

## DRAFT RANGE OF ALTERNATIVES FOR MODIFYING PACIFIC COAST GROUNDFISH ESSENTIAL FISH HABITAT

This document describes a range of alternatives in considering potential changes to Pacific Coast Groundfish essential fish habitat (EFH) components described in the groundfish FMP. It addresses several distinct subject areas that provide a basis for considering revisions to groundfish EFH components, as part of the Pacific Fishery Management Council's (Council) periodic EFH review. This document should be considered in conjunction with a separate document (Agenda Item H.8, Attachment 2) that describes a range of potential changes to the groundfish trawl Rockfish Conservation Area (RCA) delineation currently in place to minimize bycatch of certain groundfish species. Based on guidance from the Council at the September 2015 meeting, elements of both documents will be merged into a set of alternatives for further Council consideration at its April 2016 meeting.

### Background

The 1996 Fishery Conservation and Management Act reauthorization (later renamed the Magnuson-Stevens Act Reauthorization) included a requirement for all fishery management plans (FMPs) to identify and describe EFH – defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. FMPs are also required to identify adverse impacts to EFH, and to identify actions to ensure the conservation and enhancement of EFH. In 2005, the Council and National Marine Fisheries Service (NMFS) established EFH for Pacific Coast groundfish as follows:

- Depths less than or equal to 3,500 m (1,914 fathoms) to mean higher high water level (MHHW) or the upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salts measure less than 0.5 ppt during the period of average annual low flow.
- Seamounts in depths greater than 3,500 m as mapped in the EFH assessment Geographic Information System.
- Areas designated as habitat areas of particular concern (HAPCs) not already identified by the above criteria.

The Groundfish FMP also identifies potential adverse impacts to EFH from fishing activities, and includes recommended measures to minimize those impacts. The minimization measures consist of prohibitions on bottom trawling and/or other bottom contact fishing activities, in 50 discrete areas in the U.S. West Coast EEZ (see Appendix B, Reference Maps). These EFH Conservation Areas (EFHCAs) were generally selected for habitat features (generally rocky reef or other hard substrate) that warrant protections. In many, but not all, cases, EFHCAs are coincident with identified HAPCs.

HAPCs are defined in the EFH regulations as specific types or areas of habitat within EFH that are identified based on one or more of the following considerations:

- The importance of the ecological function provided by the habitat.
- The extent to which the habitat is sensitive to human-induced environmental degradation.

- Whether, and to what extent, development activities are, or will be, stressing the habitat type.
- The rarity of the habitat type.

The Groundfish FMP identifies several HAPCs: canopy kelp, estuaries, seagrass, rocky reefs, and areas of interest. Areas of interest are discrete areas designated due to their unique geological and ecological characteristics.<sup>1</sup> HAPCs do not necessarily include any additional regulatory requirements, although Councils and NMFS may impose measures to minimize impacts to HAPCs. In addition, the identification of HAPCs provides NMFS with an opportunity to highlight and possibly apply additional conservation measures when consulting on non-fishing activities that may adversely affect EFH and/or HAPCs. There are no changes to HAPCs being considered as part of this action.

The EFHCAs consist of the 34 bottom trawl closed areas (BTCA), 16 bottom contact closed areas (BCCAs), and the bottom trawl footprint closed area. The bottom trawl footprint closed area extends from a line approximating 700 fm to the seaward extent of groundfish EFH (3500m) and is intended to prevent expansion of bottom trawling into areas not historically fished. The 50 BTCAs and BCCAs range from the Olympic 2 EFHCA off Cape Flattery, Washington, to the Cowcod Conservation Area East, adjacent to the U.S.-Mexico border. The EFHCAs referred in this document generally refer to the 34 BTCAs and the bottom trawl footprint closure area, relative to the alternatives currently being considered.

## Purpose and Need

There are multiple purposes of the proposed action:

1. Minimize the adverse effects of fishing on EFH to the extent practicable.
2. Protect benthic habitats, including deep-sea corals, from the adverse effects of fishing.
3. Evaluate and revise the RCA closures to minimize bycatch of a particular species or species group, primarily those that are overfished.
4. Revise the groundfish EFH research and information needs.
5. Develop a more detailed description of the process to review and revise the EFH components of the groundfish FMP.
6. Revise Appendix C, Part 2 to the Groundfish FMP: “The Effects of Fishing on Habitat: West Coast Perspective.”
7. Revise Appendix B to the Groundfish FMP: Essential Fish Habitat.
8. Revise Appendix D to the Groundfish FMP: “Nonfishing Effects on West Coast Groundfish Essential Fish Habitat and Recommended Conservation Measures.”

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<sup>1</sup> The FMP identifies the following Areas of Interest: Washington State marine waters shoreward of the three-mile territorial sea boundary, to MHHW; Daisy Bank/Nelson Island, Thompson Seamount, and President Jackson Seamount off Oregon’s coast; and the following areas off California: All seamounts, including Gumdrops, Pioneer, Guide, Taney, Davidson, and San Juan; Mendocino Ridge, Cordell Bank, Monterey Canyon; specific areas in the Federal waters of the CINMS, and specific areas of the Cowcod Conservation Area.

There are multiple needs for the proposed action:

1. Consider new information on seafloor habitats, the distribution of fishing effort, and the distribution of deep-sea corals as they relate to protecting EFH from the adverse effects of fishing.
2. Consider new discretionary MSA authorities under Section 303(b) that can be used to protect species and habitats, including deep-sea corals.
3. Consider the RCAs in light of the 2011 implementation of the Shorebased Individual Fishing Quota (IFQ) Program.
4. Revise the research and information needs for groundfish, EFH based on consideration of new information on seafloor habitats, the distribution of fishing effort, and the distribution of deep-sea corals.
5. Provide for a more efficient process for reviewing and revising groundfish EFH.
6. Consider new information on groundfish EFH components, including major prey species, as it relates to the information in Appendix B of the Groundfish FMP.
7. Consider new information on the adverse effects of the groundfish fishery on EFH as it relates to the information in Appendix C, Part 2 of the groundfish FMP.
8. Consider new information on the non-fishing activities that may adversely affect groundfish EFH and conservation measures to avoid, minimize, or mitigate those effects as it relates to the information in Appendix D to the groundfish FMP.

Table 1 below displays the alternatives and sub-alternatives that are associated with each purpose and need statement. There is a placeholder for Alternative 2 (changes to the trawl RCA), which are described in a separate document.

**Table 1. Alternatives as they relate to Purpose and Needs.**

<b>Purpose</b>	<b>Need</b>	<b>Alternatives that address this purpose</b>
Minimize the adverse effects of fishing on EFH to the extent practicable.	Consider newly updated information on seafloor habitats, the distribution of fishing effort, and the distribution of deep-sea corals as they relate to protecting EFH from the adverse effects of fishing.	Alternatives 1a – 1f Alternatives 2a – 2e Alternatives 3a – 3d
Protect benthic habitats, including deep-sea corals, from the adverse effects of fishing.	Consider new discretionary MSA authorities under Section 303(b) that can be used to protect species and habitats, including deep-sea corals.	Alternatives 1a – 1f
<i>Evaluate and revise the rockfish conservation area (RCA) closures to reduce bycatch of a particular species</i>	<i>Consider the RCAs in light of the 2011 implementation of the Shorebased Individual Fishing Quota (IFQ) Program</i>	<i>Alternatives 4a – 4f (Described in separate document)</i>

<i>or species group, primarily those that are overfished.</i>	<i>and the recent declarations that several rockfish stocks have been rebuilt.</i>	
Update the groundfish EFH research and information needs.	Update research and information needs for groundfish EFH based on consideration of new information on seafloor habitats, the distribution of fishing effort, and the distribution of deep-sea corals.	Alternatives 7a and 7b
Develop a more detailed description of the process to review and revise the EFH components of the groundfish FMP.	Provide for a more efficient process for reviewing and revising groundfish EFH.	Alternatives 8a and 8b
Revise Appendix B to the groundfish FMP: Essential Fish Habitat.	Consider new information on groundfish EFH habitat components, including major prey species, as it relates to the information in Appendix B of the groundfish FMP.	Alternatives 5a and 5b
Revise Appendix C, Part 2 to the groundfish FMP: The Effects of Fishing on Habitat: West Coast Perspective.	Consider new information on the adverse effects of the groundfish fishery on EFH as it relates to the information in Appendix C, Part 2 of the groundfish FMP.	Alternatives 9a and 9b
Revise Appendix D to the groundfish FMP: Nonfishing Effects on West Coast Groundfish Essential Fish Habitat and Recommended Conservation Measures.	Consider new information on the non-fishing activities that may adversely affect groundfish EFH and conservation measures to avoid, minimize, or mitigate those effects as it relates to the information in Appendix D to the groundfish FMP.	Alternatives 6a and 6b

## Approach to Developing Alternatives

The alternatives described below represent a range that is based on scope of action as established by the Council at its April 2015 meeting. They are based on various scenarios for changes to the current restrictions on bottom trawling activities, and are designed to represent a spectrum ranging from alternatives that are generally less protective of benthic habitat and groundfish stocks, to those that are generally more protective of benthic habitat and groundfish stocks. The alternatives in this document also address other required EFH elements such as life history and prey item descriptions and an EFH review and revision process.

There are several categories of alternatives in this document (e.g., existing EFHCAs, the suite of public proposals, revisions to Appendix B, etc), which are each presented separately, and each with its own range of sub-alternatives. The Council will have the opportunity to indicate its preference under each subject area, relative to which alternatives and sub-alternatives it chooses for analysis and which should be removed from further consideration. Based on Council guidance,



the project team will then develop a suite of alternatives, which would then be analyzed and presented at (tentatively) the April 2016 meeting, when the Council is scheduled to select a preliminary preferred alternative. Table 1 in Appendix A shows the range of alternatives.

The alternatives are organized first by subject area, with sub-alternatives identified with letters. Alternatives labeled with “a” are always the No Action alternative. For example, alternatives for potential changes to the existing EFHCAs are numbered 1a (No Action), 1b, 1c, etc. Alternatives for considering the public proposals are labeled 2a (No Action), 2b, 2c, etc. There is a placeholder for the trawl RCA range of alternatives, which are numbered 4a (No Action), 4b, 4c, etc.

The alternatives are also arranged (as appropriate) by the degree of habitat protection. For example, Alternative 1b is designed to represent a lesser degree of habitat protection (and therefore greater fishing opportunities). Alternative 1f is designed to represent a greater degree of habitat protection and commensurately less fishing opportunities.

Some alternatives (e.g. “Revise Appendix B”) do not lend themselves to being described as a range. Rather, they are described as a “yes” or “no” option. The Council would choose to either revise or not revise those elements of groundfish EFH. The suite of alternatives and sub-alternatives are summarized in Appendix A of this document.

The sub-alternatives within Alternatives 1, 2, and 3 are generally not mutually exclusive, except all are mutually exclusive with their respective No Action alternative. They are also not mutually exclusive between alternatives. For example, the No Action Alternative could be selected under Alternative 3, but an action alternative could be selected under Alternative 1. As a more refined set of alternatives is developed, there will likely be more sub-alternatives that are mutually exclusive.

## **ALTERNATIVES CONSIDERED BUT REJECTED**

The EFH review did not identify any new information that would warrant consideration of modifying the current spatial extent of groundfish EFH. Although this possibility was considered, given that there is no compelling rationale or evidence to support a change, it should not be considered further, or analyzed in the suite of alternatives to be advanced.

## **Other Considerations**

There are several related issues the Council could consider, relative to providing guidance to the project team on developing the suite of alternatives for analysis.

Priority habitats: In developing Amendment 19, the Council’s approach to EFH minimization measures was to prioritize rocky reef and biogenic habitats for restricting bottom-contact gear. This gear includes, but is not limited to, beam trawl, bottom trawl, dredge, fixed gear, set net, demersal seine, dinglebar gear, and other gear designed or modified to make contact with the bottom. The Council should consider whether to prioritize other habitats, such as other substrate types or additional biogenic habitats. One approach could be to apply minimization measures based on a mix of physical habitat types that reflects the natural ratios of those habitat types.

MSA 303(b) discretionary authorities: MSA Section 303(b) discretionary authorities: The MSA contains several discretionary authorities for protecting habitat that are separate from the EFH authority. MSA 303(b)(2)(B) allows the Council to designate zones where deep-sea corals are identified by the NOAA Deep-sea Coral Research and Technology Program to protect those corals from physical damage from fishing gear or to prevent loss or damage to such fishing gear from interaction with deep-sea corals. This authority was established when the MSA was reauthorized in 2007. The Council may want to consider designating deep-sea coral zones in those areas identified in the proposals as deep-sea coral habitat to protect them from damage by bottom trawl gear.

MSA 303(b)(2)(A) allows the Council to designate zones where, and periods when, fishing is limited, not allowed, or allowed only by specific types of gear. This authority was established when the MSA was reauthorized in 1996. In addition, MSA 303(b)(12) allows the Council to implement management measures to conserve target and non-target species and habitats, after considering the variety of ecological factors affecting fishery populations. This authority was established when the MSA was reauthorized in 2007. NMFS is currently evaluating the applicability of these last two authorities to waters deeper than 3500m.

Tribal Usual and Accustomed Areas (U&As): Although the alternatives presented here could encompass potential changes that would apply in the usual and accustomed areas of the Coastal Treaty Tribes off the Washington Coast, any regulatory measures would be subject to government-to-government consultation, prior to implementation, consistent with the Council's decision at its June 2015 meeting.

Bottom Contact Closed Areas: The project team seeks clarification on part of the April 2015 motion: "...*Retain within the scope of issues to be advanced, with the exception of...no further changes to 'no bottom contact EFH conservation areas.'*" There are 34 EFHCAs closed to bottom trawling (BTCAs), and another 16 areas closed to both bottom trawling and fixed gear fishing (BCCAs). A literal interpretation of the Council's motion would mean that those 16 BCCAs are outside the scope of action, and therefore would remain in place as described under No Action. However, the Council's intent may have been to ensure that there are no new closed areas based solely on fixed gear fishing. The Council should provide further guidance to the project team.

Long-term Habitat Experimental Design Protocol (Habitat EDP): Priority habitat areas, or areas that have recovered from trawl activity within the existing RCAs present an opportunity for research on long-term habitat impact and recovery. These areas could be considered in the EFH range of alternatives in order to create long-term control and experimental areas for habitat-related research. To date, research on the impacts of commercial fishing on benthic habitats along the West Coast has been hampered by the lack of effective untrawled versus trawled comparisons for long-term studies that could improve the Council's understanding of the impacts of fishing gears on benthic habitats.

## Range of Alternatives

The alternatives described below are intended to capture a reasonable range of potential actions, consistent with the scope established by the Council. With guidance from the Council and Advisory Bodies, the project team will develop and analyze a suite of alternatives, scheduled for Council consideration at the April 2016 meeting, at which time the Council may select a preliminary preferred alternative. Although not included in this document, we anticipate an alternative based on the collaborative proposal that is being developed by industry and non-governmental organization stakeholders. If accepted by the Council, this will be included in the subsequent suite of alternatives.

