Chapter 11 Public Comment

11.1 Introduction

The NEPA regulations at 50 CFR 1503.1 require the action agency, in this case NMFS, to solicit public comment on a Draft EIS prior to preparing a Final EIS. NMFS should obtain comments from Federal, State and local agencies, Indian tribes and those persons or organizations who may be interested or affected.

The public comment period for Draft EIS was from February 11, 2005 (70 FR 7256) through May 11, 2005. In addition to announcements in the Federal Register, comments were solicited via e-mail.

NMFS received an overwhelming response to solicitations for public comment. Over 39,500 comment letters were received during the 90-day public comment period. NMFS received comments from Federal and State agencies, local governments, industry leaders and participants, public and environmental interest groups, Indian Tribes, and local citizens.

The format of comments varied greatly, and included e-mails, letters, and postcards. All comment letters are reproduced in Section 11.3.

11.2 Process for Responding to Public Comments

11.2.1 Introduction

Due to the volume of comments received, NMFS formulated a method, described below, to adequately consider the comments, and efficiently and effectively respond. The remainder of this section describes that method and is intended to guide the reader in understanding how each comment was specifically addressed.

11.2.2 Response Process

NMFS staff read, and separated out specific comments from within each letter by subject matter. The comments are included in this FEIS in Section 11.3. These specific comments were entered into a table (Section 11.2.4) with a reference to the page of the source comment letter they were extracted from. This table allowed subject matter experts to organize and respond to comments in an efficient manner to allow adequate time for agency consideration and comments.

The agency's response to the comments is in the following table. In some cases sections in the EIS has been revised. In other cases, commenters are referred to existing text. For each of these cases, specific chapters or sections are cited in our response table in Section 11.2.4.

11.2.3 How to Use the Response to Comments Table

The Response to Comments Table (Section 11.2.4) lists all the comments received on the Draft EIS. The first column lists a reference number for the comment. The second column of the table, "Comment" restates the specific comment from the letter. In some cases the comment is listed word for word, in others it is restated for brevity. The page of the comment letter that the comment was

taken from is listed in the third column. The fourth column references the original letter the comment was taken from. To save space, comment letters were assigned an index number. The key to this index can be found at the beginning of Section 11.3. The "Response" column gives a general response to the comment, telling what action we took for the Final EIS. Support for this response is given in the "Rationale for response" column. Where appropriate, the rationale is abbreviated and we refer the reader to sections of the text where additional information can be found. These sections are listed in the last column where applicable

11.2.4 Response to Comment Table

All of the comments received regarding the Pacific Coast Groundfish Essential Fish Habitat (EFH) Draft EIS are listed in the following table, along with NMFS responses. In many cases, the rationale for the response is abbreviated and defers to sections of the text where additional information can be found. These sections are listed where applicable.

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
1	Why would anyone assume areas not fished between 2000 and 2002 are "potentially pristine" given the long history of fishing on our coast?	11	S-12	Supplement, Improve or Modify Analyses	NMFS agrees that fishing may have occurred prior to 2000 that would have impacted the areas defined in alternative C.4. The final preferred alternative was modified to close areas to trawl fishing seaward of the 700 fathom contour rather than the line described in the DEIS because of this concern. That notwithstanding, NMFS acknowledges fishing impacts may have occurred seaward on the 700 fathom contour and that the final preferred alternative represents an informed estimate of pristine habitat that is subject to uncertainty. See applicable section(s).	2.5, Alternative C.4, 2.7
2	The 2000-2002 base period used in alternatives C.3 and C.4 should be expanded to the past 10 or 20 years.	8	S-13	Supplement, Improve or Modify Analyses	NMFS agrees this timeframe is problematic; however, the years were chosen to reflect industry concern expressed during public scoping that fishing effort has changed significantly as a result implementing Rockfish Conservation Areas and that the best estimate of industry practices be derived from the 2000-2002 time period. Where appropriate however, the socioeconomic analysis was developed from more comprehensive data. See applicable section(s).	4.4.4, 4.7.5
3	The use of the 100 hours rule and the limited time period (i.e., 2000-2002) is not reasonable. We strongly suggest that the period be expanded to include at least the past ten - if not the past twenty - years of trawling.	general	S-13	No change to FEIS	NMFS believes that 2000-2002 is an appropriate period. This period encompasses years where regulations designed to protect overfished species were put in place, and these rebuilding efforts will continue for several years to come. NMFS believes that fishery patterns during this period are more reflective of what will occur in the future.	N/A
4	The one hundred hour rule may be sufficient, but we would request that the NMFS and PFMC take into consideration the trawl fleet reply for this central coast area on this matter. There is a limited fleet here and the time periods (hours and years) used may not be applicable to our small fleet.	general	S-13	No change to FEIS	NMFS has used multiple metrics (both qualitative and quantitative) for determining impacts to the bottom trawl fleet. While NMFS believes that hours are a good metric to assist decision-makers, additional information is available - such as revenues at risk and trawl track information - to assist in the decision making process.	N/A
5	The base years used in minimizing alternatives are questionable due to the fact that these years were being significantly impacted already.	general	S-27	No change to FEIS	NMFS agrees this timeframe is problematic; however, the years were chosen to reflect industry concern expressed during public scoping that fishing effort has changed significantly as a result implementing Rockfish Conservation Areas and that the best estimate of industry practices be derived from the 2000-2002 time period. Where appropriate however, the socioeconomic analysis was developed from more comprehensive data. See applicable sections.	4.4.4, 4.7.5

