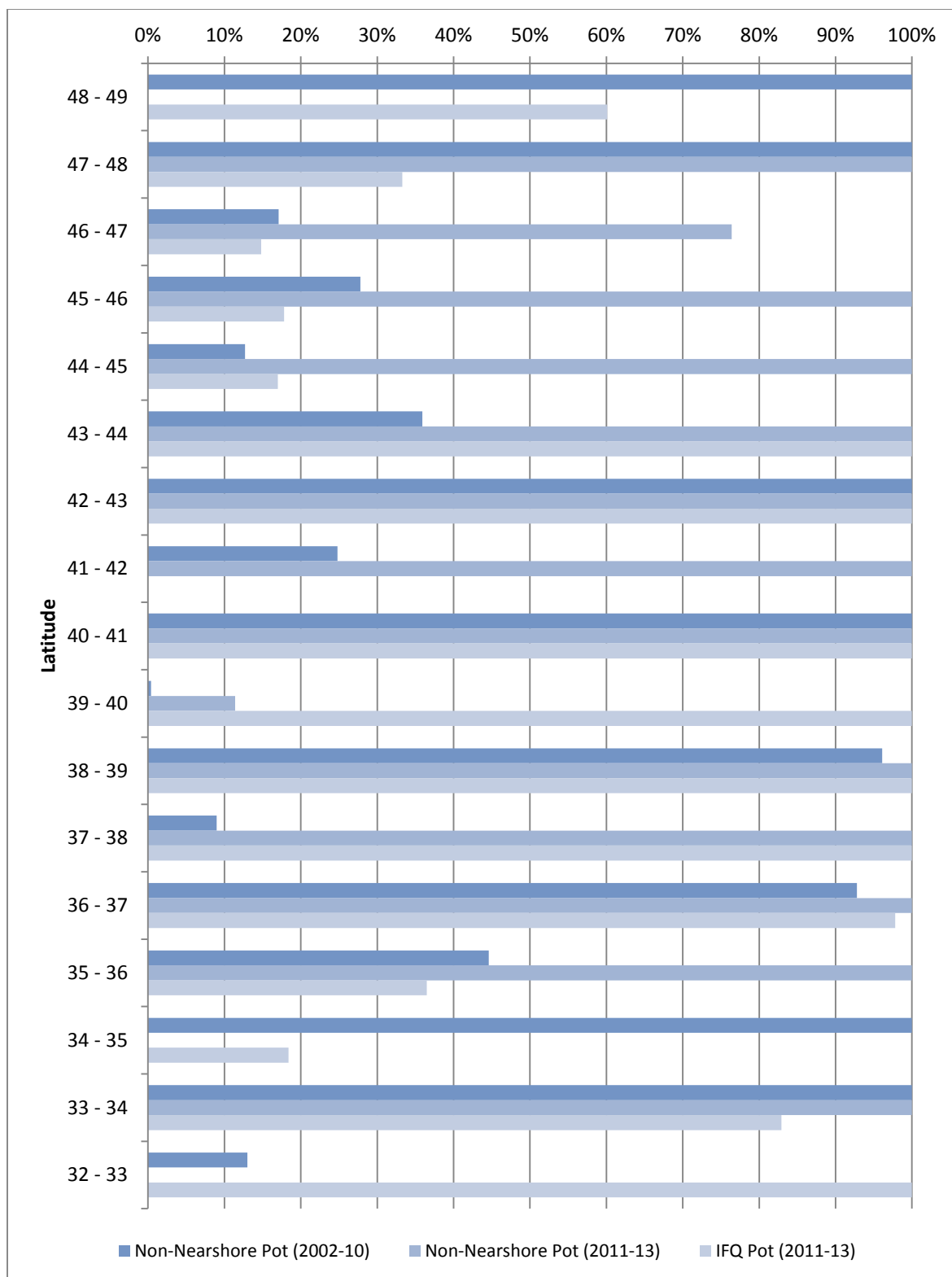


Figure 12. Relative proportion of pot effort (km) by degree of latitude excluded from map figures due to confidentiality requirements. The “non-nearshore” moniker represents the non-IFQ sectors including sablefish primary, open access and daily trip limit.

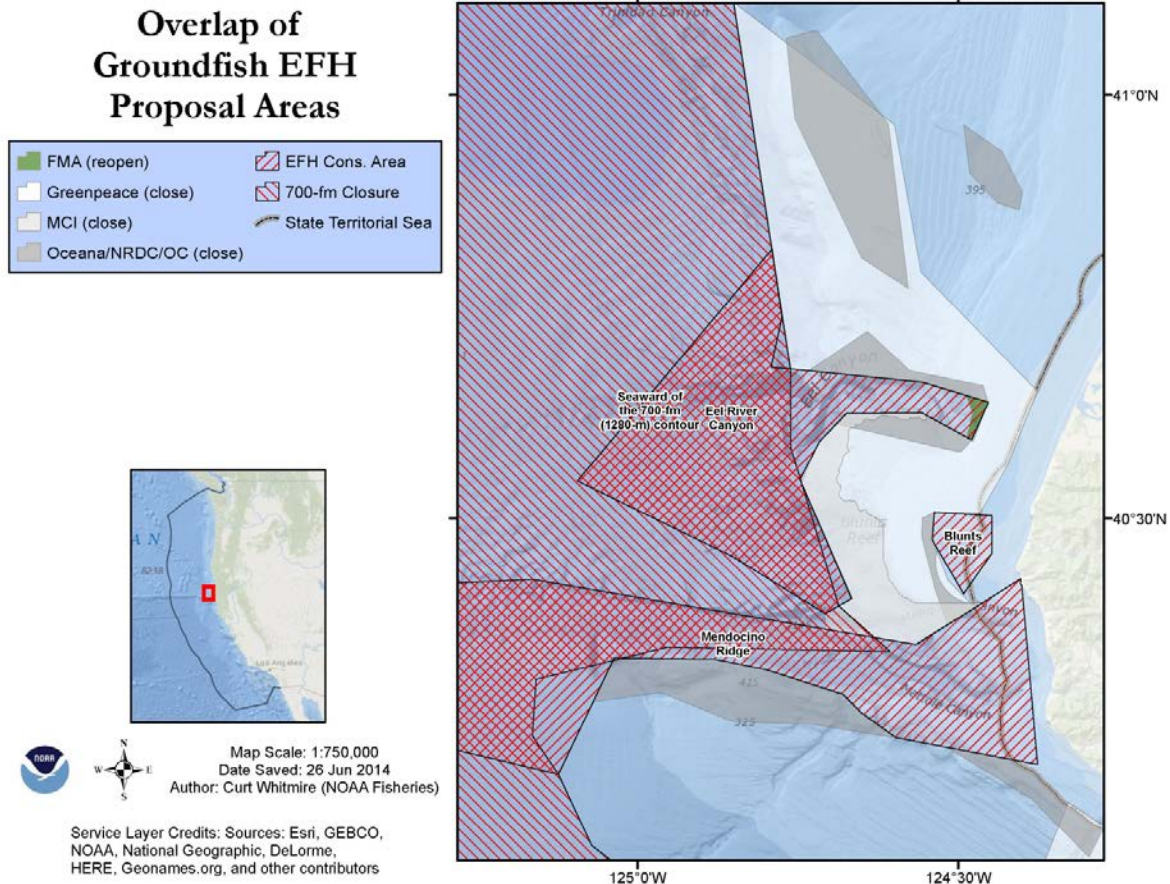
Fishing effort Appendix

Appendix K from Phase I Report: http://www.pcouncil.org/wp-content/uploads/App_K_Commercial_Fishing_EFH_Phase1_Sep2012.pdf