### **ALTERNATIVE 1: MINIMIZE ADVERSE EFFECTS OF FISHING ACTIVITIES BY MODIFYING EXISTING EFHCAS**

In establishing groundfish EFH in 2005, the Council selected closed areas based on habitat features such as rocky reef, submarine canyons, and/or biogenic habitats. There are 34 discrete areas closed to bottom trawling (“Bottom Trawl Closed Areas” – BTCAs). The range of sub-alternatives below includes scenarios for reducing existing bottom trawl EFHCA boundaries to more closely align with selected habitat features already within EFHCAs, expanding existing EFHCAs to encompass adjacent habitat features, and/or adding new EFHCAs to encompass selected habitat features.

This set of sub-alternatives assumes that changes to BCCAs are not being considered in this action. However, if the Council provides guidance that the 16 BCCAs should be considered for modifications, the project team would develop and analyze alternatives based on consideration of all 50 BCCAs and BCTAs.

#### **Alternative 1a: No Action**

The No Action Alternative would maintain all 34 existing bottom trawl EFHCAs, and would not add, remove, or modify any management areas or regulations designed to minimize the adverse effects of fishing on EFH. The bottom trawl footprint closed area and the 16 BCCAs would remain in place.

#### **Alternative 1b: Least habitat protective/most fishing opportunities**

*Eliminate some or all of the existing 34 bottom trawl EFHCAs (BTCAs).*

This sub-alternative would provide the least amount of habitat protection and the greatest amount of fishing opportunities by removing some or all of the 34 bottom trawl EFHCAs currently in place. This Alternative could also include removal of the bottom trawl footprint closed area seaward of the line approximating 700fm, to the westward extent of groundfish EFH. This Alternative would result in elimination of some or all areas currently closed to bottom trawling, and would be a significant decrease in the level of protection of habitats under EFH provisions, as compared with the No Action Alternative.

**Alternative 1c: Less habitat protective/more fishing opportunities**

*Reduce existing EFHCAs' spatial extent, to more closely align with priority benthic habitats.*

This sub-alternative would reduce the overall spatial extent of EFHCAs by tailoring the existing BTCAs to more closely envelope the physical or biogenic habitat type that it was designed to protect. This would essentially reduce the buffer around priority habitat features, and would reduce the amount of habitat protected from bottom trawl fishing. The existing bottom trawl EFHCAs would be reduced in spatial extent by tailoring each to encompass priority habits more closely. This could include some degree of buffer, but would ultimately be a reduction in the amount of benthic habitat protected from bottom trawling activities.

**Alternative 1d: No Net Change**

*Adopt a combination of EFHCA changes with no net change in spatial extent.*

This sub-alternative would include a combination of actions to expand or reduce existing EFHCAs, and could include reopening some or adding completely new EFHCAs. The combination of those actions would result in no net change in the amount of benthic habitat protected from bottom trawling. For example, one option would be to reduce some existing EFHCAs to encompass only mapped priority habitats, while increasing the extent of others to encompass adjacent priority habitats. This alternative would reflect elements from Alternatives 1b, 1c, 1e, and 1f.

**Alternative 1e: More habitat protective/Less fishing opportunities**

*Expand existing EFHCAs to encompass adjacent priority habitat.*

This sub-alternative would expand the overall spatial extent of EFHCAs, and would result in a net increase in the spatial extent of benthic habitats protected from bottom trawling. This would be accomplished by expanding some existing EFHCAs to include adjacent priority habitats. Although some existing EFHCAs may be reduced in spatial extent, the net change would increase the extent of benthic habitats protected. This would not add any completely new EFHCAs.

**Alternative 1f: Most habitat protective/Least fishing opportunities**

*Expand existing EFHCAs to encompass adjacent priority habitat, and add new EFHCAs.*

This sub-alternative would significantly increase the current spatial extent of areas closed to bottom trawling, by both expanding existing EFHCAs to encompass adjacent priority habitats and by adding new EFHCAs based on substrate maps indicating priority habitat areas.

**ALTERNATIVE 2: CONSIDER PUBLIC PROPOSALS**

As part of the groundfish EFH review process, the Council issued a request for proposals for potential modifications to EFH. Eight proposals were submitted, and two were subsequently withdrawn. The remaining six proposals contain a variety of proposed closed EFHCAs as well as a small number of existing EFHCAs proposed to be reopened to bottom trawl fishing. They are available on the Council's ftp site: [ftp://ftp.pcouncil.org/pub/EFH\\_Proposals\\_2013](ftp://ftp.pcouncil.org/pub/EFH_Proposals_2013). Some proposals include provisions to protect more than just benthic habitats. However, the Council established the scope of action to focus on benthic habitat protection from bottom trawling

activities. Although the public proposals are being considered for inclusion in this action, the elements of the proposals that are outside the scope of action should be disregarded.<sup>2</sup> The Council may adopt entire proposals or only certain elements of proposals for analysis, but the authors of several of the proposals have requested that their proposals (e.g., Monterey Bay National Marine Sanctuary and Oceana/NRDC/OC) remain intact, if adopted for further analysis. The sub-alternatives below incorporate the proposed closed areas contained in the proposals, ranging from including none of the proposed closures (or re-openings) to including all.

**Alternative 2a: No Action**

The No Action Alternative would not adopt any of the public proposals, and would not add, remove, or modify any management areas or regulations designed to minimize the adverse effects of fishing on EFH.

**Alternative 2b: Least habitat protective/most fishing opportunities**

*Adopt EFHCAs proposed for reopening.*

This sub-alternative would reduce the overall spatial extent of benthic habitat protected from bottom trawl impacts, by adopting the EFHCAs proposed to be opened, as described in the fishery management area, Oceana, and MBNMS proposals.

**Alternative 2c: No Net Change**

*Adopt none of the public proposals for new opened areas or for new closed areas.*

This sub-alternative is equivalent to the No Action sub-alternative, in that it would not adopt any of the proposed closed or open areas as described in the public proposals. It would result in no net change in the amount of benthic habitat protected from bottom trawling.

**Alternative 2d: More habitat protective/Less fishing opportunities**

*Adopt expansions to existing EFHCAs as proposed in the public proposals.*

This sub-alternative would expand the overall spatial extent of EFHCAs, by adopting some or all of the EFHCAs proposed for expansion in the six public proposals. It would not adopt any of the completely new EFHCAs described in the public proposals.

**Alternative 2e: Most habitat protective/Least fishing opportunities**

*Adopt expansions to existing EFHCAs and adopt all proposed new EFHCAs in public proposals.*

This alternative would significantly increase the current spatial extent of areas closed to bottom trawling, by adopting the EFHCA expansions as well as all the completely new EFHCAs as described in the public proposals. It would not adopt any of the proposed EFHCA re-openings contained in the public proposals.

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<sup>2</sup> At its April 2015 meeting, the Council removed these elements from the scope of action: Creation of marine reserves for the drift gillnet fishery in the Greenpeace proposal; further changes to “no bottom contact EFH conservation areas”; application of EFH conservation areas to midwater trawl fisheries, and HAPCs.

### **ALTERNATIVE 3: CONSIDER NEW EFHCAS IN TRAWL RCA**

The trawl RCA was established first in 2002, and has been modified several times since then. Although the shoreward and seaward contours defining the trawl RCA can vary, a core portion of the trawl RCA has essentially been completely closed to groundfish trawl fishing. Those habitats within that “core” RCA are expected to have recovered to varying degrees, from past trawling impacts. However, some areas within the RCA have been subjected to fixed gear fishing and state-managed trawling for pink shrimp and it is likely that these activities have hampered the recovery from past bottom trawling. Because the Council is considering removing some or all of the trawl RCA, the Council may at the same time consider whether to establish EFHCAs within the area encompassed by the RCA, in particular those areas less impacted by shrimp trawls and fixed gear, or those habitats that are established as priorities by the Council.

In addition, there may be priority habitats within the trawl RCA that could be considered for new protections, regardless of whether they are considered to be recovered.

#### **Alternative 3a: No Action**

The No Action Alternative would not add any new EFHCAs in the existing trawl RCA, and would not result in any increase or decrease in the net spatial extent of benthic habitat protected from bottom trawling.

#### **Alternative 3b: More habitat protective/less fishing opportunities**

*Add new EFHCAs in trawl RCA, based on habitats likely to be recovered.*

This sub-alternative would create new closed areas based on habitat that is likely to have recovered, and would be protected for habitat purposes as opposed to minimizing catch of focal species. This sub-alternative could be selected in conjunction with sub-alternative 3c.

#### **Alternative 3c: More habitat protective/less fishing opportunities**

*Add new EFHCAs in trawl RCA, based on presence of priority habitats.*

This sub-alternative would create new closed areas based on priority habitat types, and would be protected for habitat purposes as opposed to minimizing catch of focal species. This sub-alternative could be selected in conjunction with sub-alternative 4b.

#### **Alternative 3d: Most habitat protective/Least fishing opportunities**

*Add new EFHCAs in trawl RCA, based on presence of priority habitats and based on habitats likely to be recovered.*

This sub-alternative would adopt new closed areas based both on priority habitats as well as habitat areas within the trawl RCA that are likely to have recovered. It would result in a net increase in the spatial extent of benthic habitat protected from bottom trawling.

### **ALTERNATIVE 4: CHANGES TO TRAWL RCA<sup>3</sup>**

The RCA ROA is described in Agenda Item H.8, Attachment 2, and included in Appendix A of this document for easier cross referencing. Action alternatives 4b-4f consider replacing the

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<sup>3</sup> Alternative 4 is reserved for possible changes to the trawl RCA configuration, presented in a separate document.

coastwide RCA with a series of different less conservative RCA closure areas, a collection of small RCA polygons, or elimination of the RCA closure areas altogether. See H.8, Attachment 2 for complete descriptions.

#### **ALTERNATIVE 5: REVISE APPENDIX B (EFH DESCRIPTIONS)**

Sub-alternatives under Alternative 5 are either the No Action Alternative (5a) or Alternative 5b, which would include updating the information contained in Appendix B of the Groundfish FMP. Appendix B contains, in addition to other information, Pacific Coast Groundfish life history descriptions, text descriptions of groundfish EFH, and major prey items.

##### **Alternative 5a: No Action**

This alternative would retain the existing descriptions of the EFH habitat components in Appendix B. It would not incorporate the new information found during the review of groundfish EFH.

##### **Alternative 5b: Revise Appendix B to the FMP**

This alternative would revise the description of the EFH habitat components, including identification of major prey species, in Appendix B to the groundfish FMP using new information found during the review of groundfish EFH. Much of the information for these revisions would be based on the information contained in the NMFS Synthesis Document and in the EFH Phase 1 Report. Revisions to Appendix B do not require an FMP amendment.

#### **ALTERNATIVE 6: REVISE APPENDIX D (NON-FISHING EFFECTS)**

The MSA requires Regional Fishery Management Councils and NMFS to identify non-fishing activities that may adversely affect EFH, as well as actions to encourage the conservation and enhancement of EFH, including recommended options to avoid, minimize, mitigate, or otherwise offset the adverse effects. Appendix D to the FMP includes 31 such activities and associated conservation measures, and the EFH Phase 1 Report identified additional non-fishing activities.

Sub-alternatives under Alternative 6 are either the No Action alternative (6a), or to update/modify Appendix D to the groundfish FMP to reflect new information on non-fishing activities that may adversely affect groundfish EFH. This would result in the addition of new non-fishing activities and associated conservation recommendations to minimize adverse effects resulting from those activities. Non-fishing effects and proposed conservation measures are used by NMFS in consultations with Federal agencies whose actions may adversely affect groundfish EFH. Although a lack of this information does not preclude NMFS from consulting and recommending conservation measures, updating the information provides a resource to NMFS biologists to help guide and inform consultations.

##### **Alternative 6a: No Action**

This sub-alternative would retain the existing descriptions of, and conservation measures for, the non-fishing activities that may adversely affect groundfish EFH in Appendix D to the groundfish FMP. It would also not incorporate additional activities that may adversely affect EFH that were identified during the review of groundfish EFH. It would not provide the most up-to-date information or science related to potential adverse impacts to EFH from non-fishing activities.

**Alternative 6b: Revise Appendix D**

This sub-alternative would update the descriptions of, and conservation measures for, the non-fishing activities in Appendix D to the groundfish FMP. It would also add the new activities identified during the review of groundfish EFH. The EFH Phase 1 Report identified new non-fishing activities and conservation measures that would be considered, in addition to the non-fishing activities identified in Amendment 19. The information would reflect the best available scientific information, as well as new information. Revisions to Appendix D do not require an FMP amendment.

**ALTERNATIVE 7: REVISE RESEARCH AND INFORMATION NEEDS**

The proposed action under Alternative 7 is to update and modify the Information and Research Needs section of the groundfish FMP, and to move prioritized research recommendations from the FMP to an Appendix, to allow for future updates to research and data needs without an FMP amendment. The EFH Phase 1 Report includes a suite of information and research needs, which would be the basis for the action under Alternative 7b.

**Alternative 7a: No Action**

This sub-alternative would not update or modify the existing research and information needs section in the FMP, and would not be based on new information.

**Alternative 7b: Update and modify the Information and Research Needs**

This sub-alternative would update and modify the Information and Research Needs section of the groundfish FMP, and move to an FMP appendix, to allow for more streamlined updates as needed, outside of the FMP amendment process. This alternative could include the suite of information and research needs contained in the EFH Phase 1 Report, and may include additional information, depending on Council guidance.

**ALTERNATIVE 8: REVISE EFH REVIEW AND REVISION PROCESS**

FMPs are required to describe a process for periodic EFH reviews, in accordance with the EFH regulations. Currently, the groundfish FMP describes a general process for periodic EFH reviews, and provides a specific process for Council consideration of new HAPCs. The proposed action under this alternative is to develop a detailed description of the process, and move it out of the FMP body, into a non-FMP document such as a Council Operating Procedure (COP).

**Alternative 8a: No Action**

This sub-alternative would not include a detailed description of an EFH review process, and would retain the existing EFH review and revision process within the body of the FMP.

**Alternative 8b: Update and Modify the EFH Review and Revision Process**

This sub-alternative would include an updated process for future review and revision of groundfish EFH, and would move the text out of the FMP and into a non-FMP Council document, such as a COP.

**ALTERNATIVE 9: REVISE APPENDIX C PART 2 (FISHING GEAR EFFECTS)**

Fishery management plans are required to describe the adverse effects of fishing activities on EFH, and must provide measures to minimize those effects to the extent practicable. Appendix C Part 2



of the Groundfish FMP (“The Effects of Fishing Gear on West Coast Habitat”) contains the current descriptions. Minimization measures are contained in Chapter 6 of the FMP, and in the Federal fishery regulations.