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
6	Base years of 2000-2002 are questionable measures of fishing.	general	S-27	Supplement, Improve or Modify Analyses	NMFS agrees this timeframe is problematic; however, the years were chosen to reflect industry concern expressed during public scoping that fishing effort has changed significantly as a result implementing Rockfish Conservation Areas and that the best estimate of industry practices be derived from the 2000-2002 time period. Where appropriate however, the socioeconomic analysis was developed from more comprehensive data. See applicable section(s).	4.4.4, 4.7.5
7	Please provide additional information on potential approaches for determining significance of habitat impacts (under alternative C.8)	general	S-01, S-04	No change to FEIS	Additional information on how adverse impacts would be determined under alternative C.8 is not available. The alternative is structured so that adverse impacts would be determined in the future with the best information available at that time which may be an improved version of what is available now for the FEIS if more research becomes available. NMFS notes that alternative C.8 is not a component of the final preferred alternative. Complete discussions of the basis for selecting and evaluating the alternatives were included in the DEIS at the appropriate sections (see next column).	2.5.1, 4.1.1, Appendix A
8	The Final EIS must describe the criteria used to identify preferred alternatives and must explain how the final preferred alternatives meet the criteria, as well as why rejected alternatives are rejected.	4	S-03	Supplement, Improve or Modify Analyses	Section 4.1 in the FEIS describes the criteria used to evaluate the alternatives. These criteria are applied in the rest of Chapter 4. CEQ regulations at 40 CFR 1502.14 require agencies to "objectively evaluate" alternatives and "evaluate their comparative merits." Regulations at 40 CFR 1502.16 require agencies to discuss "any adverse impacts which cannot be avoided." The choice of a preferred alternative and the rejection of other reasonable alternatives may be based on criteria, such as practicability, in addition to the environmental consequences. These considerations form the basis of the evaluation, but there is no statutory requirement to explain the rationale for identifying the preferred alternative beyond the evaluation of the environmental consequences of the alternatives and their consistency with the purpose and need for the proposed action. Please see applicable section(s).	2.7, 4.1
9	"The Range and Quality of Alternatives Considered is Inadequate… the Fisheries Service may not consider or adopt any alternate proposals not included within the range of alternatives presented within the DEIS absent full NEPA review."	3	S-05	No change to FEIS	NMFS disagrees that the range of alternatives is inadequate and notes that the final preferred alternative is within the scope of the alternatives analyzed in the DEIS as discussed.	N/A

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
10	Alternative A.1 revised to include more than simply a description of status quo EFH ID. Describe fully why this alternative was chosen and fully compare and contrast with HSP model-based alternatives and depths >3400m.	7	S-05	No change to FEIS	Alternative A.1 was included because analysis of the status quo is a required component of an EIS. NMFS disagrees that additional description is necessary as the language is specifically excerpted from the FMP where the status quo is established. The requested comparisons to other alternatives, including HSP and depth > 3400m is contained in Chapter 4 of the EIS. In addition, peer review comments on the status quo are contained in the appendices. Please see applicable section(s).	4.2, Figure 4 1, Appendix D
11	the description of Alternative A.2 should include a more explicit description of how this alternative provides better assurance that groundfish EFH is properly identified and also clearly convey that the extra 100 meter depth helps buffer the uncertainties surrounding the HSP modeling effort and major prey species habitat requirements.	7	S-05	Supplement, Improve or Modify Analyses	The FEIS has been updated to include additional information has been added to the description of Alternative A.2. Please see applicable section(s).	2.3.1, 2.7
12	"Therefore, the description of the development of the alternatives should be revised to clearly state the definition of adverse impacts and that the tools necessary to identify and minimize the adverse effects of fishing gears on EFH are contained within the EIS…" (page 10, paragraph 5)	10	S-05	No change to FEIS	NMFS disagrees with the need to revise the description of the development of the alternatives. The DEIS describes adverse impacts and the tools available for minimization of such impacts. NMFS notes that the best available science is insufficient to provide a spatially explicit analysis of where adverse impacts occur throughout the EEZ. To overcome this data gap, all the best available information was presented in the DEIS that NMFS used as the basis for the alternatives. The alternatives are based on the information that shows that there is the potential for adverse effects that are mo re than minimal and not temporary. Because of the possibility of adverse impacts, NMFS is acting in a precautionary manner to protect EFH from adverse impacts from fishing.	N/A
13	It is not clear how the D Alternatives will further the objectives of EFH.	general	S-27	No change to FEIS	The DEIS includes an extensive discussion of how these measures would further the objective of identifying, describing, and mitigating impacts to EFH. In particular, the discussion under the description of the Alternative D.1 (No Action) describes current data gaps, some of which could be filled by the measures proposed under the action alternatives. Please see applicable section(s).	2.6
14	All alternatives to minimize impacts to EFH are problematic because it is not clear how they will mitigate fishing effects.	general	S-27	Supplement, Improve or Modify Analyses	NMFS agrees that the performance of the alternative is not explicitly predictable; however, a full discussion of the environmental consequences of the alternatives is provided in the EIS. To account for the concern, a research and monitoring regime is included in the final preferred alternative. See applicable sections.	2.7, 4.7.6