Part 2 – Proposals

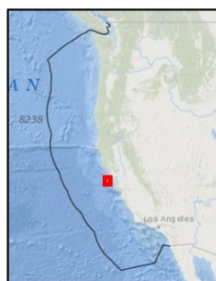
2a – Map of Proposals Overlaid on Current Defined Areas (e.g., RCA, MPAs, Amendment 20, etc.)

Map series showing overlap of groundfish EFH proposal areas. Also shown are existing groundfish EFH conservation areas (red hashing).



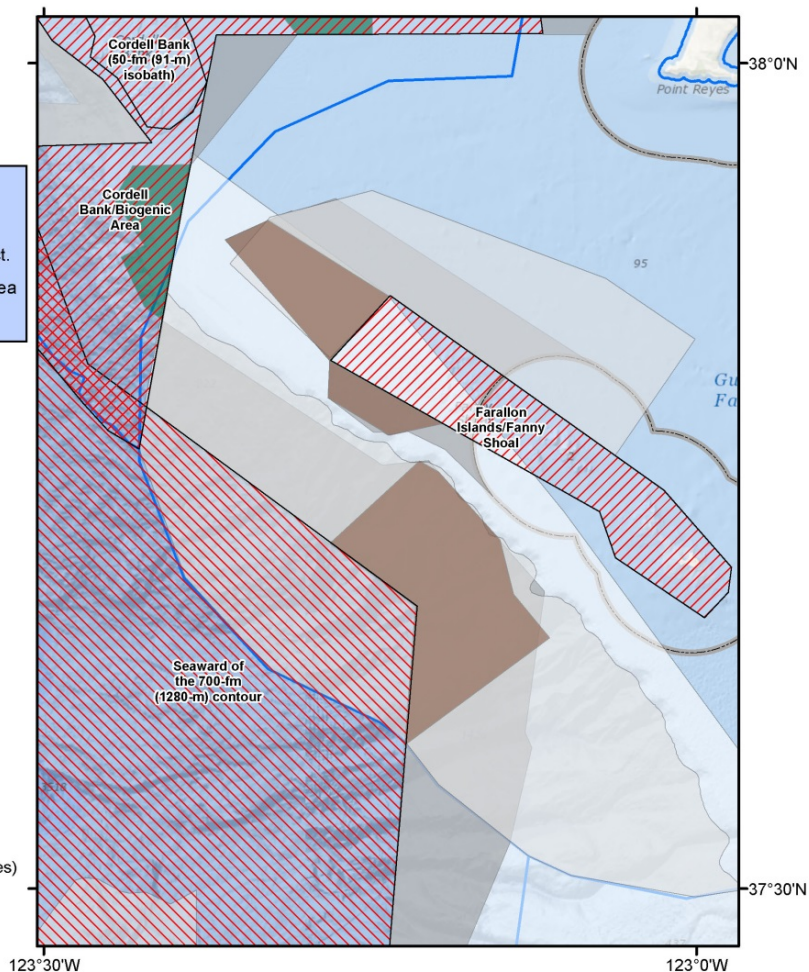
Overlap of Groundfish EFH Proposal Areas

 GFNMS (close)	 EFH Cons. Area
 Greenpeace (close)	 700-fm Closure
 MCI (close)	 Nat'l Marine Sanct.
 Oceana/NRDC/OC (close)	 State Territorial Sea
 Oceana/NRDC/OC (reopen)	

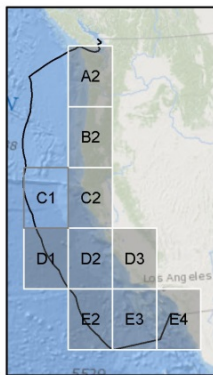
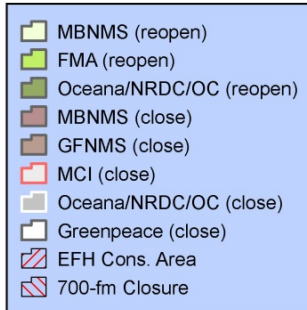


Map Scale: 1:400,000
Date Saved: 26 Jun 2014
Author: Curt Whitmire (NOAA Fisheries)

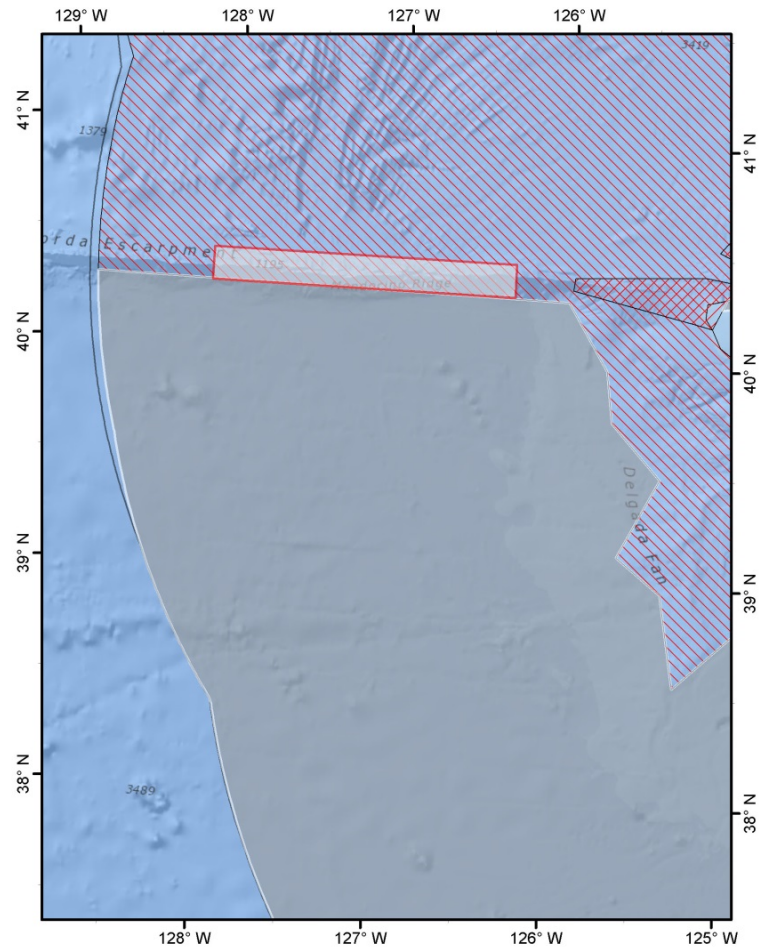
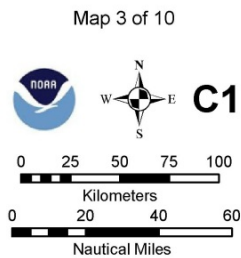
Service Layer Credits: Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, HERE, Geonames.org, and other contributors