**Alternative 9a: No Action**

This sub-alternative would retain the current descriptions of the adverse effects of the groundfish fishery on EFH in Appendix C, Part 2. It would not incorporate the new information found during the review of groundfish EFH.

**Alternative 9b: Revise Appendix C Part 2 (descriptions of fishing gear effects)**

This sub-alternative would revise the description of the adverse effects of the groundfish fishery on EFH in Appendix C, Part 2 using new information found during the review of groundfish EFH. Revisions to Appendix C do not require an FMP amendment.

**ALTERNATIVE 10: CLARIFY TEXT AND CORRECT MINOR ERRORS**

There are several opportunities to clarify the text in the groundfish FMP, as well as some errors to be corrected. The proposed action under this alternative is to provide such clarification and to correct those errors.

**Alternative 10a: No Action**

This sub-alternative would maintain the status quo, and the known errors in the FMP would not be corrected. In addition, clarifications would not be made to FMP text.

**Alternative 10b: Provide clarification and correct minor errors**

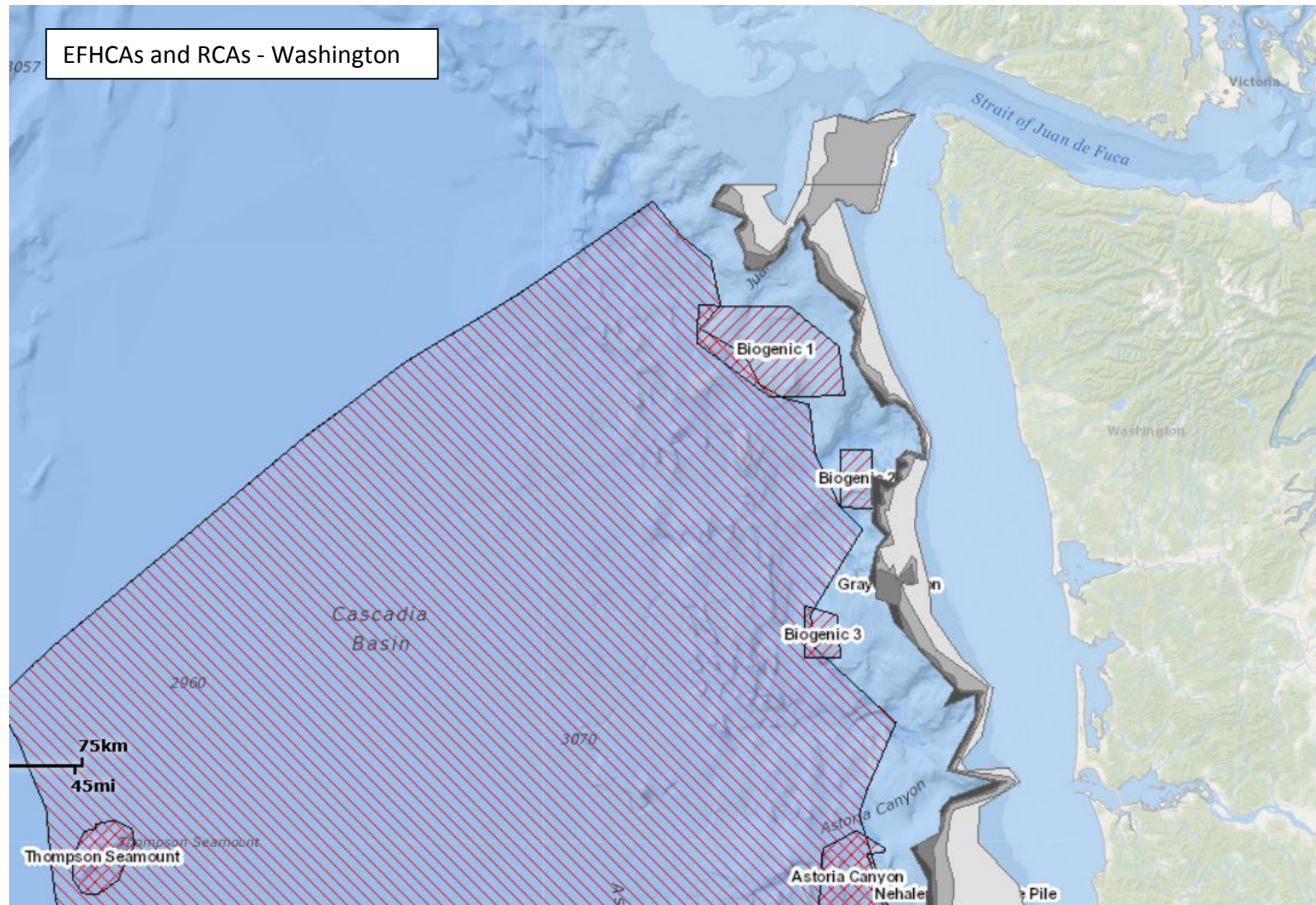
This sub-alternative would correct minor errors in, and clarify some aspects of, the groundfish FMP. For example, there are minor errors with the mapping of the EFH Conservation Areas, such as the location of Potato Bank. Clarifications include deleting the last bullet in the current description of groundfish EFH, which says “Areas designated as HAPCs not already identified by the above criteria.” This statement has no meaning because all of the HAPCs are included within the previously listed criteria.

**APPENDIX A: Table 1. Range of Alternatives for Groundfish EFH**

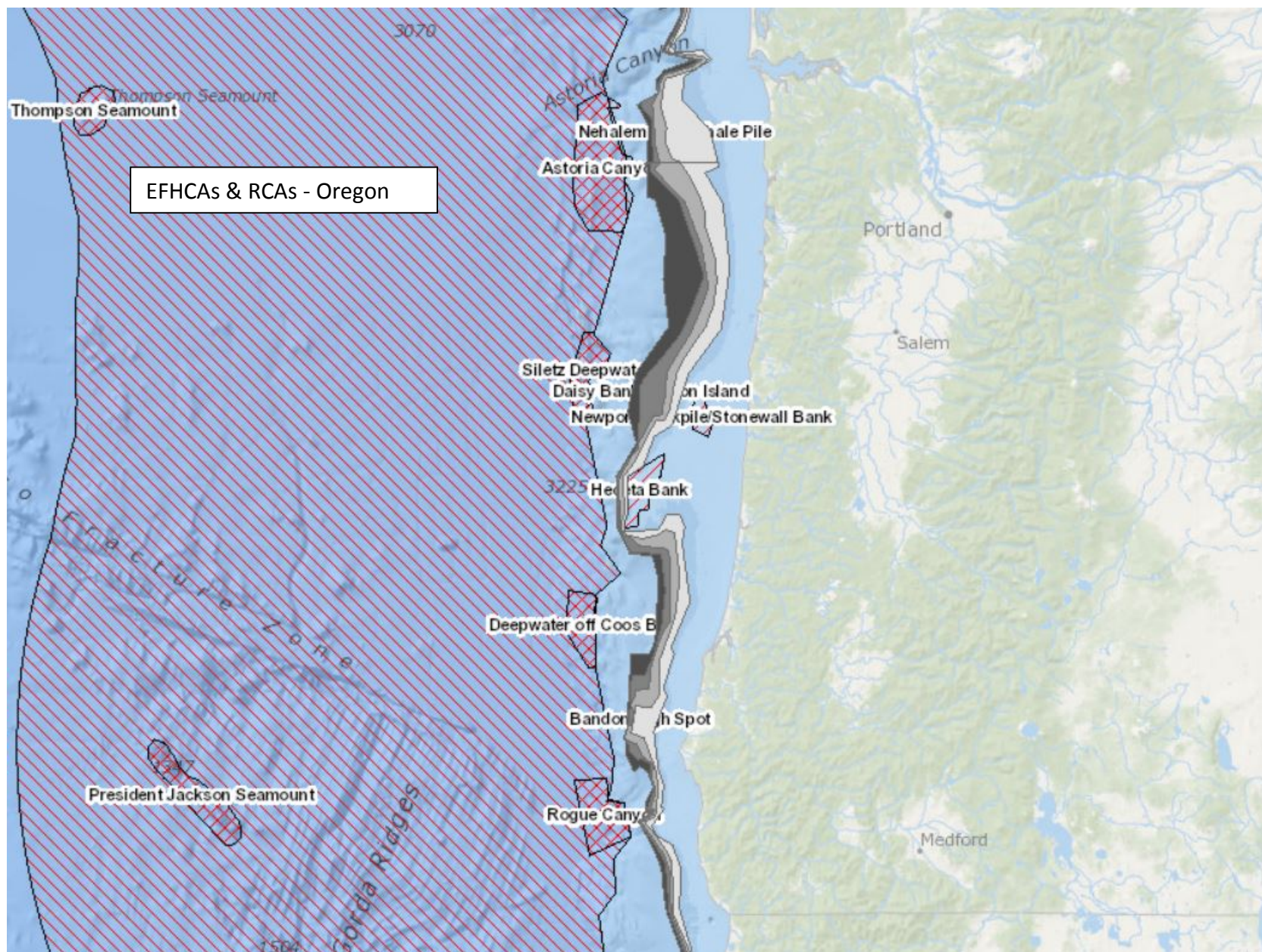
Alternative		Least Protective ----- Action Alternatives ----- Most Protective				
1. EFHCAs (benthic habitat protection)	1a. No Action	1b. Eliminate some or all of the existing 34 bottom trawl EFHCAs	1c. Reduce existing EFHCAs spatial extent, to more closely align with priority benthic habitats	1d. Adopt a combination of EFHCA changes with no net change in spatial extent	1e. Expand existing EFHCAs to encompass adjacent priority habitat.	1f. Expand existing EFHCAs to encompass adjacent priority habitat; add new EFHCAs
2. Public Proposals	2a. No Action	2b. Adopt EFHCAs proposed for reopening	2c. Adopt none of the public proposals for new opened areas or for new closed areas		2d. Adopt expansions to existing EFHCAs in the public proposals	2e. Adopt expansions to existing EFHCAs and adopt all EFHCAs in public proposals
3. RCA Habitats	3a. No Action			3b. Add new EFHCAs in trawl RCA, based on habitats likely to be recovered	3c. Add new EFHCAs in trawl RCA, based on presence of priority habitats	3d. Add new EFHCAs in trawl RCA, based on presence of priority habitats and based on habitats likely to be recovered
4. RCA Changes (placeholder – see H.8 Attachment 2 for	4a. No Action	4f. Remove the trawl RCA	4e. Closures for Overfished Species	4d. Closures for Overfished Species and Selected IFQ Species	4c. Closures for Overfished Species, Selected IFQ species Managed in	4b Retain a similar RCA structure; consider pink

<i>complete descriptions)</i>				<i>Managed in Complexes</i>	<i>Complexes, and Selected Non-IFQ Species</i>	<i>shrimp trawl areas</i>
5. Revise Appendix B	5a. No Action	5b. Update/revise information in Appendix B of the FMP to reflect new information on Pacific Coast Groundfish life history descriptions, text descriptions of groundfish EFH, and major prey items.				
6. Revise Appendix D	6a. No Action	6b. Add descriptions and conservation measures for new non-fishing activities that may adversely affect EFH.				
7. Information and Research Needs	7a. No Action	7b. Revise Information and Research Needs section of the FMP and move to an appendix.				
8. Review and Revision process	8a. No Action	8b. Update review and revision process and describe elsewhere (e.g., COP).				
9. Revise Appendix C Part 2	9a. No Action	9b. Revise Fishing gear effects described in Appendix C Part 2.				
10. Clarifications and Corrections	10a. No Action	10b. Provide clarifications and correct minor errors from Amendment 19.				