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15	"We support the need for comprehensive mapping of surf grass habitats in regions where beach replenishment programs are being initiated by coastal city governments."	3	S-04	Supplement, Improve or Modify Analyses	NMFS acknowledges the support expressed for additional research. A detailed research plan is outside the scope of this analysis; however, the FEIS has been updated with a preferred alternative that includes a conceptual research plan. See applicable sections.	2.7
16	Allow NGO's to continue working with the trawl fishermen and accept and support any alternatives submitted through these efforts	1	G-06	Supplement, Improve or Modify Analyses	During development of the final preferred alternative, the Council accommodated this request through collaboration with both NGO's and commercial fishermen. The FEIS has been updated to include the final preferred alternative that reflects this collaboration. See applicable section(s).	2.7
17	Work with the fishing industry on alternatives to protect EFH that will increase access to abundant and sustainable fishery resources in our area.	2	G-18	Supplement, Improve or Modify Analyses	During development of the final preferred alternative, the Council collaborated with both NGO's and commercial fishermen. Please see the preferred alternative.	2.7
18	Coordinate with current and future federal and state MPA design to provide a framework for adaptive management [in the California Bight].	2	S-04	No change to FEIS	NMFS agrees that MPA design should be coordinated throughout state and federal waters. To that end, the Council includes representatives from the federal government and each coastal state and relies on the Council process as a key coordinating body as described in the EIS. See applicable section.	1.6
19	We strongly support the collaborative efforts of NGOs and commercial fishermen efforts to agree on designating no-trawl zones in the central California coast study area. We ask that any alternative submitted by this group be included as a preferred alternative in the EIS.	2	S-13	Supplement, Improve or Modify Analyses	During development of the final preferred alternative, the Council accommodated this request through collaboration with both NGO's and commercial fishermen. The FEIS has been updated to include the final preferred alternative that reflects this collaboration. See applicable section(s).	2.7
20	Adopt measures to protect critical and sensitive habitats.	1	G-12	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative that would protect a significant portion of sensitive habitat. See applicable section.	2.7
21	Protect a representative sample of habitats and sensitive habitats.	1	G-15	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative that would protect a representative sample of habitat. The analysis is included in the document. See applicable section.	2.7, Ch. 4 Habitat Tables
22	Protect sensitive and unique habitat types.	1	G-21	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative that would protect sensitive and unique habitat. The analysis is included in the document. See applicable section.	2.7, Ch. 4 Habitat Tables

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23	A primary concern of the Council must be to assure a viable future for the industry while advising and assisting fishermen to develop practices that promote sustainable fishing.	general	G-12	Supplement, Improve or Modify Analyses	The MSA requires NMFS to manage fisheries sustainably. The FEIS has been updated to include a final preferred alternative intended to contribute to establishment of sustainable fisheries. See applicable section.	2.7
24	We believe that an ecosystem-based management plan that truly protects the long-term health of the marine environment offers the only promise for the future of fishing here on the West Coast, both as an important local industry, and as an essential economic resource for the country as a whole.	1	G-12, G-15, G-21	Supplement, Improve or Modify Analyses	NMFS notes that the groundfish FMP is designed to accomplish the suggested goals within the limits of NMFS' authority. The Magnuson-Stevens Act does not explicitly authorize ecosystem management; however, NMFS believes the final preferred alternative has potential ecosystem level benefits. The FEIS has been updated to include the final preferred alternative and potential ecosystem benefits. See applicable sections.	2.7, 4.4
25	Clarify in the EIS that ONLY NMFS (not the Council) can provide EFH recommendations to state and federal agencies.	general	S-01	No change to FEIS	NMFS disagrees. The Magnuson Act, at sec. 305 (b)(3)(a) and (b), states Each Council shall comment on and make recommendations to the Secretary and any Federal or State agency concerning any activity authorized, funded or undertaken, or proposed to be authorized, funded or undertaken, by any Federal or State agency that, in the view of the Council, may affect habitat, including EFH, of a fishery resource under its authority.	1.5
26	Discuss how EFH recommendations from NMFS will impact the Council and its processes	general	S-01	Supplement, Improve or Modify Analyses	The FEIS has been updated to discuss EFH recommendations and the Council process. See applicable section.	1.5
27	PFMC should develop an ecologically based management plan that considers the entire ecosystem, including humans, and protects the long-term health of the marine environment.	6	S-14	No change to FEIS	NMFS notes that the groundfish FMP is designed to accomplish the suggested goals within the limits of NMFS' authority.	N/A
28	Fishermen feel that the Council is operating in fear of environmental group lawsuits and are willing to sacrifice coastal communities, all over a question of NEPA procedure…	general	S-16	Supplement, Improve or Modify Analyses	The FEIS has been updated with a final preferred alternative that is not expected to have significant impacts on coastal communities.	2.7

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29	"We recommend an alternative reconfiguring the CINMS reserves taking into account the cumulative harvest control and fleet reduction in our region.... This would be followed by adjusting the Existing Cow Cod Closure to open area for slope fisheries and creating a more scientifically based MPA network spatially designed by habitats that are high quality diversity areas."	2	S-04	No change to FEIS	NMFS disagrees an additional alternative is necessary and notes that the DEIS contained a reasonable range of alternatives to support decisionmaking.	N/A
30	Expand analysis of relative efficacy of alternatives. Need more than vague suggestion that the EIS might be incorporated into a decision that results in "on the water" EFH protections.	2	S-05	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative that, if enacted, will result in the actions described. The description of the final preferred alternative details exactly what types of "on the water" protections would be implemented. See applicable sections.	2.7
31	Environmental impacts and cumulative effects analyses are not adequately analyzed, especially with regard to a cumulative analysis of all past fishing activities within EFH. Must predict potential consequences of actions - may not shirk responsibility due to limitations in available data.	5	S-05	No change to FEIS	NMFS disagrees additional analysis is required. The analysis of adverse effects was narrowed during scoping to focus on benthic habitats and to focus decisionmaking on those areas most likely to be at risk of impact. A complete literature review of groundfish prey species was performed however and is available in Chapter 3 and the Life Histories Appendix (see next column for appropriate section). NMFS believes that the range of alternatives is sufficient to minimize potential adverse effects, and that future proposals for protection of groundfish prey may be considered during periodic EFH reviews. Please see applicable section(s).	3.6, 3.7, 4.7.5, Appendix A
32	Alternative C.1 should include the fact that RCA is in place as a bycatch reduction management tool and changes in size and shape frequently	11	S-05	Acknowledge	The EIS includes this information. Please see applicable section(s).	1.6.4, 3.6, 4.4.1
33	Need to provide analysis of past, present and reasonable foreseeable future actions on EFH and discuss ecological risks of cumulative impacts of these actions	5, 11	S-05, S-13	No change to FEIS	NMFS asserts that the cumulative effects analysis utilizes the best available information and is fully adequate to support decisionmaking. The Risk Assessment and Environmental Consequences Chapter include a full description of all activities that are relevant to assessing past, present, and future impacts to EFH; including, non-fishing impacts, fishing impacts, and historical and current management measures. In cases where the effects could not be quantified, a visual and qualitative analysis was performed within the limits of the best available information. See applicable section(s).	Sections 3.6, 3.7, 4.7.5, of the EIS; Section 2.4 of Appendix A and Appendix 10 of Appendix A