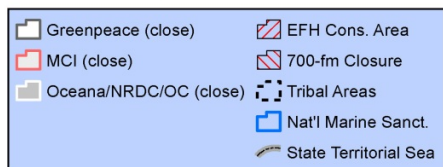
Groundfish EFH Proposal Areas



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Date Saved: 07 Aug 2014
Author: Curt Whitmire (NOAA Fisheries)

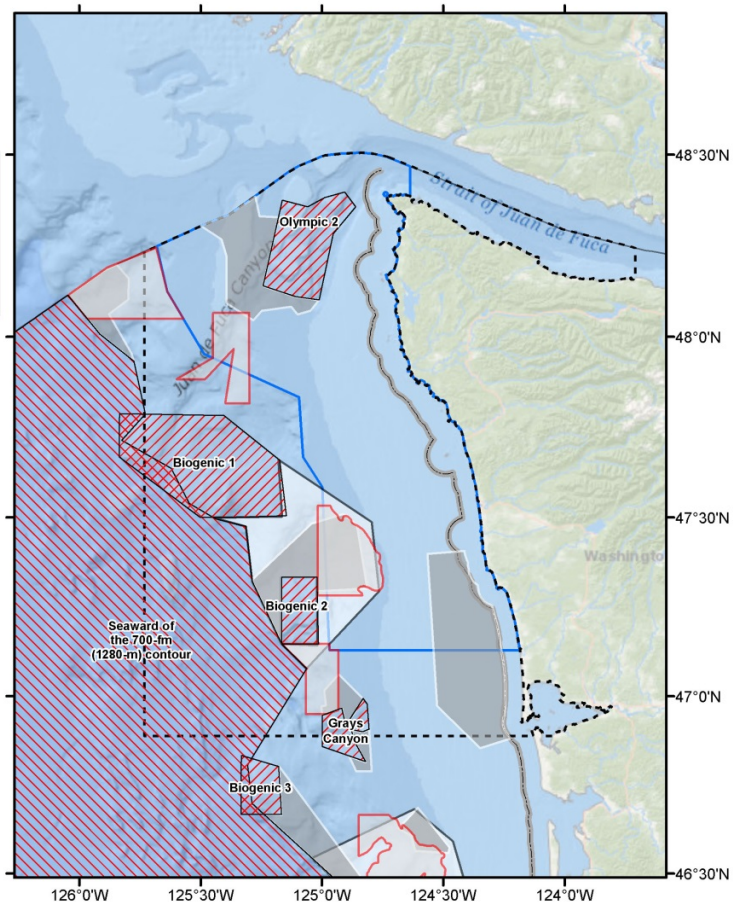


Overlap of Tribal Areas with Groundfish EFH Proposal Areas

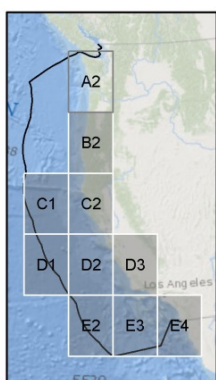
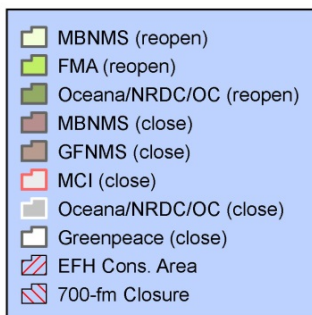


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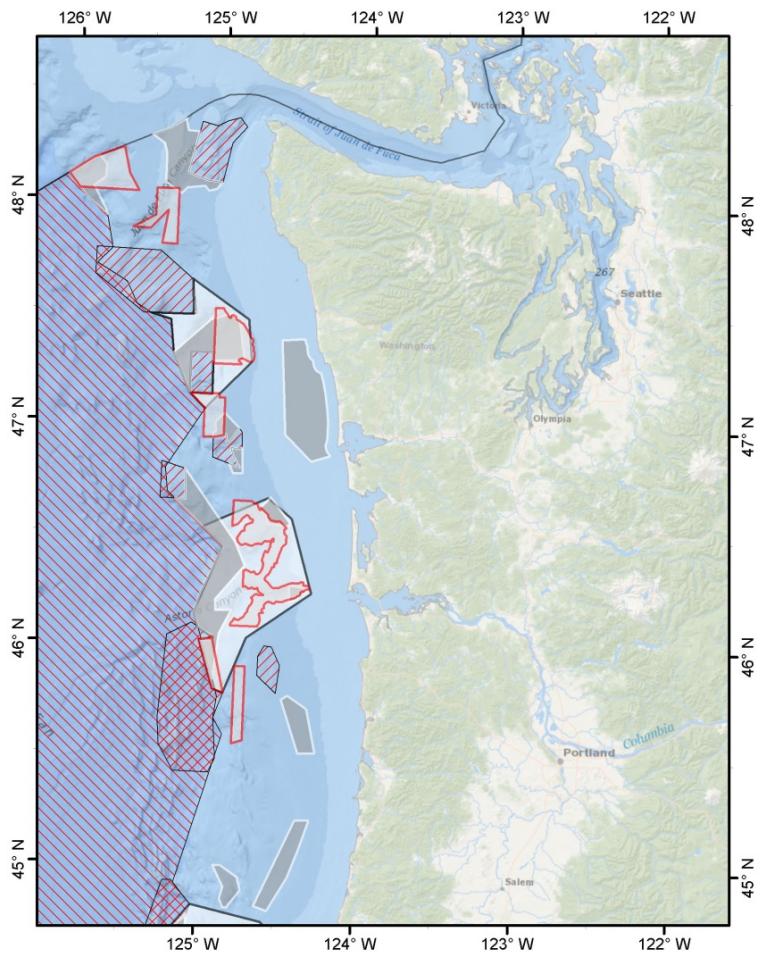
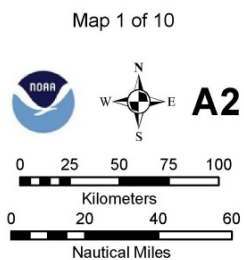
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Groundfish EFH Proposal Areas