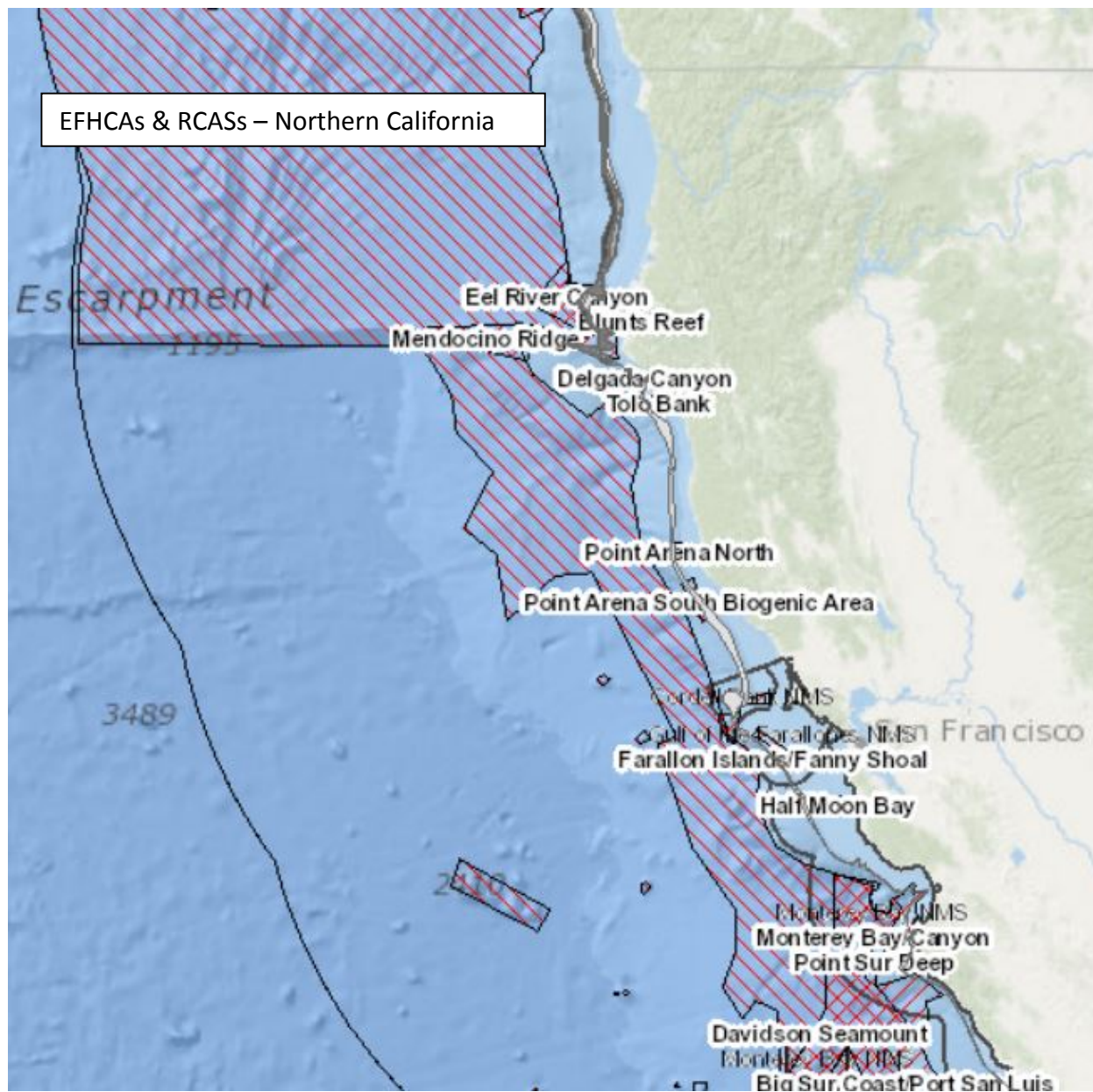
## Appendix B: Reference Maps

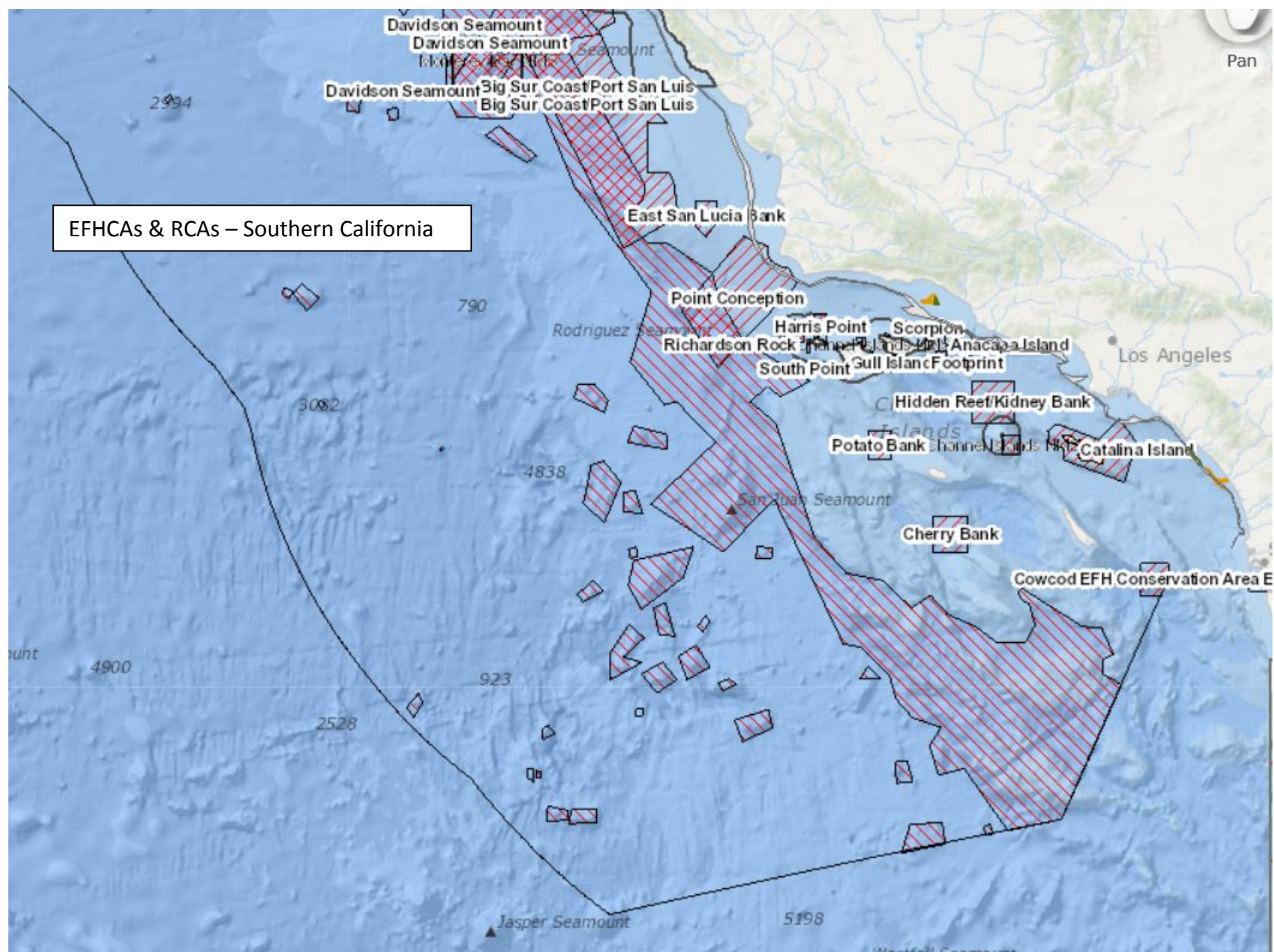






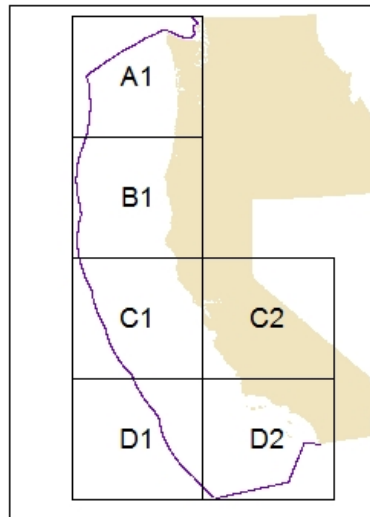








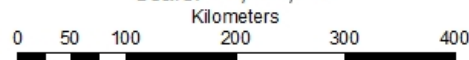
# Groundfish EFH Closure Alternatives



This map series displays all existing and proposed EFH conservation area closures merged together. The calculated total area is 74,267,602 ha or 286,749 mi<sup>2</sup>.



Scale: 1:5,281,710

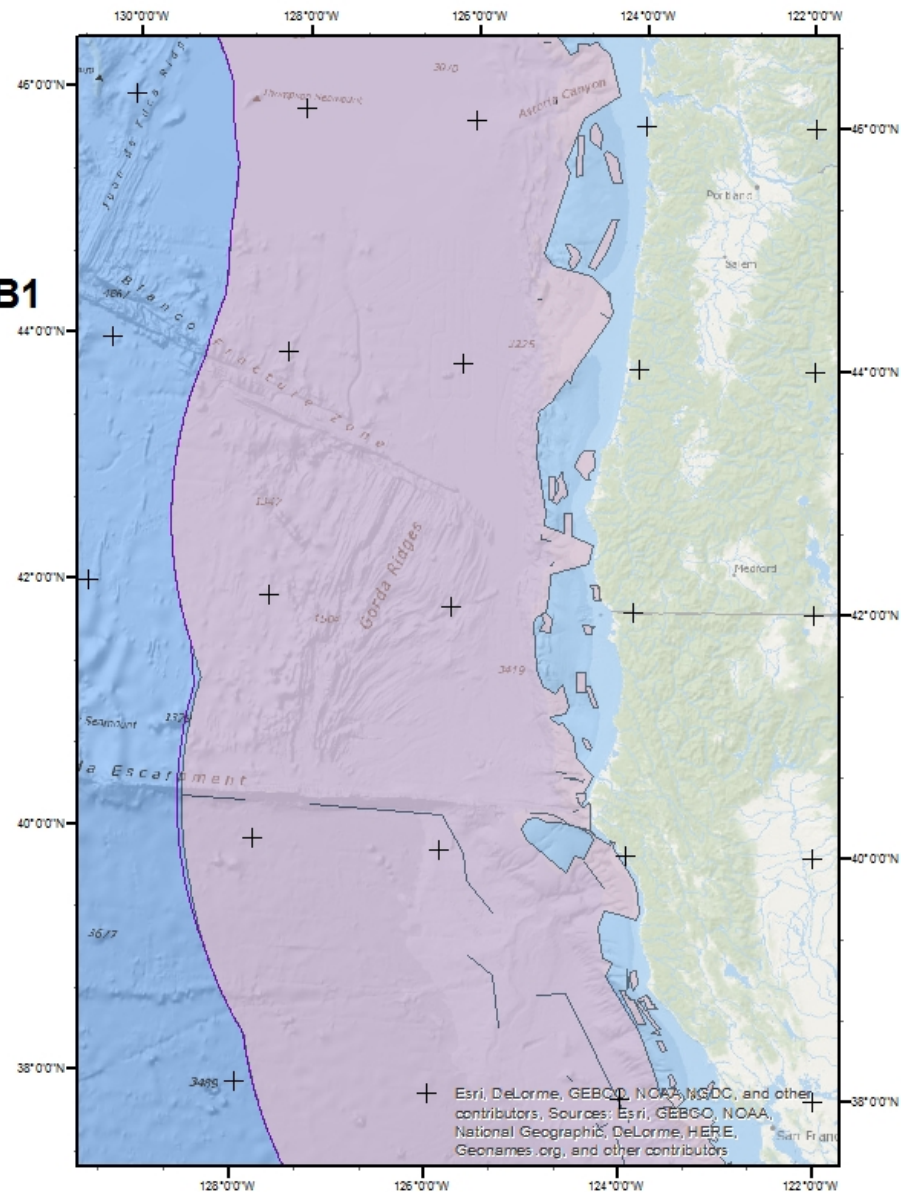


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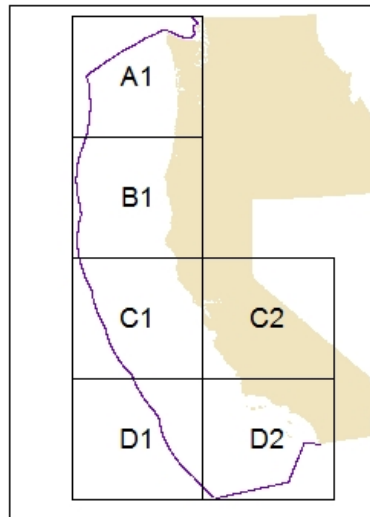
## Map Panel: B1

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# Groundfish EFH Closure Alternatives



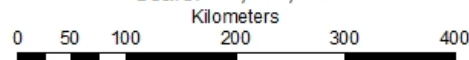
## Map Panel: C1

Page 3 of 6

This map series displays all existing and proposed EFH conservation area closures merged together. The calculated total area is 74,267,602 ha or 286,749 mi<sup>2</sup>.

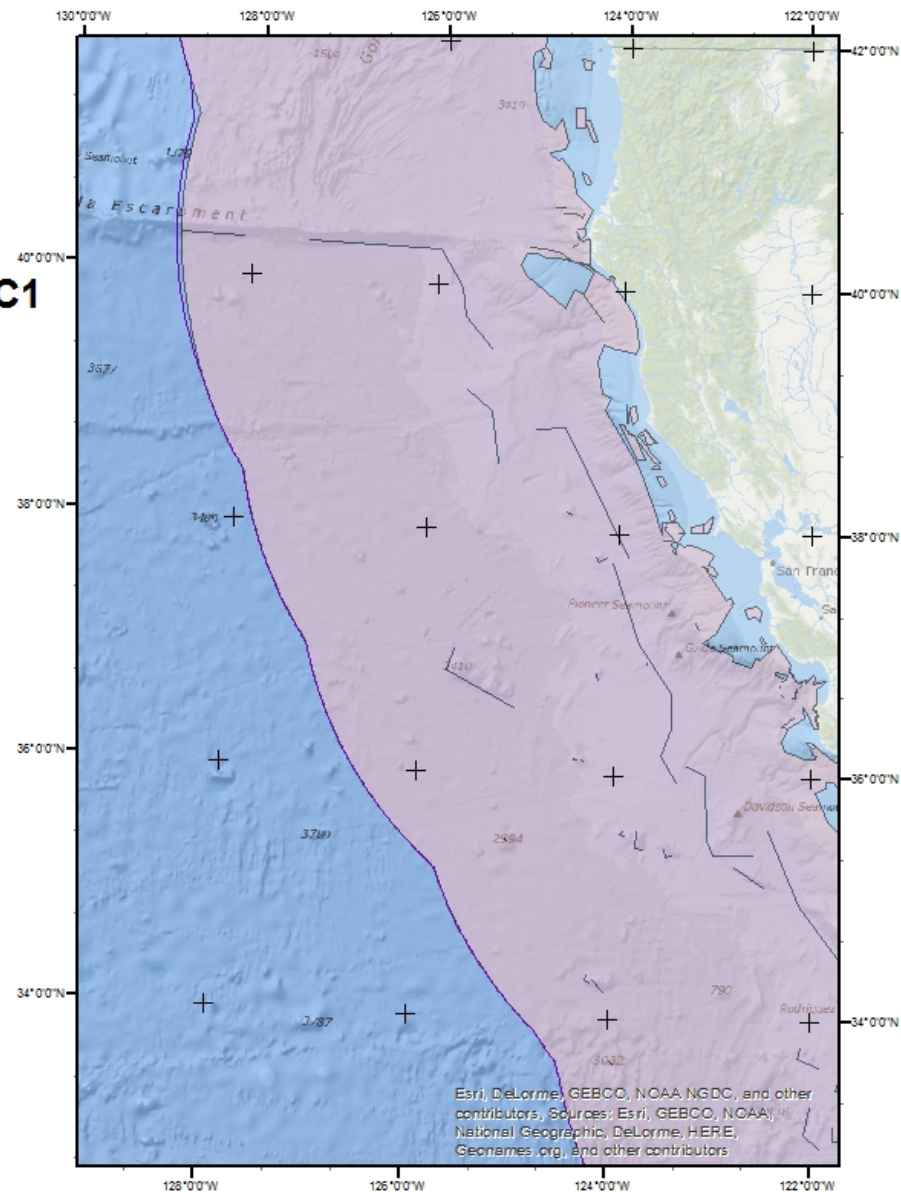


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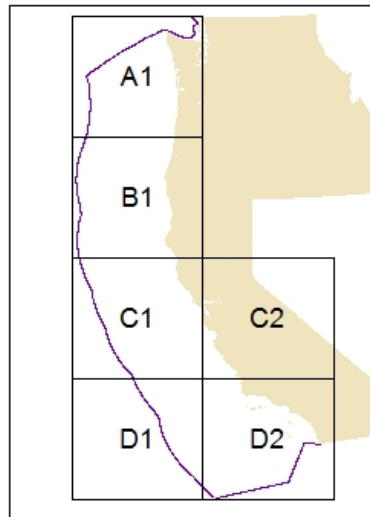


Author: Kit Dahl (PFMC)

Date Saved: Aug 6, 2015 10:52



## Groundfish EFH Closure Alternatives



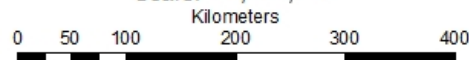
### Map Panel: C2

Page 4 of 6

This map series displays all existing and proposed EFH conservation area closures merged together. The calculated total area is 74,267,602 ha or 286,749 mi<sup>2</sup>.