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
34	Address how habitat management would fit into current [area-based, e.g. RCA's] management framework [Supplement with map(s) and overlays in the Final EIS].	11	S-13	Supplement, Improve or Modify Analyses	The current management framework is fully described in the FEIS. Modification of the harvest specifications and management measures that may be necessary as a result of this EFH process will be considered during the development of harvest specifications and management measures. See applicable section(s).	Ch. 1
35	More discussion concerning cumulative effects is necessary.	general	S-15	Supplement, Improve or Modify Analyses	The FEIS has been updated to better describe cumulative effects of the socioeconomic and cultural impact to communities is included in the FEIS as well as effects related to habitat and the marine ecosystem. Unfortunately, data limitations restrict these discussions. See applicable sections.	3, 4.3, 4.4, 4.7, 4.8
36	"The EFH DEIS provides no justification that the two main limitations described in the Risk Assessment are valid nor does it provide a rationale for using relative indices rather than best estimates from the literature".	12	S-02.3	Supplement, Improve or Modify Analyses	NMFS disagrees that the data limitations described in the Risk Assessment are not justified. A full description of available information and data gaps is provided based on comprehensive literature search and data consolidation. However, the FEIS has been updated with additional information resulting from peer review conducted during the public comment period. See applicable sections.	Appendix A, Appendix D.
37	Council decisions will be uninformed as to the trade-offs between habitat protection and impacts of restricting fisheries due to data limitations	1	S-07	No change to FEIS	NMFS disagrees decisions are or will be uninformed. While data limitations are an important consideration, the Council and NMFS use the best available information, as described in Appendix A and other applicable sections to make fully informed decisions. See applicable sections.	App. A, Ch. 3
38	More research and monitoring is needed to understand connections between habitat and fishery resource productivity. Gaps and uncertainty in data etc.	general	S-07, S-12	Acknowledge	Section 5.3 of Appendix A is a detailed data gaps analysis that brings the EIS into compliance with the CEQ requirement at 1502.22. NMFS agrees that more research and monitoring is needed, and incorporated the Research and Monitoring alternatives. See applicable section(s).	2.6, 2.7
39	The best information on fisheries other than bottom trawl cannot provide the Council or the public with the necessary understanding of the need for protection, nor the distribution of likely impacts to non-trawl fishing (an estimate of practicability). Lack of spatial data on habitat impact of various gear types (excluding trawl).	general	S-07, S-12, S-20, S-24 G-07	Supplement, Improve or Modify Analyses	NMFS agrees there are important data gaps on specific gear impacts to habitat. A complete discussion of the best available information is included in the DEIS that includes a information on how it was applied in the analysis. See applicable sections.	Section 3.7 of the EIS, Section 2.4 of Appendix A and Appendix 10 of Appendix A

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40	The data sets used were gathered from trawl but applied in some alternatives to fixed gear.	general	S-08	No change to FEIS	The lack of data regarding the use of non-trawl gear made expansion of the use of trawl impact data necessary. A complete analysis of fishing effort, including data gaps is included in the DEIS. See applicable sections.	Section 3.7 of the EIS, Section 2.4 of Appendix A and Appendix 10 of Appendix A
41	Lack of data to determine the functional relationship between habitat condition and fish population or community response.	3	S-12	Acknowledge	NMFS has used available quantitative and qualitative information to describe fishery impacts to EFH and habitat condition impacts to fish assemblages on the West Coast. Efforts are underway to expand our knowledge of these relationships. Please see applicable section(s).	2.9, Appendix A
42	Lack of data to provide strong empirical evidence/justification for the large areas affected by alternatives C.12-C.14	10	S-12	No change to FEIS	NMFS disagrees. A complete justification for inclusion of alternative C.12-C.14 was included in the DEIS. See applicable sections.	2.5.1
43	The Panel developed and ranked a series of general research needs that included our own judgments as well as specific alternatives from the DEIS: 1) Ground-truthing habitat suitability probability 2) Habitat recovery monitoring 3) Research reserves [Alt D.4] 4) Expanded logbook to include data from other fisheries [Alt D.2] 5) Gear impact experiments 6) Vessel Monitoring System effort distribution analysis [D.3] 7) Alternative sampling methodologies Recommendations 5, 6, and 7 received equivalent mean ranks from Panel members. Note that all of these research needs are important, but restricted funding will likely require some prioritization.	13	S-12	Acknowledge	Efforts are underway to expand our knowledge through additional research regarding groundfish EFH. The FEIS has been updated with a final preferred alternative that incorporates HSP but with a precautionary adjustment to address these concerns based on known species distribution. The final preferred alternative encourages research on the affects of area closures. The FEIS has also been updated with a conceptual research plan to address these issues. Please see the preferred alternative and applicable section(s).	2.6, 2.7