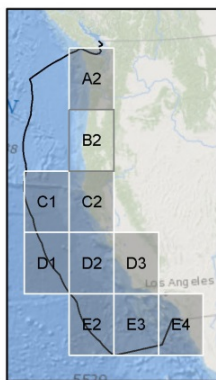


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Groundfish EFH Proposal Areas

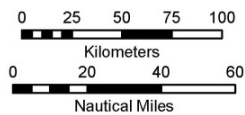
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-  Greenpeace (close)
-  EFH Cons. Area
-  700-fm Closure



Map 2 of 10

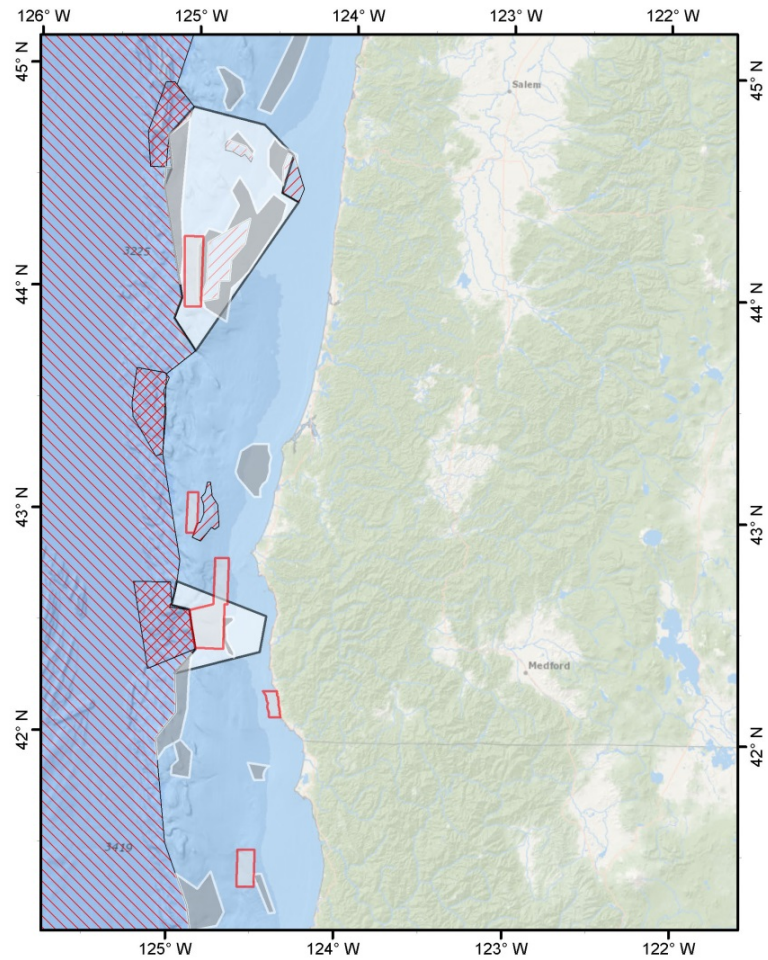


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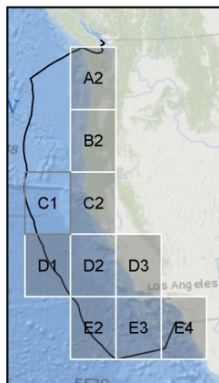
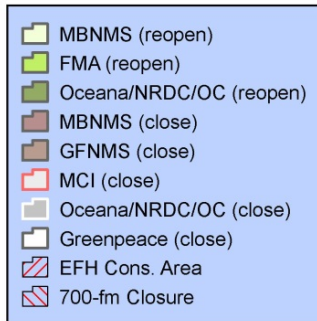


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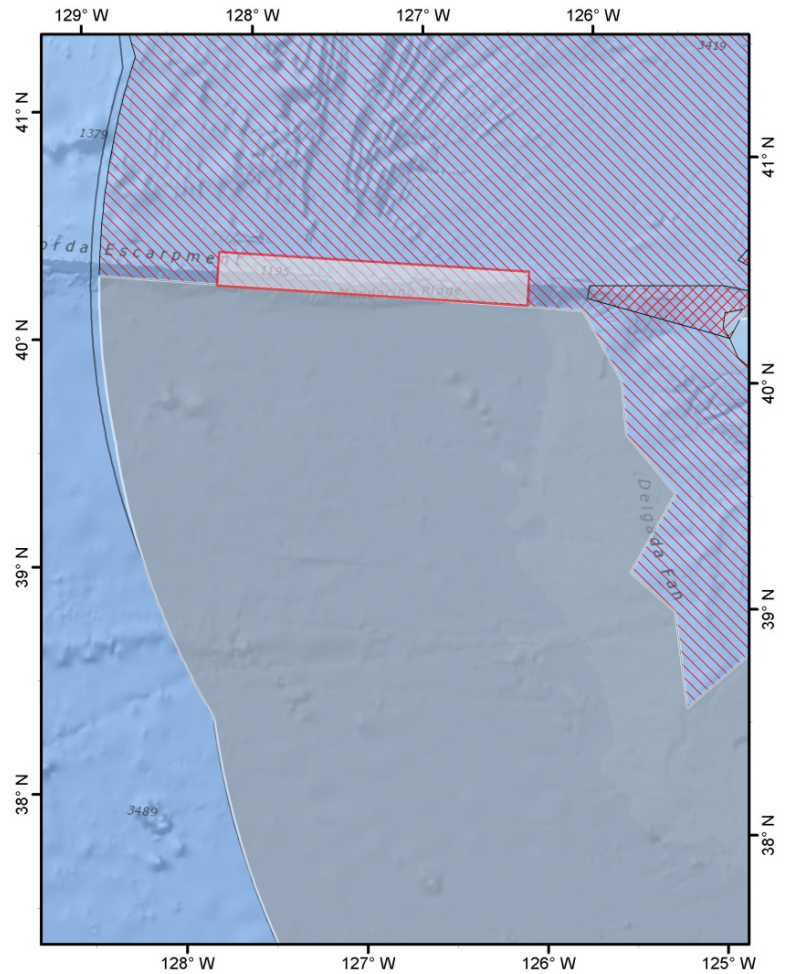
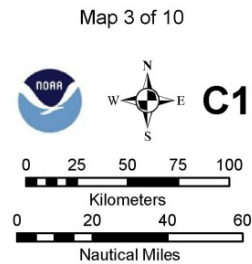
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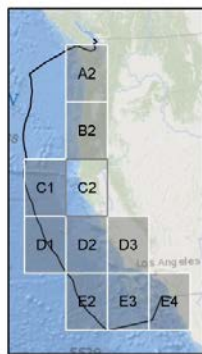
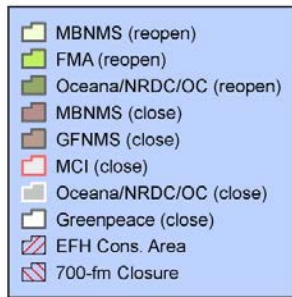
Groundfish EFH Proposal Areas