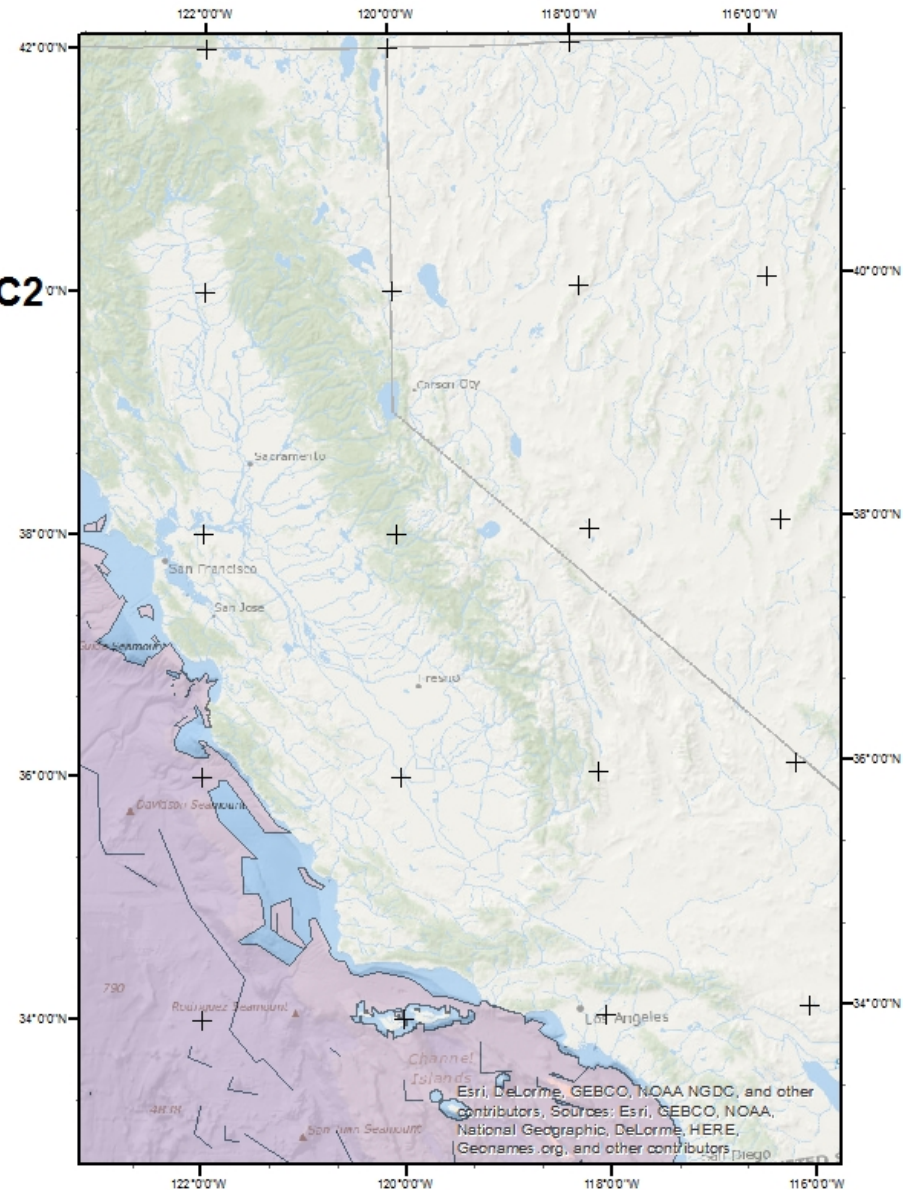


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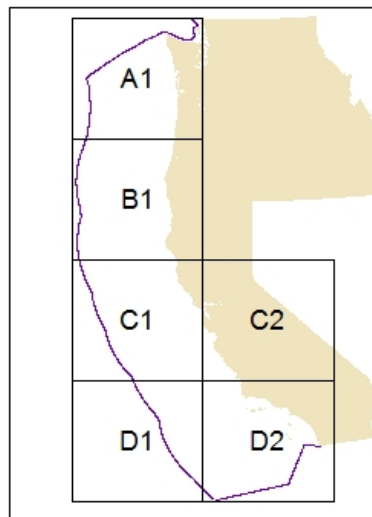


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# Groundfish EFH Closure Alternatives



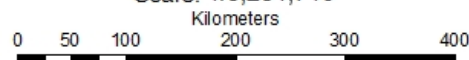
## Map Panel: D1

Page 5 of 6

This map series displays all existing and proposed EFH conservation area closures merged together. The calculated total area is 74,267,602 ha or 286,749 mi<sup>2</sup>.

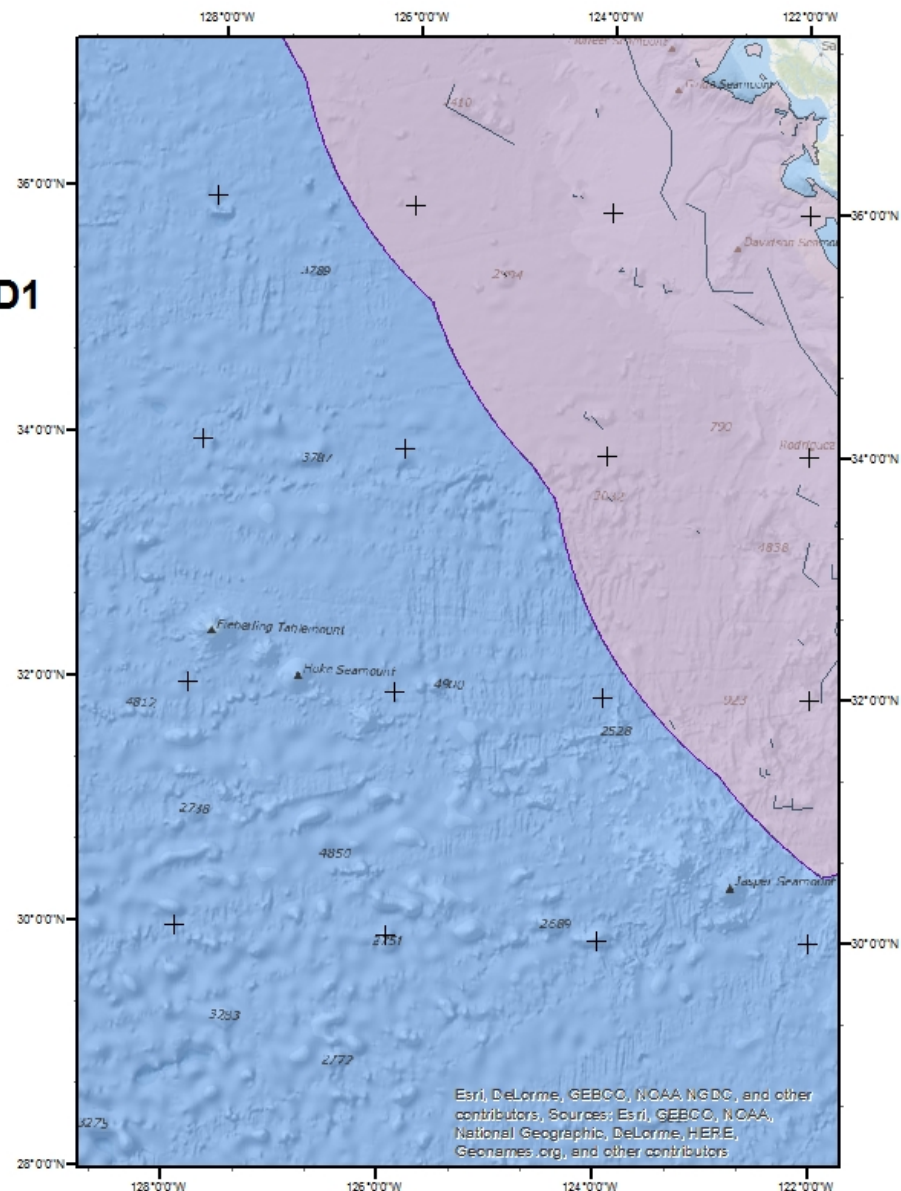


Scale: 1:5,281,710



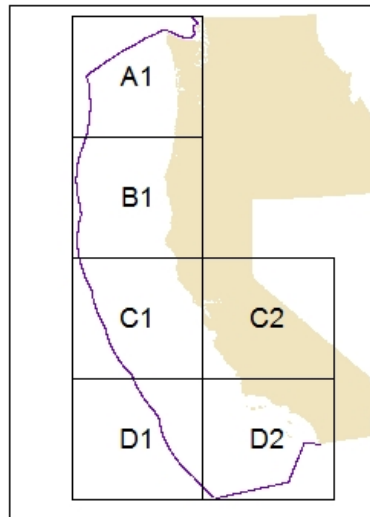
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## Groundfish EFH Closure Alternatives



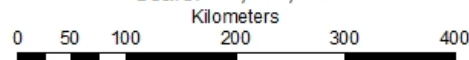
### Map Panel: D2

Page 6 of 6

This map series displays all existing and proposed EFH conservation area closures merged together. The calculated total area is 74,267,602 ha or 286,749 mi<sup>2</sup>.

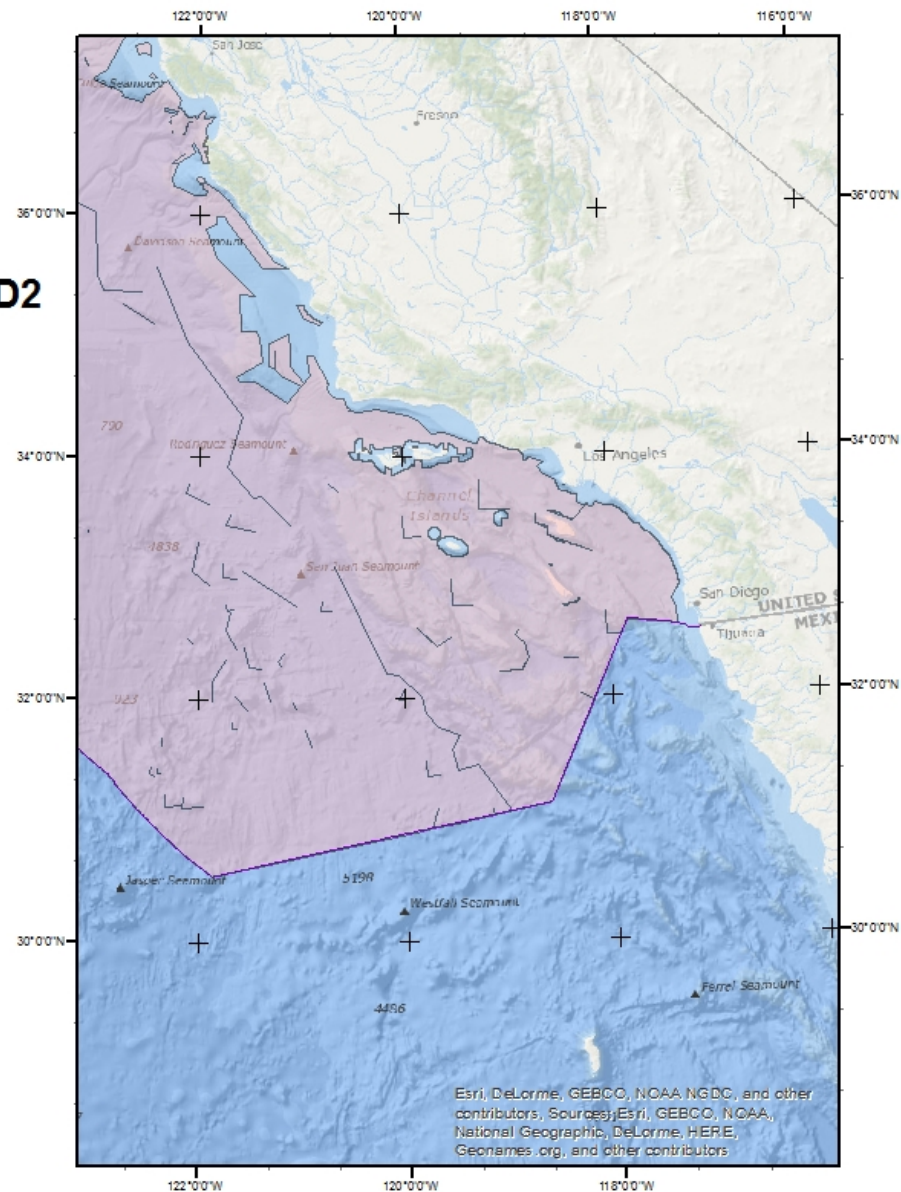


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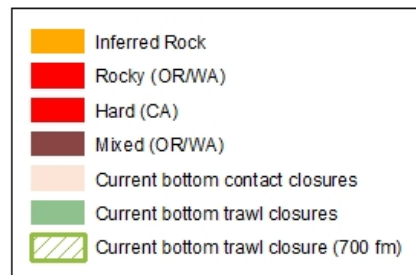
# Groundfish EFH Closure Alternatives

A1	
B1	
C1	C2
D1	D2

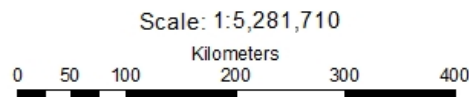


## Map Panel: A1

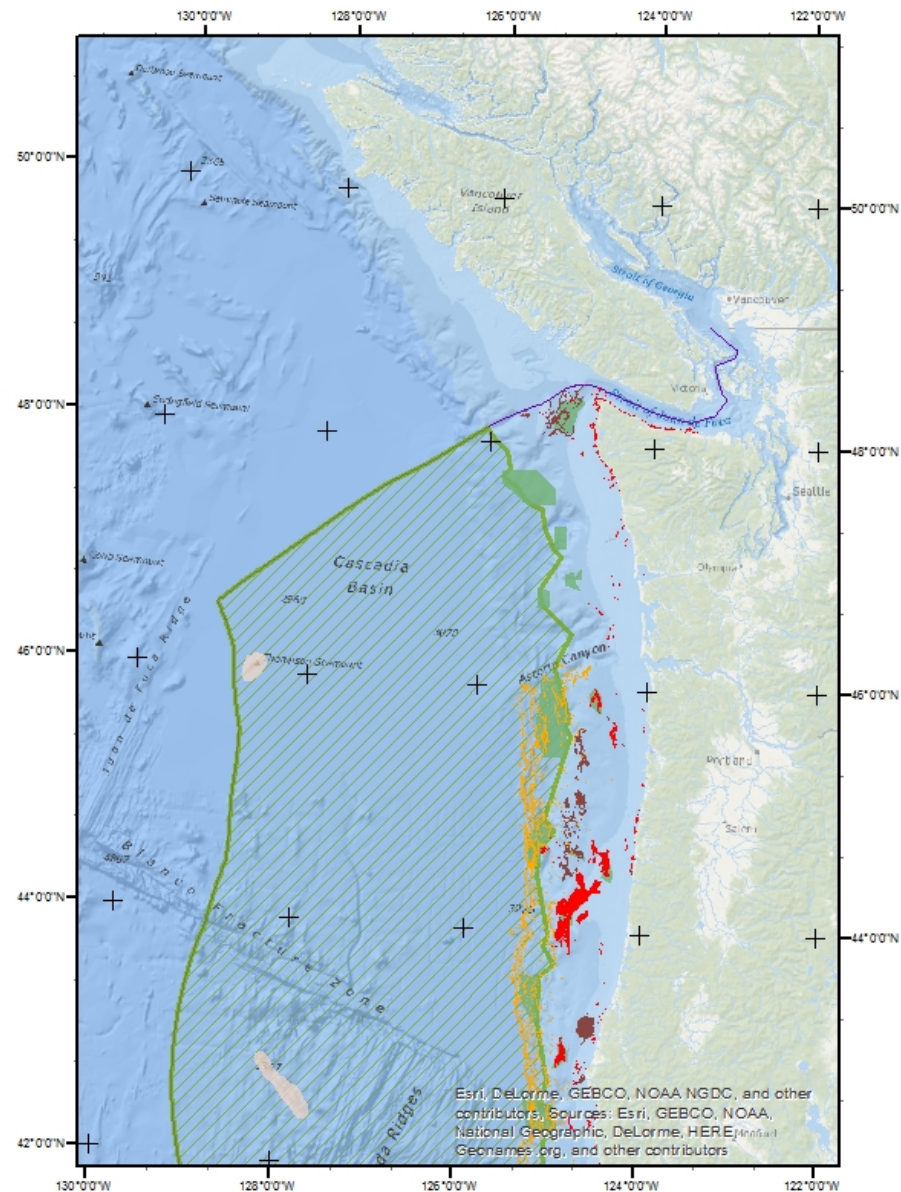
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This map series displays the existing EFH conservation area closures and hard/mixed substrates.