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
44	Given that there already have been major reductions in trawl impacts and that we lack objective data to base decisions on it would be prudent to take an incremental approach to develop meaningful regulatory measures.	1	S-27	No change to FEIS	NMFS has used available quantitative and qualitative information to describe fishery impacts to EFH and habitat condition impacts to fish assemblages on the West Coast. Efforts are underway to expand our knowledge of these relationships. Please see applicable section(s).	Appendix A
45	Minimization alternatives impact all bottom gear, not just trawl. There is no data to evaluate these effects.	general	S-27	No change to FEIS	NMFS disagrees there is not data to evaluate the effects of the alternatives that include multiple gear types. The EIS utilizes the best available information to make informed conclusions on the predicted effects of the alternatives. Information sources are described in the EIS. See applicable section(s).	Ch. 4
46	"..observer data can and should be used to both evaluate the impacts of fishing on EFH and develop mitigation measures in the EFH EIS."	10	S-02.3	No change to FEIS	NMFS disagrees that observer data is necessary for the EIS which already incorporates the best available information. The utility of observer data will however, be evaluated for incorporation into the 5-year review cycle for groundfish EFH.	N/A
47	"The EIS should utilize information in the Bycatch EIS and groundfish observer data to identify direct removal of prey species by fishing and incorporate discussion of adverse impacts to prey species and their habitats into the description and environmental consequences of alternatives to minimize adverse impacts of fishing on EFH."	12	S-05	No change to FEIS	NMFS disagrees that additional information is necessary for the EIS which currently incorporates the best available information. The utility of observer data will however, be evaluated for incorporation into the 5-year review cycle for groundfish EFH. NMFS further disagrees additional analysis is required. The analysis of adverse effects was narrowed during scoping to focus on benthic habitats due to limitations in time and budget and to focus decisionmaking on those areas most likely to be at risk of impact. A complete literature review of groundfish prey species was performed however and is available to the decisionmaker in Chapter 3 and the Life Histories Appendix (see next column for appropriate section). NMFS believes that the range of alternatives is sufficient and that future proposals for protection of groundfish prey may be considered during periodic EFH reviews.	N/A
48	Dingle-bar gear should not be prohibited because it is highly selective, has high landing prices and minimal bottom impact.	general	S-21	Modified Alternative	A prohibition of dingle bar gear was not included in the final preferred alternative.	2.7
49	It is difficult to quantify the socioeconomic impacts of the proposed action on ports and harbors, especially cumulative effects.	2	G-06	No change to FEIS	NMFS has used available quantitative and qualitative information to describe impacts to communities, however available data limits the ability to analyze impacts to communities and efforts are underway to expand our knowledge of fishing-dependent communities.	4.7
50	Do not eliminate the fisheries for nearshore live fish and spot prawns.	1	G-13	Supplement, Improve or Modify Analyses	NMFS notes the FEIS has been updated with a final preferred alternative that avoids impracticable negative socioeconomic consequences. See applicable sections.	2.7, 4.7.6, Appendix J

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51	Consider economic impact to coastal communities.	1	G-17	No change to FEIS	NMFS has used available quantitative and qualitative information to describe impacts to communities, however available data limits the ability to analyze impacts to communities.	4
52	Fisheries Economic Assessment Model: The EIS needs to provide additional information.	general	S-01	Supplement, Improve or Modify Analyses	NMFS agrees that additional information describing the Fisheries Economic Assessment Model is useful. Additional description has been added to the FEIS. Please see applicable section(s).	Socioeconomic Appendix
53	Any viable economic analysis of minimization measures should include not only the short-term costs of management measures, but also the long-term costs of habitat damage as well as the long-term benefits of habitat protection	general	S-05	No change to FEIS	The FEIS has been updated to better describe potential long-term costs and benefits related to habitat. See applicable section.	4.7
54	The economic impact analysis in Chapter 4 must be revised to include the expected future economic gains by groundfish trawl vessels due to the buyback program.	general	S-05	Supplement, Improve or Modify Analyses	NMFS agrees. Additional information has been added to chapters 3 and 4 to account for impacts of the buyback.	4.7
55	A significant shortcoming of the analysis to date is the limited amount of economic impact analysis for most of the alternatives under consideration. There is essentially no data on alternatives related to non-trawl fishery economic impacts.	general	S-07	No change to FEIS	NMFS agrees and is concerned with the lack of data on non-trawl fisheries. For instances where there is not data available, the EIS includes a qualitative discussion of economic impacts.	4.7, 4.8
56	The absence of spatial data on fisheries other than bottom-trawl puts the Council in a very difficult position…	general	S-07	No change to FEIS	NMFS agrees and is concerned with the lack of data on non-trawl fisheries. For instances where there is not data available, the EIS includes a qualitative discussion of economic impacts.	4.7, 4.8
57	Dungeness crab and CA spiny lobster would be affected by the restrictions posed here	general	S-12	Supplement, Improve or Modify Analyses	The EIS has been updated to include a description of the CA spiny lobster and Dungeness crab fishery as part of the environment potentially affected by EFH actions. See applicable sections	3.7

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58	We do not believe that the long term cumulative socioeconomic effects on harbors in the designation of EFH's were fully explored	2	S-13	No change to FEIS	The FEIS has been updated to provide additional information to fully analyze relevant socioeconomic effects on harbors. NMFS agrees that communities may lose revenues from trawling, tourism, and funding for harbor activities. Some negative effects to social and cultural value may result due to loss of certain gear groups or fishing industry in coastal communities (see Section 4.7.3.15). In the long term, communities could potentially gain from the increases in ecotourism. There may be increases in existence value, option value, and enhanced heritage value from the establishment of closed areas. We acknowledge that there is a limited amount of information available to describe cumulative effects to communities. Please see applicable section(s).	4.7.3.15
59	The EIS does not include the relevant information on SC Trawlers Association fisheries on which the Council can make an informed decision that accounts for our fisheries	1	S-15	Supplement, Improve or Modify Analyses	The FEIS has been updated with a final preferred alternative and socioeconomic information to account for the issues raised in this comment. See applicable sections.	2.7, 4.7, 4.8, Appendix J
60	For Southern California Trawlers, a closure of 1-4% might actually represent an additional erasure of 20, 30, 40 or even 50% of our remaining trawl grounds.	general	S-15	Supplement, Improve or Modify Analyses	The FEIS has been updated to better describe potential geographical variation in impacts to fishermen and fishing communities. The FEIS has been updated with a final preferred alternative that, in part, is designed to distribute socioeconomic impacts throughout the coast so that no one group suffers disproportionately. See applicable sections.	2.7, 4.7
61	Under alternative C.12, C.13, C.14 there is only one nearshore area listed for Oregon… but this area is the only area available to recreational and hook and line vessels. Closing this area would be a real blow to Coos Bay and Bandon	general	S-21	Supplement, Improve or Modify Analyses	We acknowledge the possibility of geographical variation in impacts to fishermen and fishing communities. Attempts were made in the FEIS to better describe some of those potential impacts to coastal ports such as Coos Bay and Bandon. NMFS also notes that the FEIS was updated with a final preferred alternative that is designed to provide for recreational fisheries throughout the coast. See applicable sections.	2.7
62	Alternative 6.9 (Option 9.2) would eliminate the pink shrimp fishery. Option 9.5 would curtail the scallop fishery. Option 9.8 would create problems in the troll fishery.	general	S-26	Supplement, Improve or Modify Analyses	The FEIS has been updated with a final preferred alternative are designed to minimize impact to fisheries while protecting essential fish habitat as well as additional analyses of the socioeconomic consequences. The final alternative is not expected to significantly impact the pink shrimp, scallop, or troll fisheries based on analyses of the final preferred alternative in the FEIS. See applicable section.	2.7, 4.7, 4.8, Appendix J