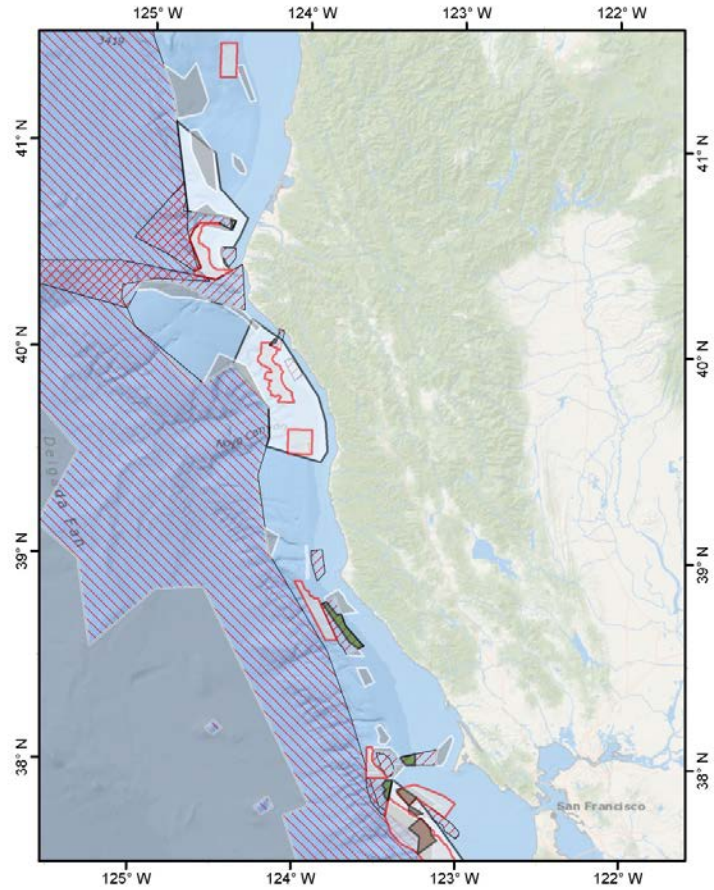
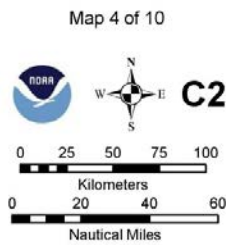
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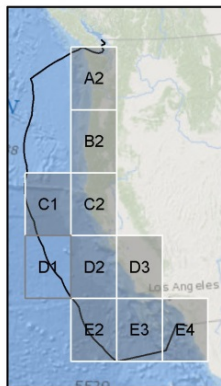
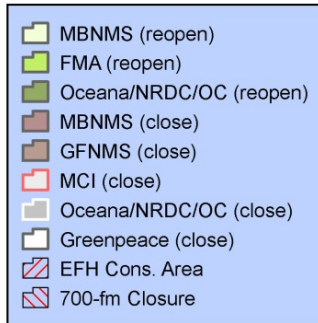
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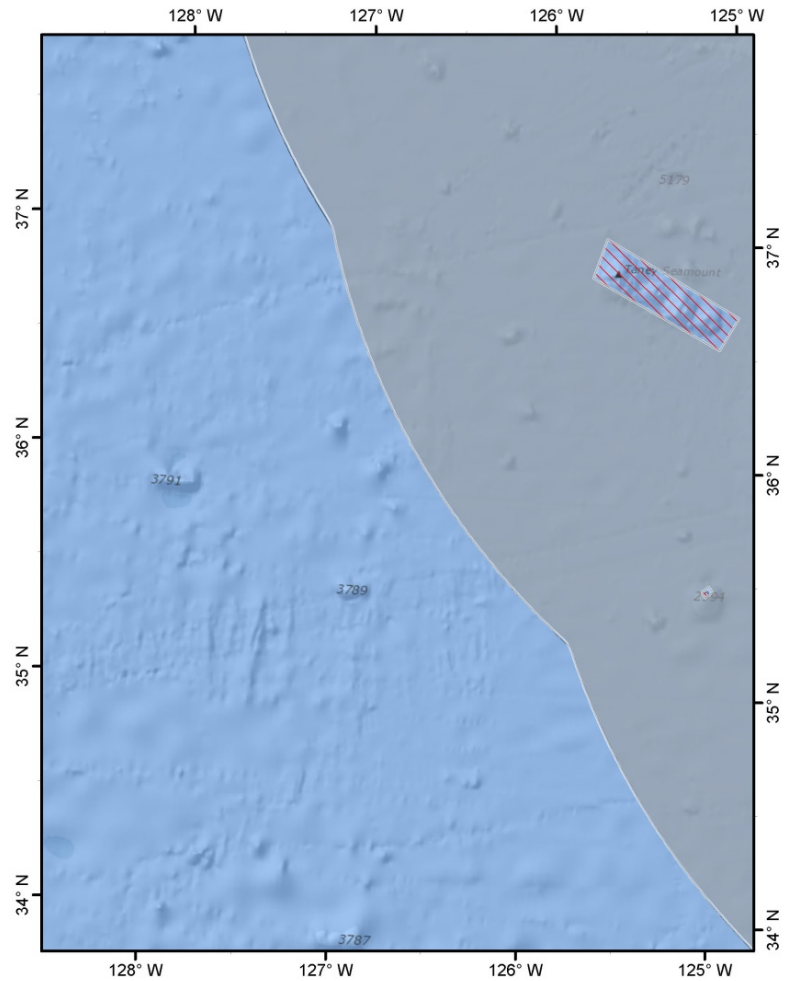
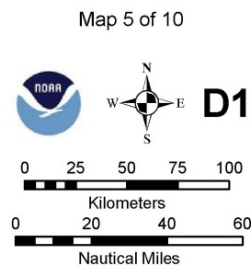
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