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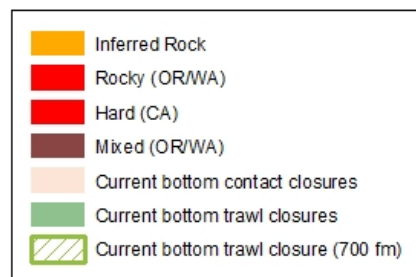
# Groundfish EFH Closure Alternatives

A1	
B1	
C1	C2
D1	D2

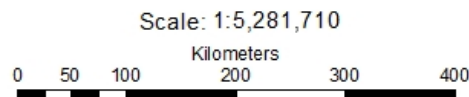


## Map Panel: B1

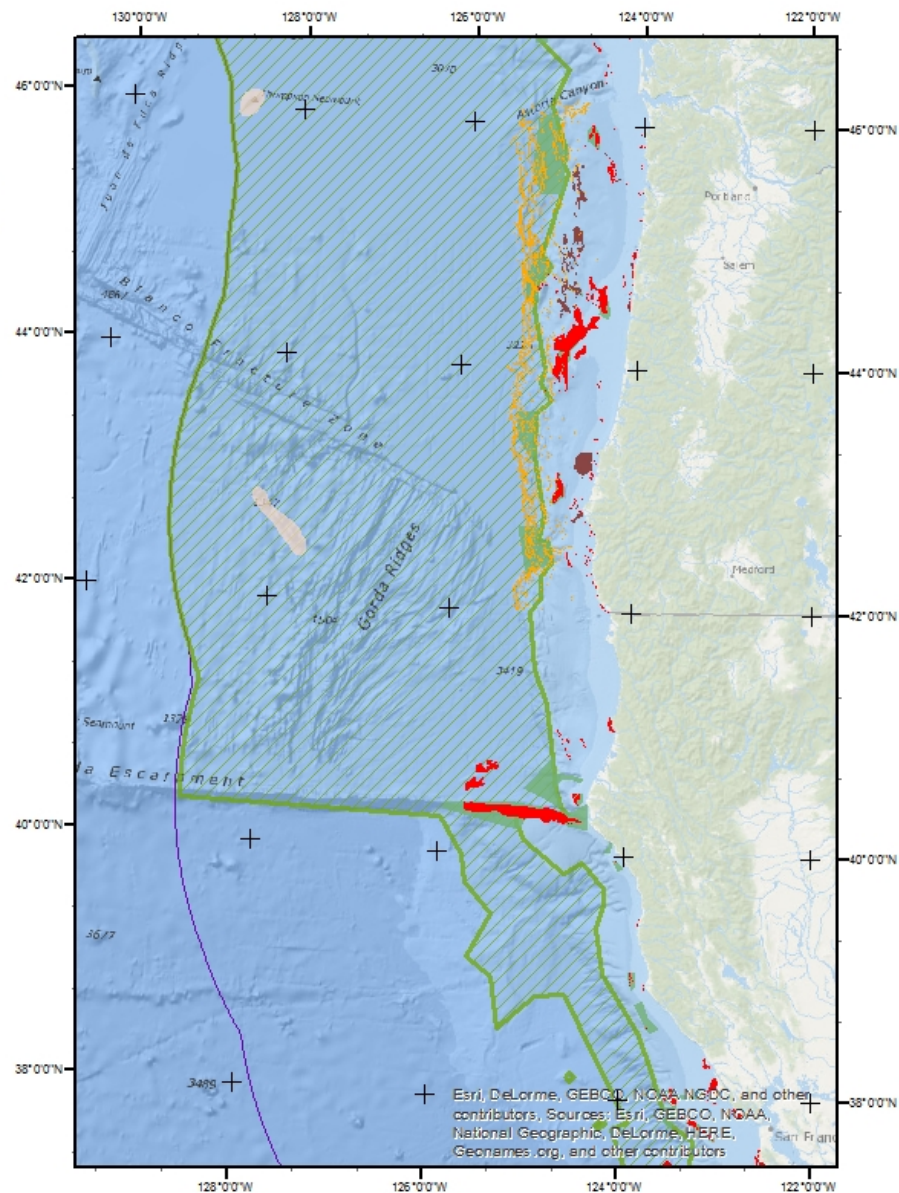
Page 2 of 6



This map series displays the existing EFH conservation area closures and hard/mixed substrates.



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# Groundfish EFH Closure Alternatives

A1	
B1	
C1	C2
D1	D2

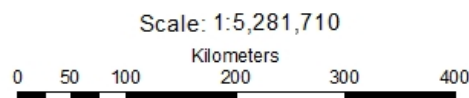


## Map Panel: C1

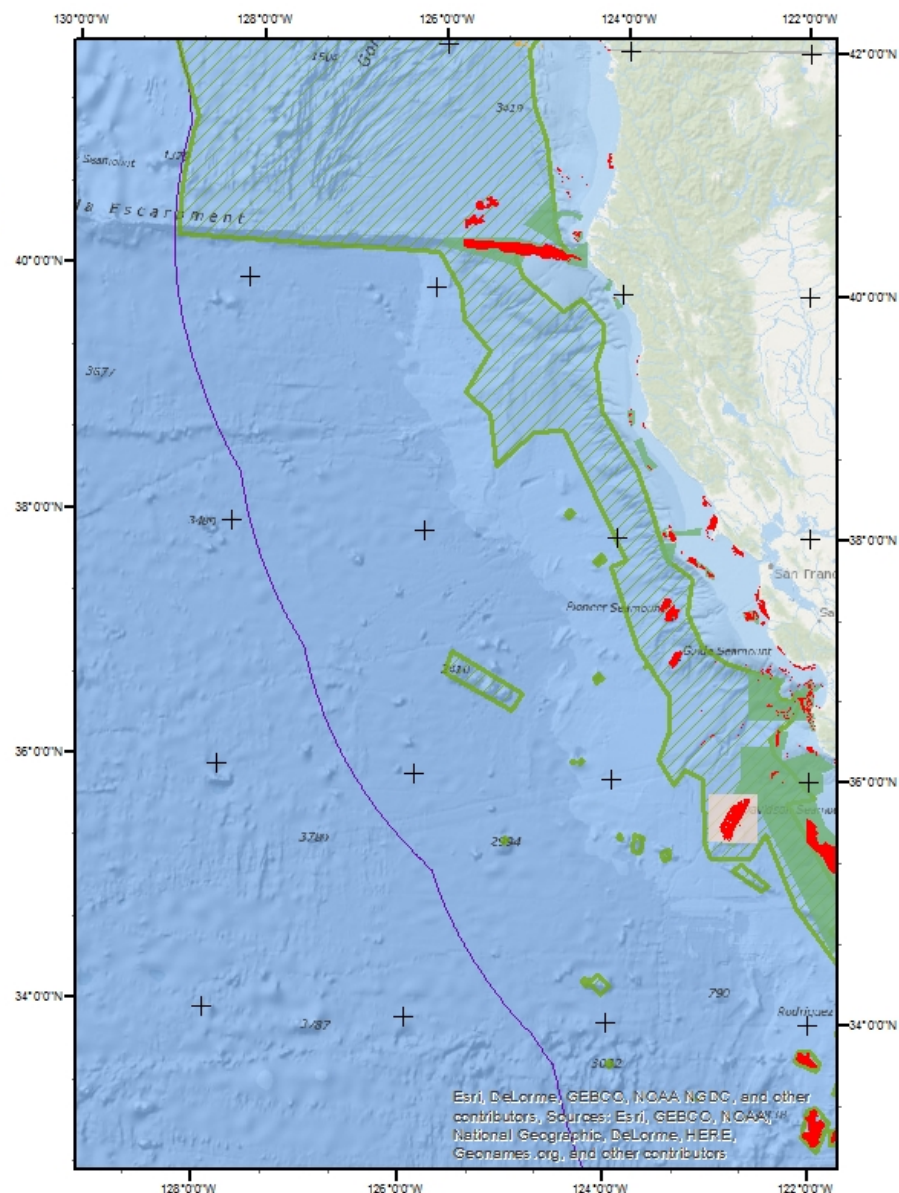
Page 3 of 6

	Inferred Rock
	Rocky (OR/WA)
	Hard (CA)
	Mixed (OR/WA)
	Current bottom contact closures
	Current bottom trawl closures
	Current bottom trawl closure (700 fm)

This map series displays the existing EFH conservation area closures and hard/mixed substrates.



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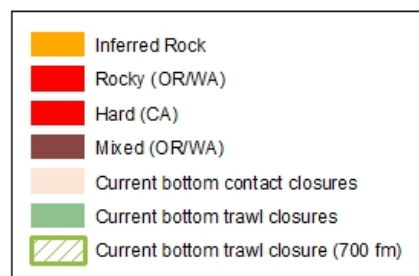
# Groundfish EFH Closure Alternatives

A1	
B1	
C1	C2
D1	D2

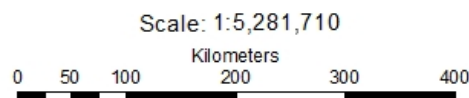


## Map Panel: C2

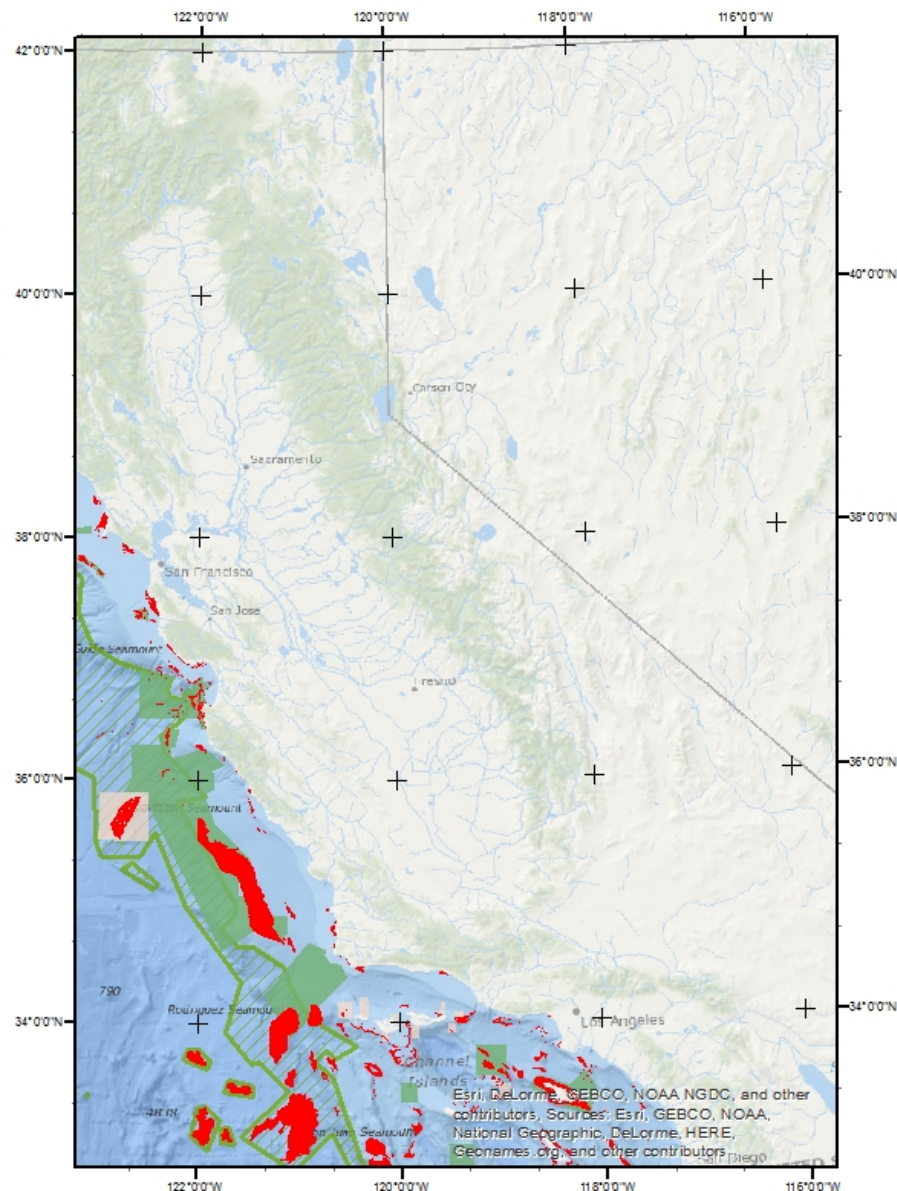
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This map series displays the existing EFH conservation area closures and hard/mixed substrates.