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
63	We ask that both the PFMC and NMFS carefully consider the socioeconomic effects of any further regulations in the Central California region.	2	G-06	No change to FEIS	NMFS has used all available information to describe impacts to communities. With regard to closures, NMFS agrees that communities may lose revenues from trawling, tourism, and funding for harbor activities. Some negative effects to social and cultural value may result due to loss of certain gear groups or fishing industry in coastal communities (see Section 4.7.3.15).The communities could potentially gain from the increases in ecotourism. There may be increases in existence value, option value, and enhanced heritage value from the establishment of closed areas.	Ch. 4
64	In central California the past few years' actions have had a drastic effect on the economics of the fleets. This impacts communities, harbors and marinas. New actions will do the same. Fishing boats will be replaced by yachts, like in southern California.	general	G-06	No change to FEIS	We acknowledge that there is a limited amount of information available to describe cumulative effects to communities. NMFS has used all readily available information and efforts are underway to expand our knowledge of fishing-dependent communities for future analyses. NMFS has used available quantitative and qualitative information to describe impacts to communities, however available data limits the ability to analyze impacts to communities.	N/A
65	Sport fishing has been the lifeblood of many small communities on the Oregon coast and supports local and state economies.	1	G-07	Supplement, Improve or Modify Analyses	NMFS has used available quantitative and qualitative information to describe impacts to communities, however available data limits the ability to analyze impacts to communities and efforts are underway to expand our knowledge of fishing-dependent communities. NMFS acknowledges the importance of recreational fishing to state and local economies. Section 3.7.3 contains information on recreational fishing participation by state. Section 3.7.3.2. contains discussion on the economic impact of recreational fishing. The FEIS has been updated to include a final preferred alternative that is designed to minimize negative socioeconomic effects. See applicable section(s).	2.7, 3.7.3, Ch. 4
66	I feel the state/feds are too biased towards the environmental community and letting the fishing communities die on the vine.	1	G-13	Supplement, Improve or Modify Analyses	The intention of the EFH final preferred alternatives is to protect essential fish habitat while maintaining sustainable fishing. The FEIS has been updated to include a final preferred alternative that contains options developed in concert with the fishing industry and environmental community representatives. See applicable section.	2.7
67	If fishing ends here, we will import fish from unhealthy farms or unregulated fisheries.	general	G-13	Supplement, Improve or Modify Analyses	The FEIS has been updated with a final preferred alternative intended to leave fishing opportunities largely intact. The intention of the EFH final preferred alternatives is not to end fishing but instead to protect essential fish habitat while maintaining sustainable fishing. See applicable section(s).	2.7
68	Local restaurants can't get local fresh fish and buy overseas from environmentally damaging, unregulated fisheries	general	G-18	Supplement, Improve or Modify Analyses	The FEIS has been updated with a final preferred alternative that is designed to minimize impacts to fisheries while protecting essential fish habitat. The alternative is not expected to impact the availability of domestically caught fish to local buyers. See applicable sections.	2.7

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
69	Many of the alternatives in the DEIS would appear to close fishing grounds to the extent that would eliminate consistent landings in Morro Bay and finally put an end to our commercial fishing harbor.	general	G-18	Supplement, Improve or Modify Analyses	As part of practicability, NMFS considers whether regulatory actions will have dramatic impacts to communities. If an alternative "ends a commercial fishing harbor" it could be considered impractical. Additionally, the FEIS has been updated to include a final preferred alternative that is designed to maintain healthy socioeconomic conditions throughout the coast. See applicable section(s).	2.7, 4.8, Appendix J
70	Morro Bay has suffered from reduction in quotas, seasonal restriction and area closures resulting from the local groundfish market collapsing. Just a few traditional shore-side support businesses hang on. (some additional detail provided on infrastructure	general	G-18	Supplement, Improve or Modify Analyses	NMFS acknowledges that past regulatory actions have had negative impacts to fishing communities. However, the final preferred alternatives are intended to maintain sustainable fisheries while protecting essential fish habitat.	3, Cumulative effects
71	Some alternatives do not comply with certain national standards (minimize adverse economic impacts on fishing communities).	1	S-08	Supplement, Improve or Modify Analyses	NMFS notes that the alternatives were developed to provide for a comparison of effects to facilitate decisionmaking. N.S. 8 requires that the importance of fishing resources to fishing communities are taken into account when implementing conservation and management measures. We acknowledge that there is a limited amount of information available to describe effects to communities. NMFS has used all readily available information and efforts are underway to expand our knowledge of fishing-dependent communities for future analyses. The FEIS has been updated to include a final preferred alternative that is intended to comply with national standards and applicable law. See applicable section(s).	2.7, Ch. 4
72	…many [alternatives] have large economic impacts to the down side on fishing sectors and communities	general	S-09	Supplement, Improve or Modify Analyses	NMFS agrees. The final preferred alternative was designed to eliminate the large economic impacts that were evident in several of the draft alternatives. See applicable section.	2.7
73	EIS should detail effects that might occur to coastal communities of EFH designation.	3	S-13	No change to FEIS	EFH designation does not necessarily equate to any regulatory or management action, therefore we cannot predict any impacts to communities as a result of the designation. The socioeconomic consequences of measures to minimize adverse effects to EFH are fully explored in the EIS. See applicable sections.	Ch. 4
74	Several alternatives including Alt. D.3, fail to consider economic impact on fishing communities	1	S-19	No change to FEIS	We acknowledge that there is a limited amount of information available to describe cumulative effects to communities. NMFS has used all readily available information and efforts are underway to expand our knowledge of fishing-dependent communities for future analyses. The economic impacts on commercial and recreational fishermen is difficult to quantify since there exists very little cost and earnings data from either sector. Without information on revenues, we cannot predict what impact VMS costs will have on a vessel's operations or a recreational fishermen's activities.	Ch. 4