Groundfish EFH Proposal Areas

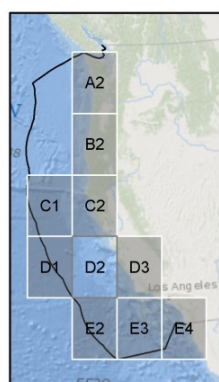


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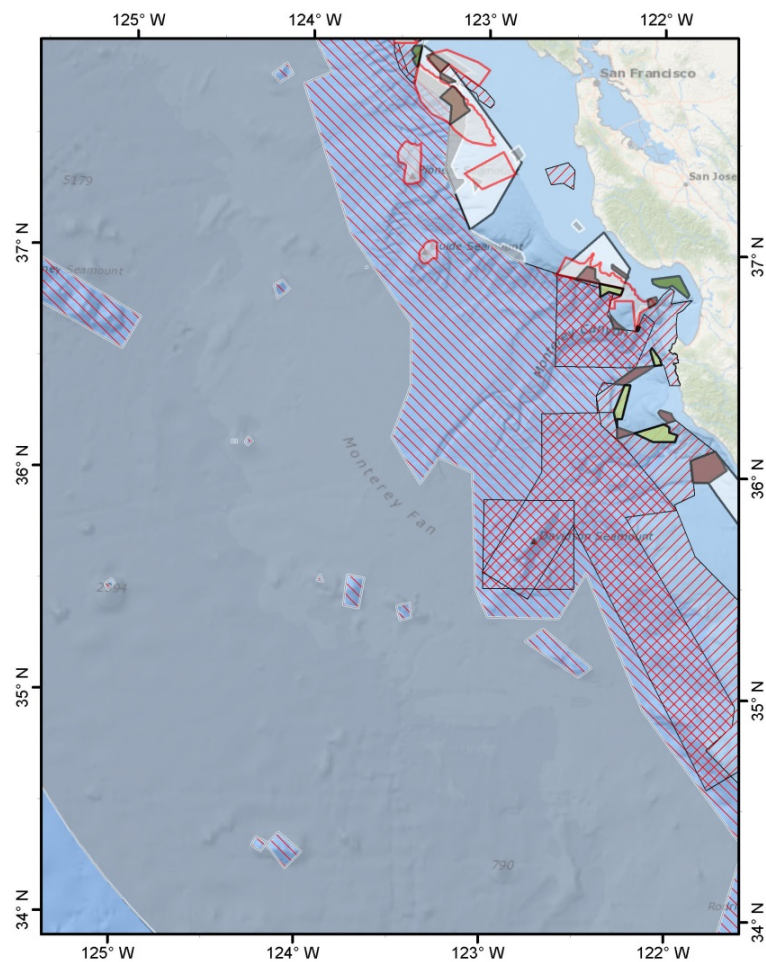
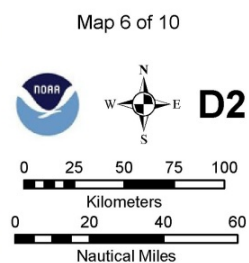


Groundfish EFH Proposal Areas

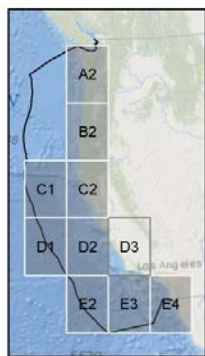
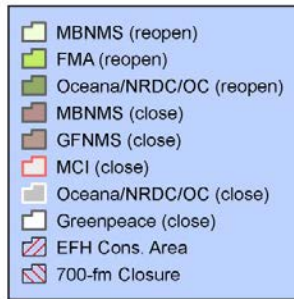
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-  Greenpeace (close)
-  EFH Cons. Area
-  700-fm Closure



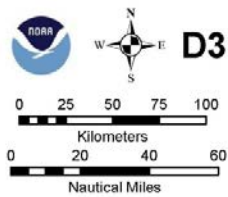
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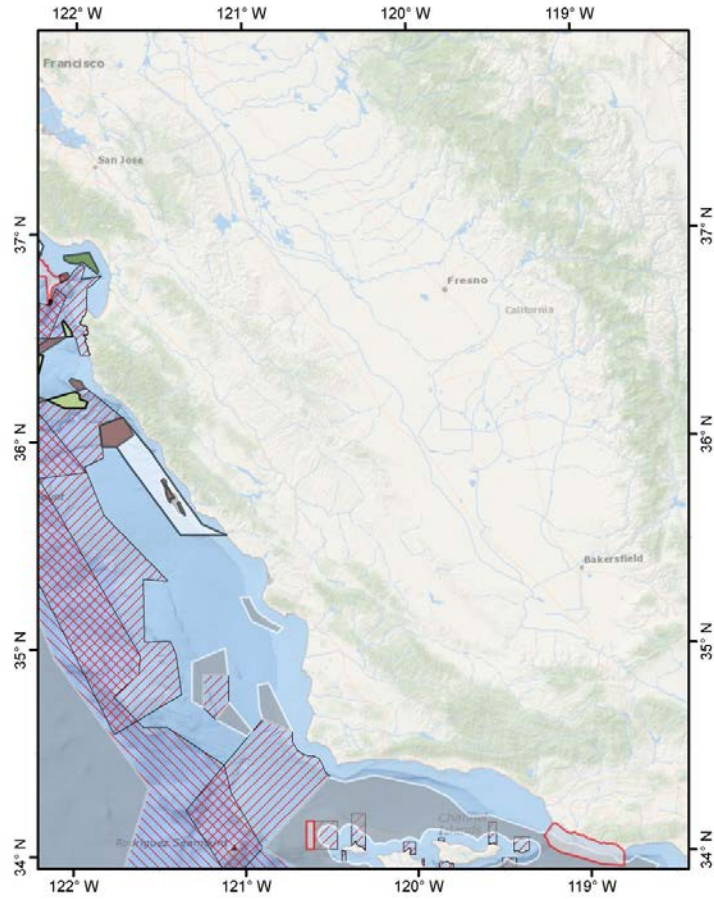
Groundfish EFH Proposal Areas



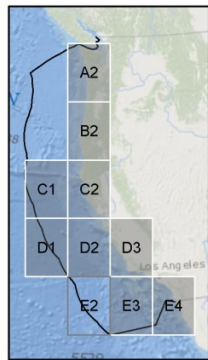
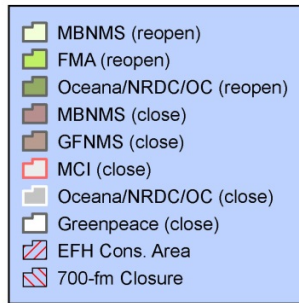
Map 7 of 10