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# Groundfish EFH Closure Alternatives

A1	
B1	
C1	C2
D1	D2

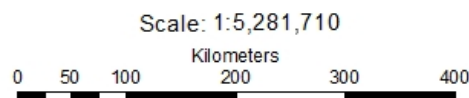


## Map Panel: D1

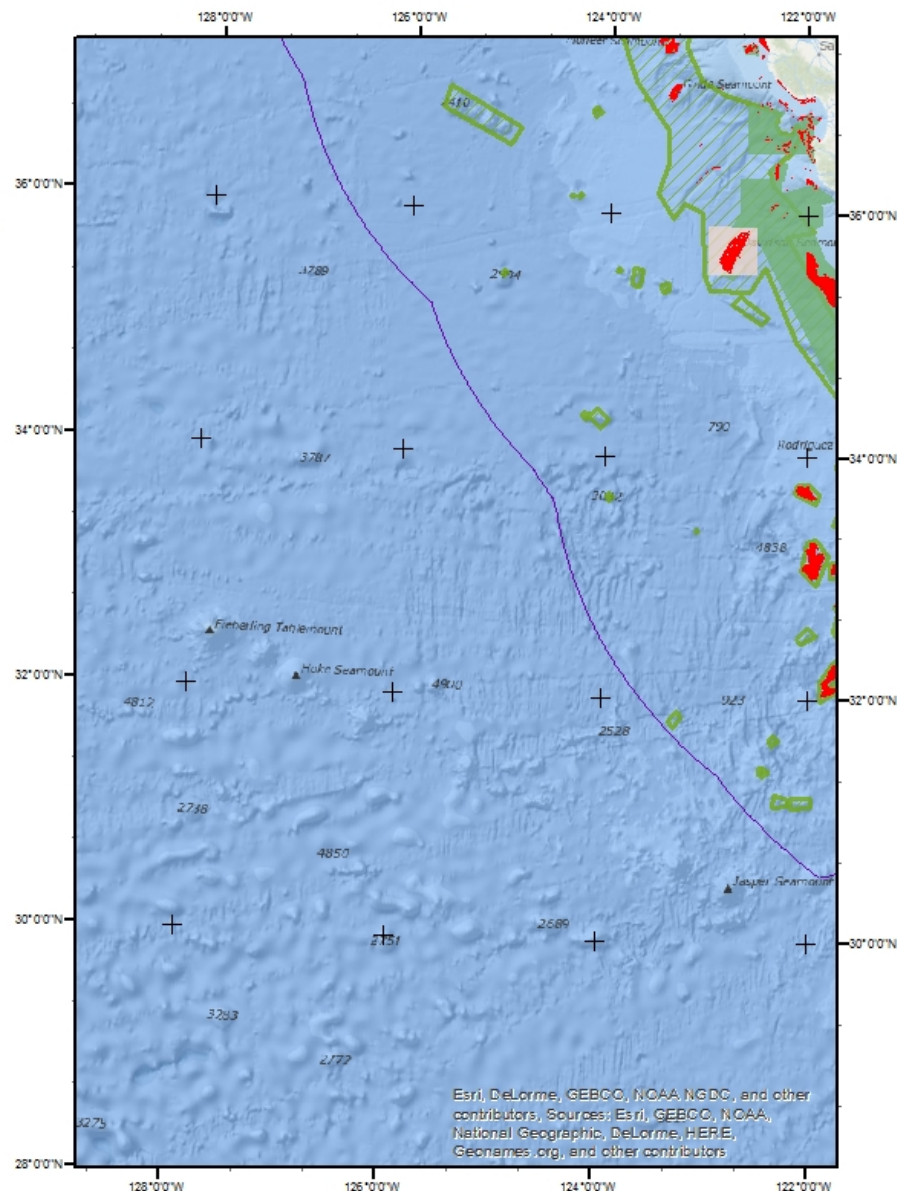
Page 5 of 6

	Inferred Rock
	Rocky (OR/WA)
	Hard (CA)
	Mixed (OR/WA)
	Current bottom contact closures
	Current bottom trawl closures
	Current bottom trawl closure (700 fm)

This map series displays the existing EFH conservation area closures and hard/mixed substrates.



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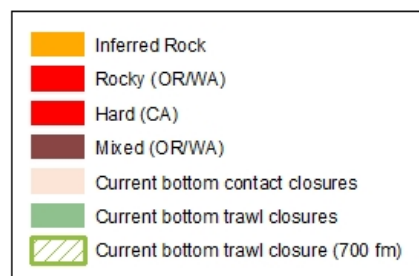
# Groundfish EFH Closure Alternatives

A1	
B1	
C1	C2
D1	D2

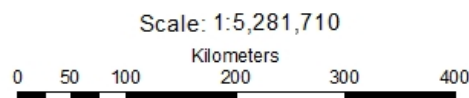


## Map Panel: D2

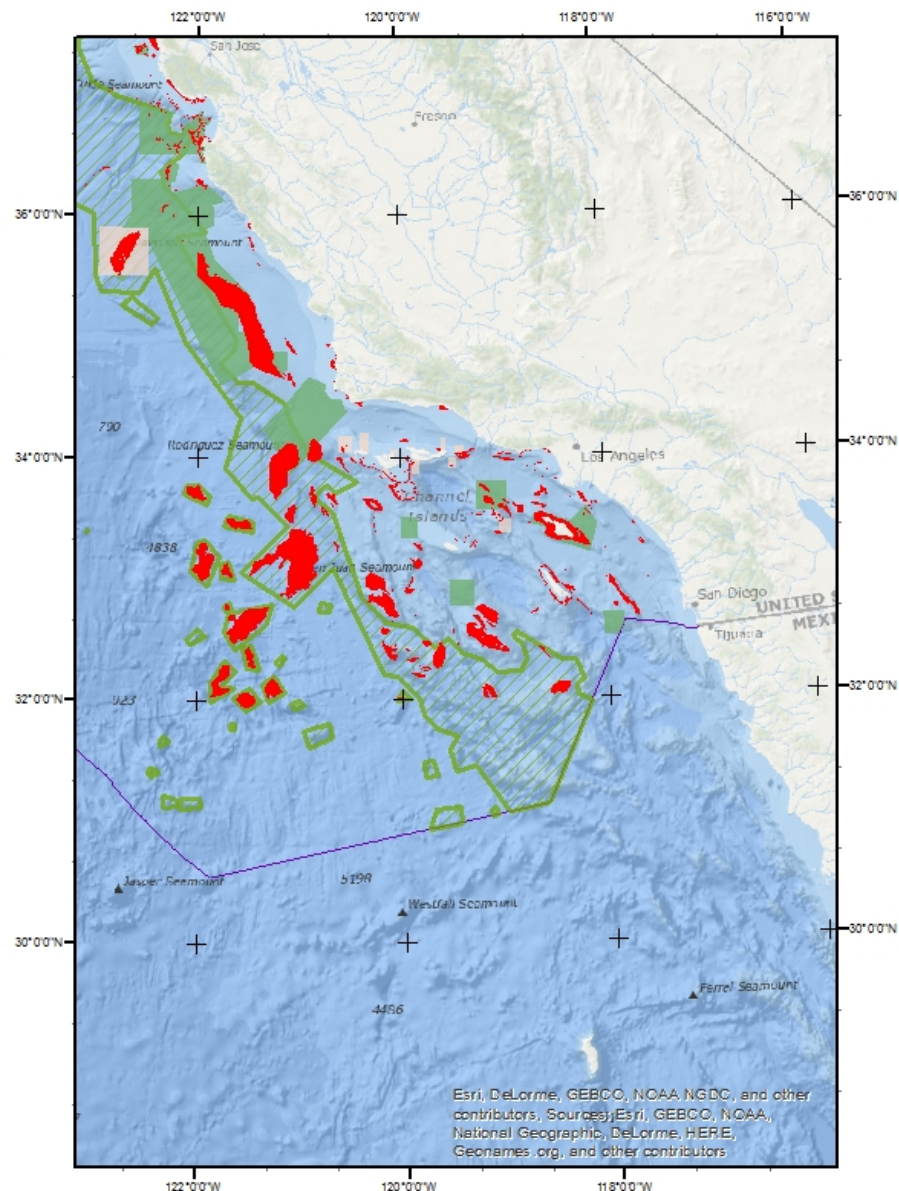
Page 6 of 6



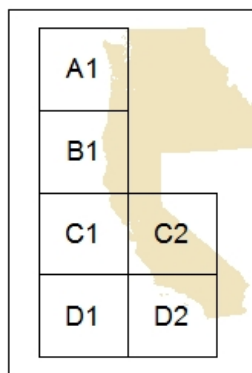
This map series displays the existing EFH conservation area closures and hard/mixed substrates.



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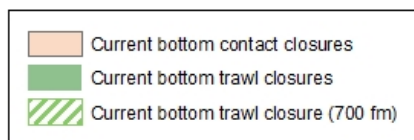


# Groundfish EFH Closure Alternatives



## Map Panel: A1

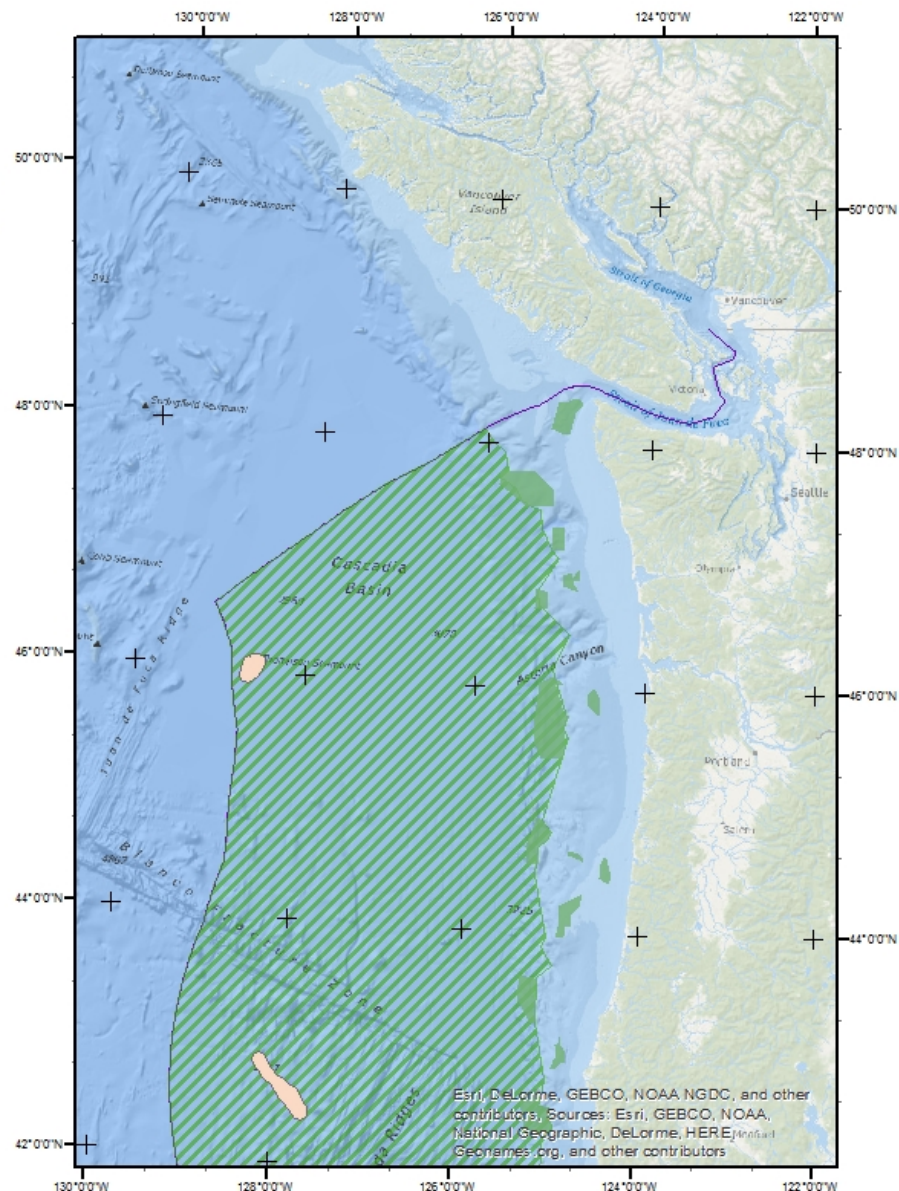
Page 1 of 6



This map series displays the existing EFH conservation area closures by general gear restriction. The calculated area closed to trawl is 67,356,407 ha or 260,065 mi<sup>2</sup>. The calculated area closed to bottom contact is 432,547 ha or 1,670 mi<sup>2</sup>.

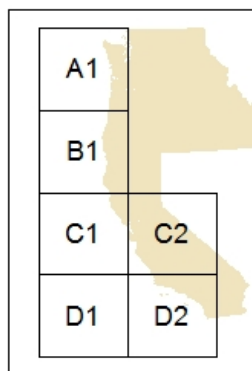


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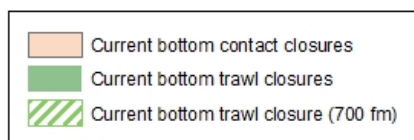


# Groundfish EFH Closure Alternatives



## Map Panel: B1

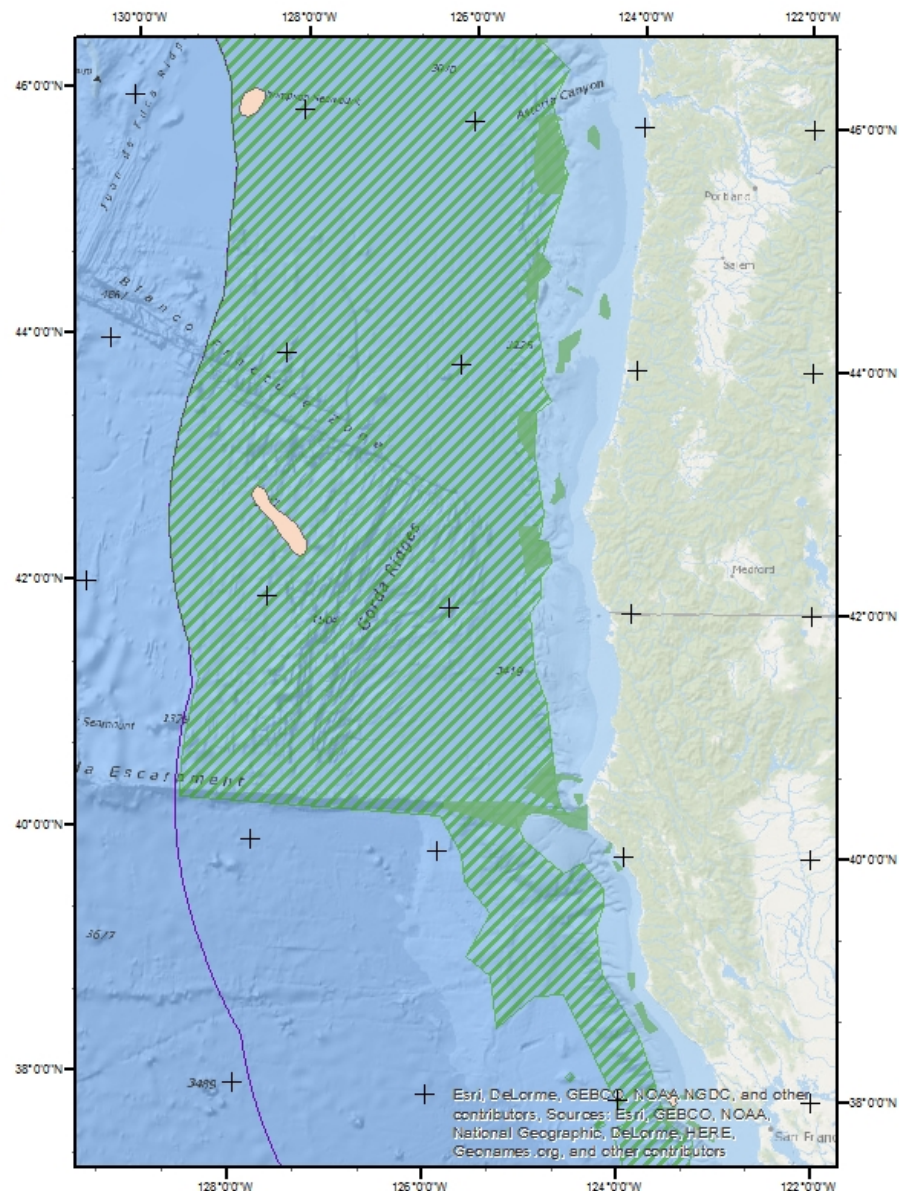
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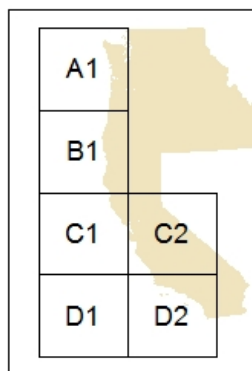
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Date Saved: Aug 6, 2015 11:07