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
75	The economic impact that closures would inflict on coastal economies will be devastating. Closured would impact local fishers and tourists enormously.	1	S-24	Supplement, Improve or Modify Analyses	NMFS has used all available information to describe impacts to communities and fishermen from closures. NMFS agrees that communities may lose revenues from trawling, tourism, and funding for harbor activities. Some negative effects to social and cultural value may result due to loss of certain gear groups or fishing industry in coastal communities (see Section 4.7.3.15). The communities could potentially gain from the increases in ecotourism and long-term sustainable increase in harvest due to improved marine conditions. There may be increases in existence value, option value, and enhanced heritage value from the establishment of closed areas. The FEIS has been updated to include a final preferred alternative that is designed to minimize negative socioeconomic effects. See applicable section(s).	2.7, 4.7.3.15
76	Under C.12 the FEIS should consider where displaced fishermen may move and what communities may be impacted.	general	S-11	Supplement, Improve or Modify Analyses	A reliable estimate of effort redistribution is not possible given the best available information. An assessment of NMFS capabilities in this regard, and a generalized assessment of effort redistribution is contained in the EIS. See applicable section(s).	Appendix 12 to Appendix A.
77	We have concerns about the potential redistribution of fishing effort if closures are enacted	3	S-12	No change to FEIS	A reliable estimate of effort redistribution is not possible given the best available information. An assessment of NMFS capabilities in this regard, and a generalized assessment of effort redistribution is contained in the EIS. See applicable section(s).	4.7.3
78	Adoption of any Minimal Impacts to EFH alternatives that include closures should include an assessment of likely effort redistribution	12	S-12	Supplement, Improve or Modify Analyses	A reliable estimate of effort redistribution is not possible given the best available information; however, an assessment of NMFS capabilities in this regard is contained in the EIS. See applicable section(s).	Appendix 12 to Appendix A.
79	Please consider the importance of marine algae and diatoms (aside from kelps) as a source of shelter and food, and an important component of groundfish EFH, especially in Estuaries.	1	G-14	Acknowledge	Groundfish EFH is composed of many trophic levels, including primary producers. Unfortunately, limited time and resources do not allow model levels of detail, such as a complete analysis of every possible component of the marine environment that may be relevant to groundfish. Therefore the analysis was narrowed during public scoping to focus on habitat types most likely to be at risk of adverse impact. Please see applicable section(s).	2.4, 2.7
80	The EIS needs more analyses on the effects of designating Estuaries as HAPC, i.e. for effects on ports, harbors and marinas and their ability to perform basic maintenance such as dredging and repairs.	5	S-13	Supplement, Improve or Modify Analyses	The FEIS has been updated to better describe the effects of designating estuaries as HAPC. The specific concerns raised by the commenter are outside the scope of the FEIS as explained in the document. In general, HAPC designations are not expected to have impacts on basic maintenance of ports, harbors, and marinas.	4.3

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
81	Figure 2-7 omits the longest undeveloped estuary in California: the Big River Estuary. Please include this estuary in Alternative B.2	general	S-18	No change to FEIS	We used the National Wetlands Inventory GIS data, the best available information for mapping estuaries for the West Coast. However, NWI data are unavailable in a digital format for four coastal counties in California, Del Norte, Humboldt, Mendocino, and Sonoma. These type of data gaps occur and are acknowledged for many of the data layers included in the EFH EIS. Fortunately, for purposes of the Fisheries Management Plan, HAPC's are defined through specific characteristics and the maps are used only has a guideline for where they might occur. Therefore, Big River Estuary is included as part of the Estuary HAPC even though it is not depicted on the map.	2.4
82	Better information to support future Council decision-making is needed on the following topics: the spatial distribution of fishing effort, the location of critical habitat, the impacts of fishing activities, and the efficacy of measures to protect EFH adopted by the Council through this EIS. It is essential that NMFS support funding requests for efforts to obtain this information to support the mandated five-year review of EFH provisions.	2	S-07	Supplement, Improve or Modify Analyses	NMFS agrees that additional information through research is important to improve our ability to effectively manage EFH and fisheries. NMFS will seek to obtain such information; however, specific funding initiatives are outside the scope of this analysis. A conceptual research plan has been included in the FEIS. See applicable section(s).	2.9
83	Alternative D.4 should have additions for reserve management, i.e. management by NOAA only, only federal funding, reauthorization of reserves every 5 years, no extractive activities except for research purposes	general	S-09	No change to FEIS	NMFS disagrees. The alternatives presented in the DEIS present a reasonable range of options for the decisionmaker, including alternative C.14 which presents areas where fishing would be completely prohibited. A complete ban on extraction, including non-fishing activities, is outside the scope of this analysis.	N/A
84	Funding for implementation of Alternative C.8.1 should not be taken from that which is dedicated to any other fishing sector, nor cause a lowering of % normally allocated to another sector.	general	S-09	Supplement, Improve or Modify Analyses	The FEIS has been updated to explain that funding or sector allocations for alternative C.8.1, if adopted, would not be expected to differ in any way from the overall funding of related research under other alternatives.	Ch. 4
85	To the extent possible, the cost of VMS units and transmission costs should be paid by the federal government.	5	S-11	No change to FEIS	The specific costs of a VMS program are outside the scope of this analysis and are being considered in a separate rulemaking.	N/A