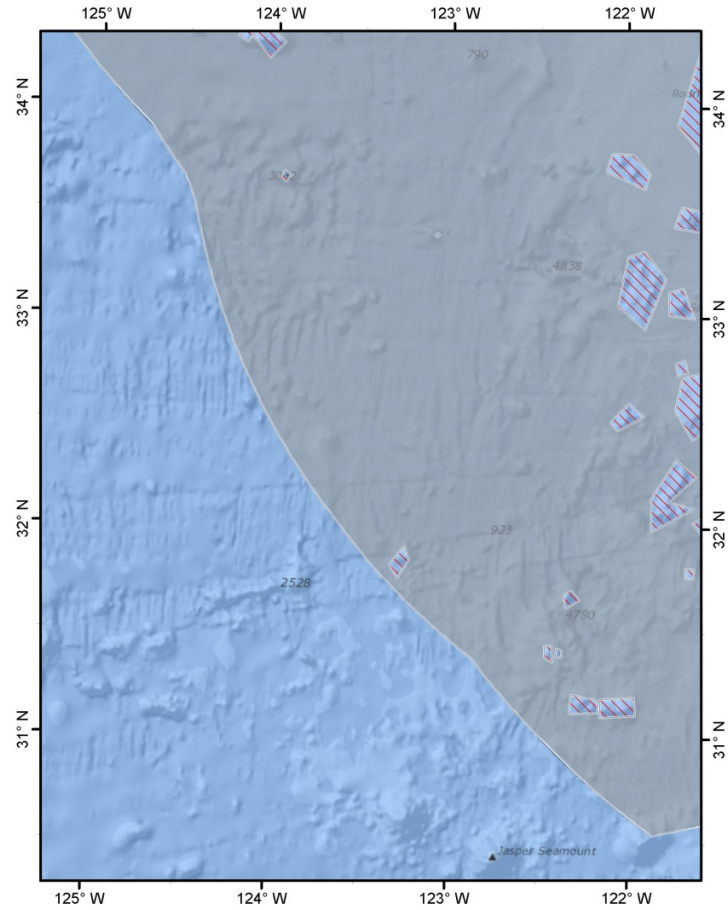
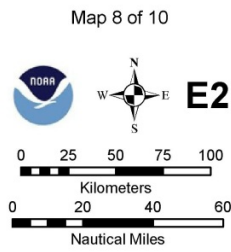
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Date Saved: 07 Aug 2014
Author: Curt Whitmire (NOAA Fisheries)



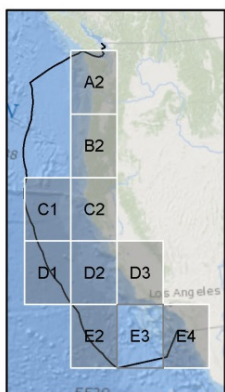
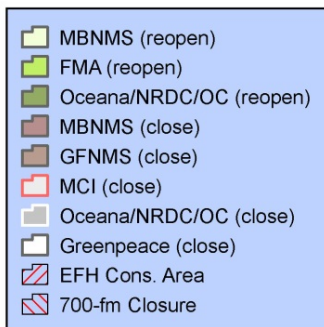
Groundfish EFH Proposal Areas



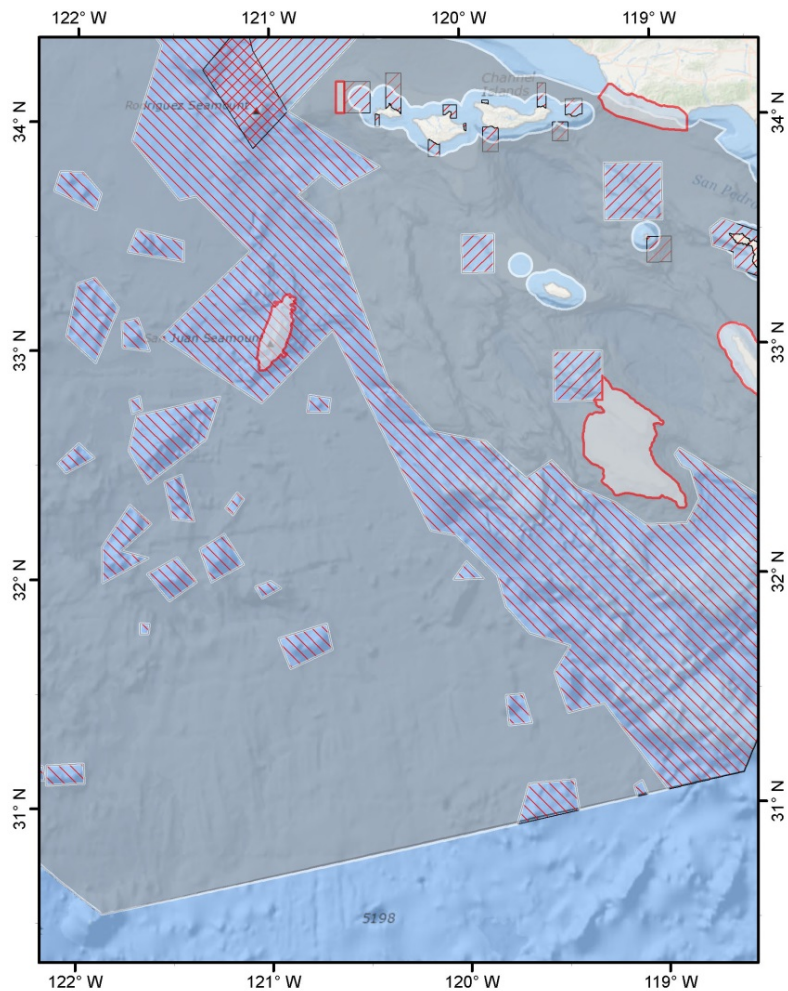
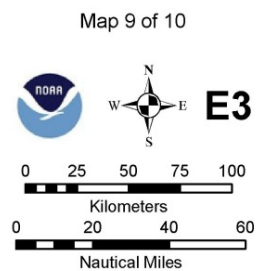
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 Date Saved: 07 Aug 2014
 Author: Curt Whitmire (NOAA Fisheries)



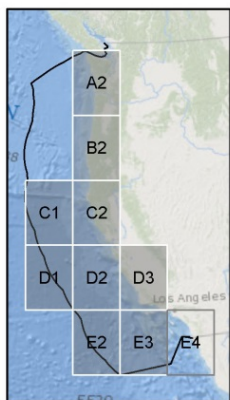
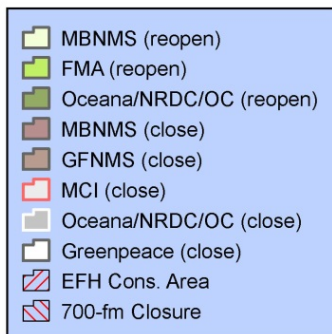
Groundfish EFH Proposal Areas