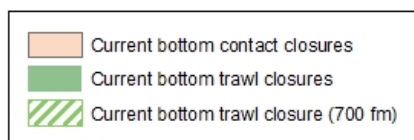


# Groundfish EFH Closure Alternatives

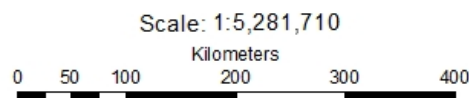


## Map Panel: C1

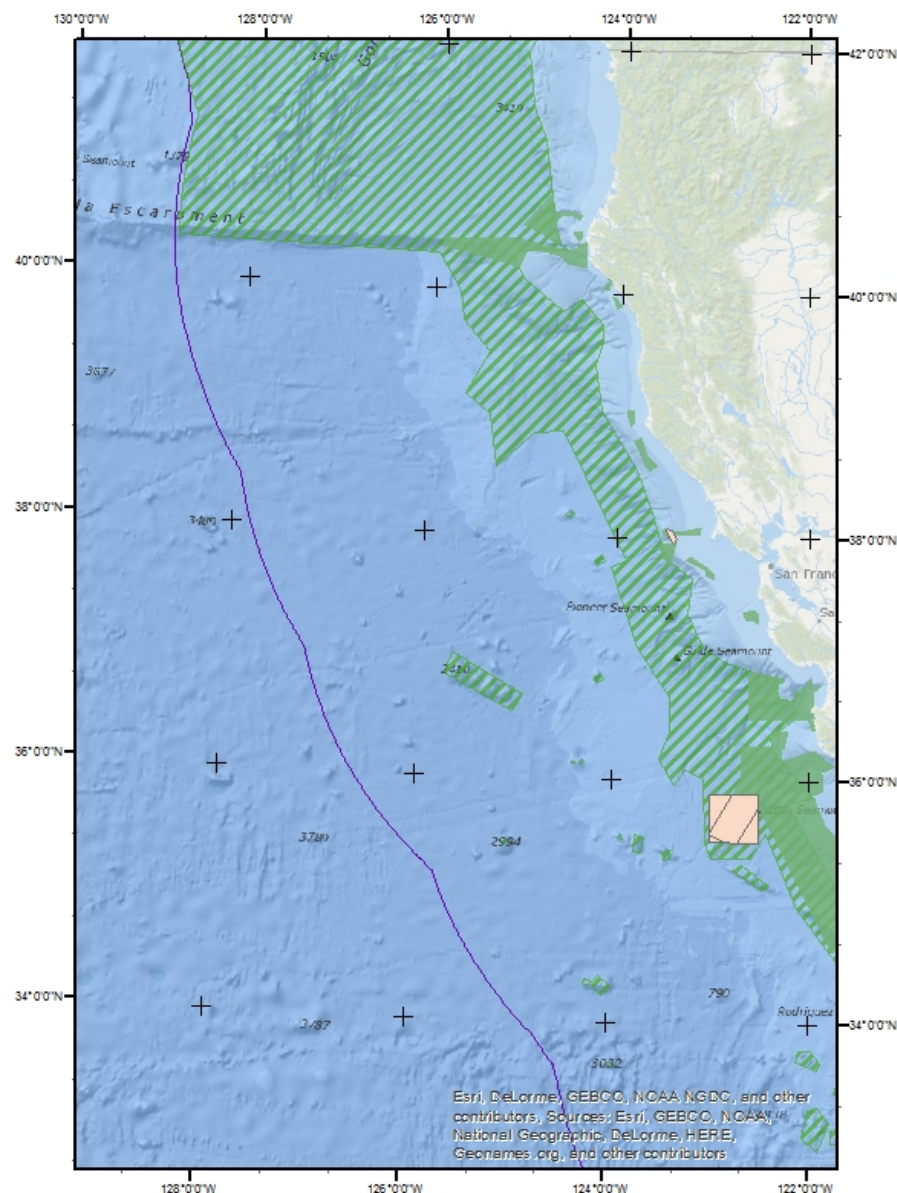
Page 3 of 6



This map series displays the existing EFH conservation area closures by general gear restriction. The calculated area closed to trawl is 67,356,407 ha or 260,065 mi<sup>2</sup>. The calculated area closed to bottom contact is 432,547 ha or 1,670 mi<sup>2</sup>.



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# Groundfish EFH Closure Alternatives

A1	
B1	
C1	C2
D1	D2



## Map Panel: C2

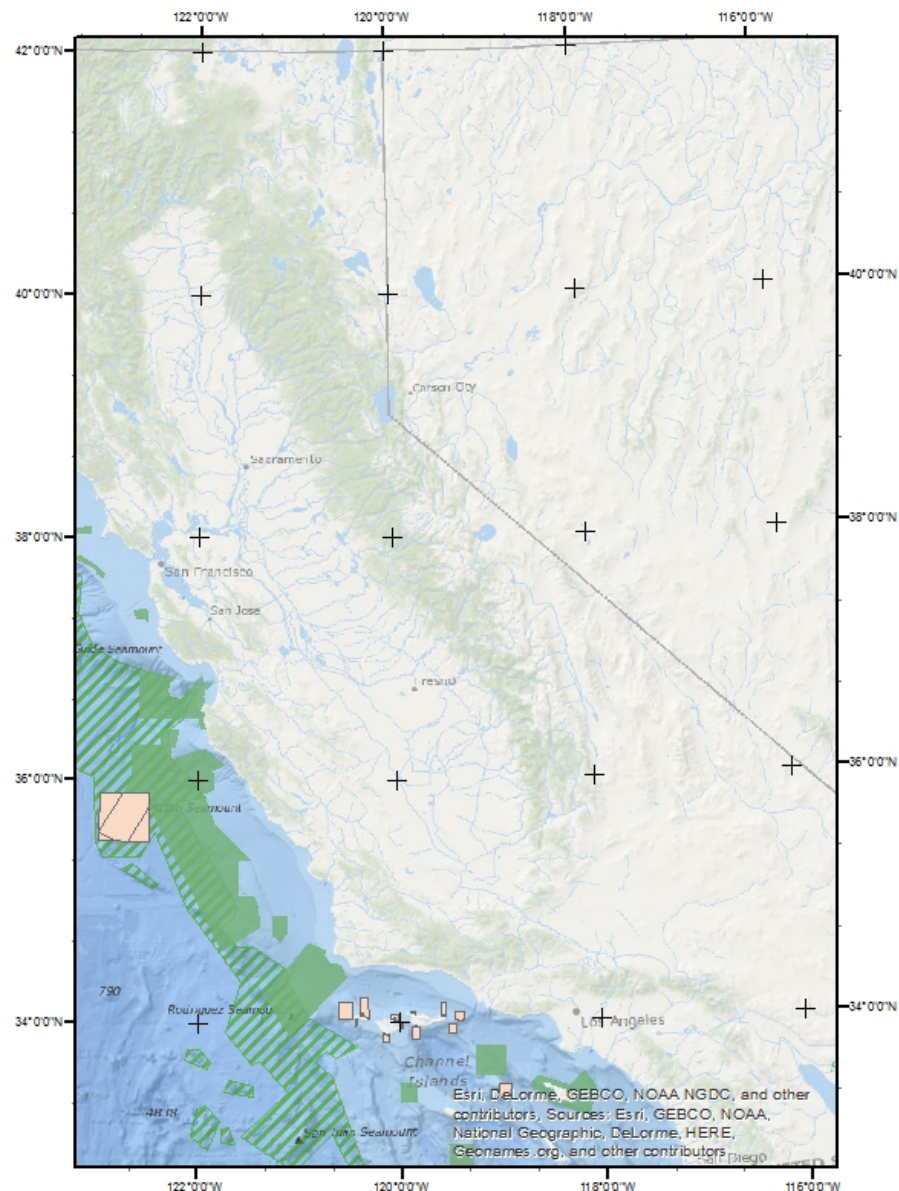
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	Current bottom contact closures
	Current bottom trawl closures
	Current bottom trawl closure (700 fm)

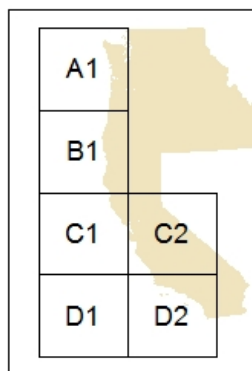
This map series displays the existing EFH conservation area closures by general gear restriction. The calculated area closed to trawl is 67,356,407 ha or 260,065 mi<sup>2</sup>. The calculated area closed to bottom contact is 432,547 ha or 1,670 mi<sup>2</sup>.



Author: Kit Dahl (PFMC)  
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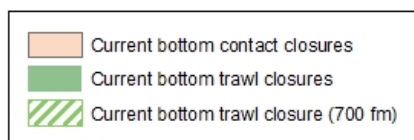


# Groundfish EFH Closure Alternatives

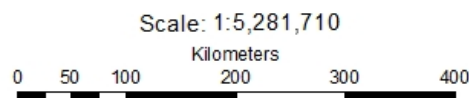


## Map Panel: D1

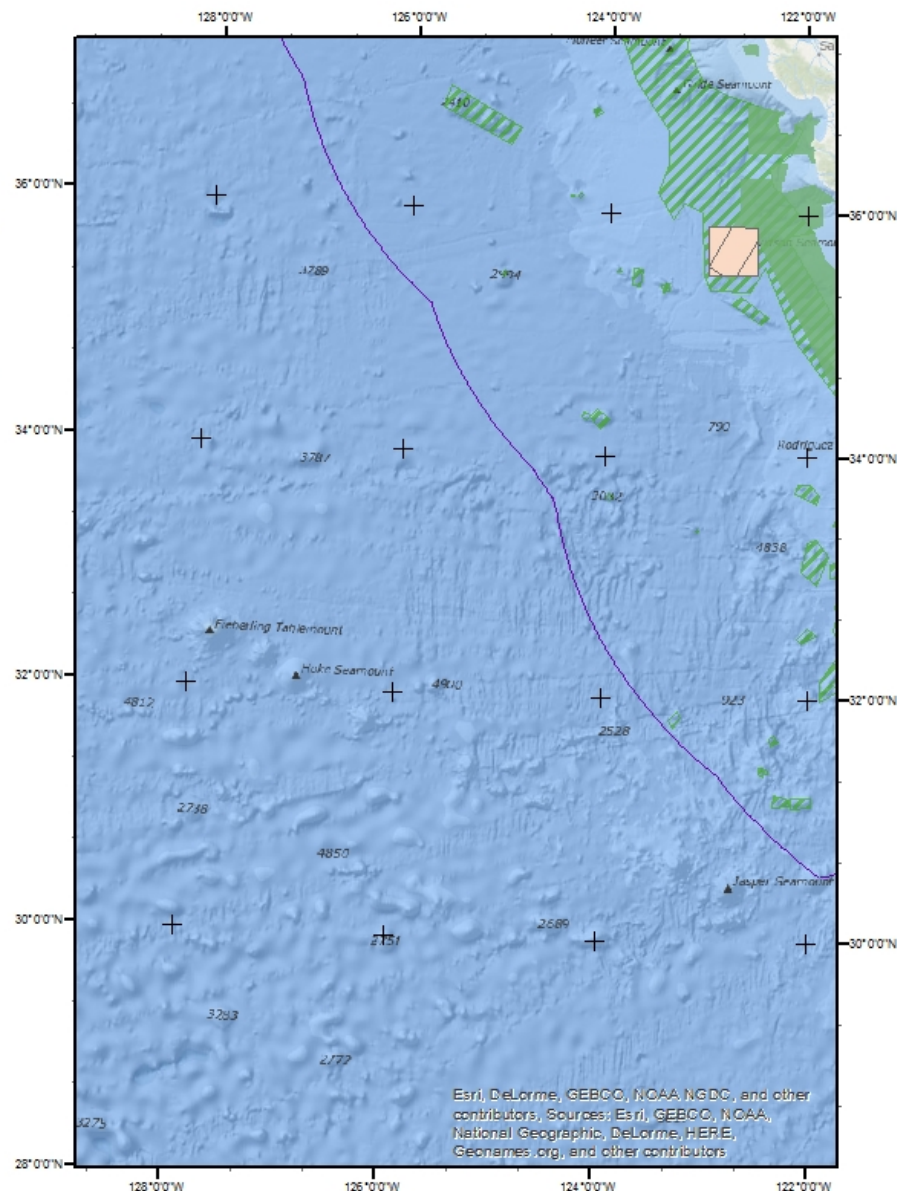
Page 5 of 6



This map series displays the existing EFH conservation area closures by general gear restriction. The calculated area closed to trawl is 67,356,407 ha or 260,065 mi<sup>2</sup>. The calculated area closed to bottom contact is 432,547 ha or 1,670 mi<sup>2</sup>.



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Date Saved: Aug 6, 2015 11:07



# Groundfish EFH Closure Alternatives

A1	
B1	
C1	C2
D1	D2



## Map Panel: D2

Page 6 of 6

	Current bottom contact closures
	Current bottom trawl closures
	Current bottom trawl closure (700 fm)

This map series displays the existing EFH conservation area closures by general gear restriction. The calculated area closed to trawl is 67,356,407 ha or 260,065 mi<sup>2</sup>. The calculated area closed to bottom contact is 432,547 ha or 1,670 mi<sup>2</sup>.



Author: Kit Dahl (PFMC)  
Date Saved: Aug 6, 2015 11:07