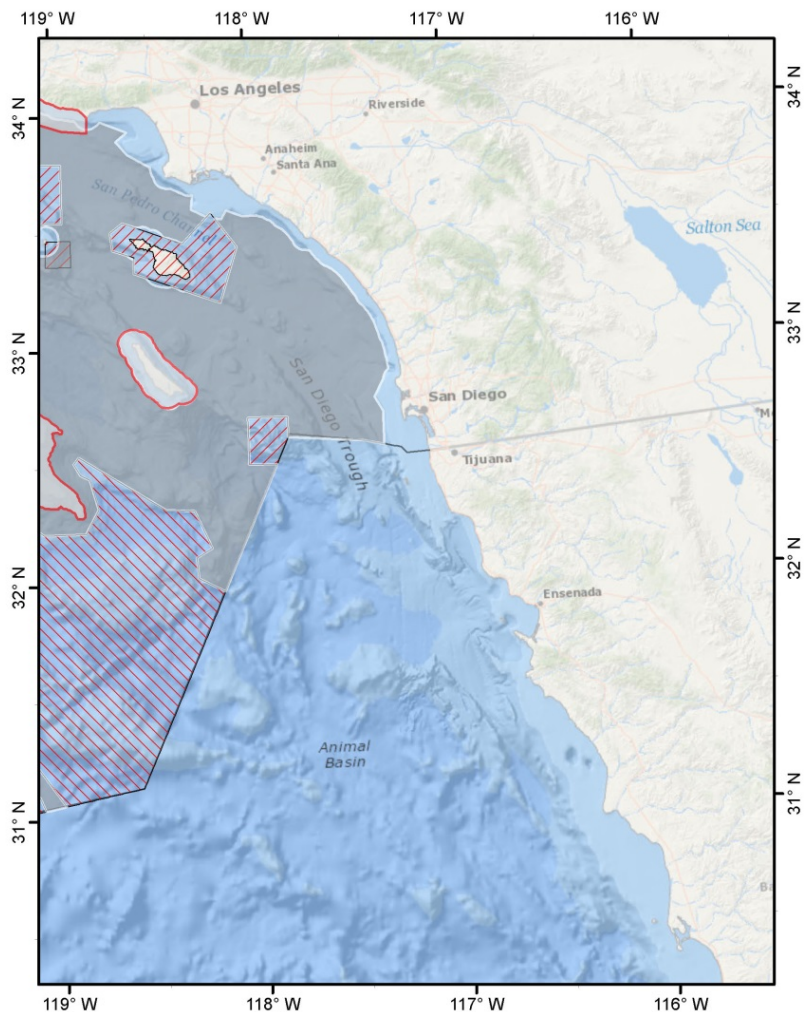
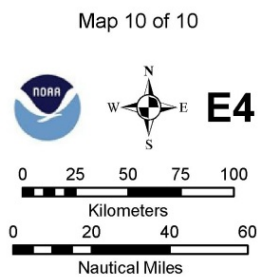
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 Date Saved: 07 Aug 2014
 Author: Curt Whitmire (NOAA Fisheries)



Groundfish EFH Proposal Areas



Map Scale: 1:2,300,000
Date Saved: 07 Aug 2014
Author: Curt Whitmire (NOAA Fisheries)



2b – Proposal Comparison Table

Table 7. Summary of area, fishing effort and likely impacts of various proposals to modify groundfish EFH. Linear and areal measurements based on custom transverse Mercator projection centered on 31.96° N latitude and 121.6° W longitude.

	CATEGORY	PROPOSAL						REFERENCE	
Row #		FMA	GFNMS	Greenpeace	MBNMS	MCI	Oceana/NRDC/OC	EFHCA	Trawl RCA ⁴
1	Total Area proposed for protection (ha)	NA	18,356	1,777,141	43,669	1,213,044	¹ 37,344,963 ² 5,368,883	35,457,030 ³ 3,486,975	895,870
2	Total Area proposed to be opened (ha)	791	NA	NA	25,694	NA	52,128	35,457,030 3,486,975	895,870
3	Amount and type of habitat proposed for protection (ha)	NA	1,188	153,150	7,071	154,944	355,360	494,831	43,569
		NA	0	47,083	0	9,064	86,558	62,543	43,706
		NA	17,168	1,576,909	36,598	794,349	4,918,178	2,490,305	807,920
		NA	0	0	0	254,687	8,787	439,296	675
4	Amount and type of habitat proposed to be opened (ha)	0	NA	NA	114	NA	114	494,831	43,569
		0	NA	NA	0	NA	0	62,543	43,706
		791	NA	NA	25,580	NA	52,014	2,490,305	807,920
		0	NA	NA	0	NA	0	439,296	675
5	Primary impacts likely to be on (species occupying relevant depth range, bottom type, etc.)								
6	Fishing effort displaced (km [trawl], # [fixed gears])	NA	3,323	80,922,449	3,341	50,919,063	8,194,429		
		NA	0	878	0	0	0		
		NA	0	391	0	0	0		
7	Fishing effort anticipated to be gained (km [trawl], # [fixed gears])	38	NA	NA	606	NA	23,124		
		0	NA	NA	??	NA	??		
		0	NA	NA	??	NA	??		
8	Biogenic habitat detected in this area?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	Overlap with Tribal U and A (ha) for areas proposed to be closed	0	0	140,620	0	110,300	227,319	199,936	112,329
10	Summary Interpretation								

¹ The proposal submitted by Oceana/NRDC/OC included a provision to expand and close to bottom trawling the area outside of the current EFH designated area, which is deeper than 3,500 m water depth and extends to the seaward boundary of the U.S. EEZ. This areal value includes the entire area proposed to be closed.

² Only includes areas inside current EFH designated area.

³ Excludes “Seaward of the 700-fm contour” closure

⁴ Trawl RCA defined by area bounded by recent 100- (shoreward) and 150-fathom (seaward) lines.

References

National Marine Fisheries Service (NMFS). 2013. Groundfish Essential Fish Habitat Synthesis: A Report to the Pacific Fisheries Management Council. NOAA NMFS Northwest Fisheries Science Center, Seattle, WA, April 2014, 107p.

National Marine Fisheries Service (NMFS). 2013. Appendix to Groundfish Essential Fish Habitat Synthesis: A Report to the Pacific Fisheries Management Council. NOAA NMFS Northwest Fisheries Science Center, Seattle, WA, April 2014, 378p.

Pacific Fishery Management Council. 2012. Pacific coast groundfish 5-year review of essential fish habitat. Report to Pacific Fishery Management Council. Phase 1: New information, September 2012. Portland, OR. 416 p.

National Marine Fisheries Service (NMFS). 2014. Supplemental Informational Report 7. Report to Pacific Fishery Management Council. Northwest Fisheries Science Center, Seattle, WA, September 2014.