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
86	Retrospective evaluation of the efficacy of measure to protect EFH adopted by the PFMC at its upcoming June meeting. Support funding for mandated 5 year review.	5	S-12	Supplement, Improve or Modify Analyses	NMFS agrees that additional information through research is important to improve our ability to effectively manage EFH and fisheries. NMFS will seek to obtain such information; however, specific funding initiatives are outside the scope of this analysis. NMFS agrees that a retrospective evaluation of any measure that result from this analysis are important. A conceptual research plan has been included in the FEIS. See applicable section(s).	2.9
87	NMFS should adopt a management plan based on the natural ecosystems. This is an essential foundation for managing fisheries over the long term, so we will have a productive marine fishery in the future.	1	G-08	Acknowledge	NMFS notes that the groundfish FMP is designed to accomplish the suggested goals within the limits of authority.	N/A
88	Protect deep water coral and sponges and other sensitive habitat from destructive fishing gear, by prohibiting the expansion of bottom trawling into known areas of coral and sponge.	1	G-08, G-09, G-19	Supplement, Improve or Modify Analyses	The final preferred Alternative includes a prohibition on bottom trawling in depths greater than 700 fm. This bottom trawl footprint closure is intended to prevent the expansion of bottom trawl fishing into areas not previously fished. This closes a large proportion of the EEZ and will minimize adverse impacts of fishing on deepwater corals and other biogenic habitat occurring in the area. Please see the preferred alternative.	2.7
89	I urge you to close ecologically important areas to destructive gears, such as bottom trawls and create areas where groundfish and their habitat are protected	1	G-16	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative that contains fishery closures of ecologically important areas. See applicable section.	2.7
90	We must take steps to restore our oceans so that our fisheries can thrive in the future.	general	G-16	Supplement, Improve or Modify Analyses	NMFS acknowledges the support for action to ensure thriving fisheries in the future and notes that the FEIS has been updated to include a final preferred alternative designed to provide long-term protection for EFH. See applicable section(s).	2.7
91	NMFS needs to preserve fishing opportunities for future anglers	1	G-17	Supplement, Improve or Modify Analyses	None of the alternatives to mitigate fishing impacts to EFH completely eliminate future opportunities for anglers. While some impact minimization alternatives place restrictions on recreational fisheries, all alternatives are designed to achieve the goal of long term sustainable fisheries and rebuilding stocks. The FEIS has been updated to include a final preferred alternative that minimizes adverse socioeconomic consequences. See applicable section(s).	2.7, Ch. 4
92	Implement EFH designation without unforeseeable implications for low/no impact vertical gear and traps.	2	G-18	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative. The impact to fisheries that utilize vertical gear and traps was considered in the practicability analysis. See applicable section(s).	2.7, Appendix J

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
93	In your plan to minimize the adverse effects of such gear to essential fish habitat, please close ecologically sensitive areas to bottom trawling and other bottom contact gear, establish a process for setting a limit on the bycatch of habitat-forming invertebrates, such as corals and sponges, and create other provisions agreed upon by conservationists and scientists to protect the health of our oceans for future generations.	1	M-01	Supplement, Improve or Modify Analyses	The final preferred alternative would close extensive areas in the West Coast EEZ to specified gear types to minimize fishing impacts on sensitive habitats. The final preferred alternative designates kelp as an HAPC and protects biogenic habitats from adverse effects of bottom trawling. The final preferred Alternative does not contain measures to limit the bycatch of habitat-forming invertebrates. However, a separate action, evaluated in the Bycatch Mitigation Program FEIS published by NMFS in September 2004 makes measures available to the Council to reduce bycatch. Although focusing on overfished species, the measures adopted by the Council by Amendment 18 to the groundfish FMP, pursuant to this FEIS, could be used to limit bycatch of habitat-forming invertebrates.	2.7
94	I support protecting ecologically sensitive areas of the Pacific seafloor such as corals and sponges; and special places such as seamounts, biogenic areas, and deep sea canyons from destructive fishing practices. As you consider the Essential Fish Habitat Draft Environmental Impact Statement, please adopt a management alternative that protects these ecologically sensitive habitats necessary to maintain vibrant fisheries.	1	M-02	Supplement, Improve or Modify Analyses	NMFS agrees. The FEIS has been updated to include a final preferred alternative that is designed to minimize fishing impacts on sensitive habitats.	2.7
95	I support protecting ecologically sensitive areas of the Pacific seafloor such as corals and sponges; and special places such as seamounts, biogenic areas, and deep sea canyons from destructive commercial fishing. As you consider the Essential Fish Habitat Draft Environmental Impact Statement, please adopt Alternative 12, which protects habitat and maintains vibrant fisheries.	1	M-02.1	Supplement, Improve or Modify Analyses	NMFS agrees that ecologically important areas should be protected from adverse impact. The FEIS has been updated to include a final preferred alternative that is designed to minimize fishing impacts on sensitive habitats.	2.7

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
96	I urge you to close ecologically important areas to destructive gears, such as bottom trawls, and to create areas where all groundfish and their habitats are protected. I also support actions that would help fishermen move away from destructive gears to more sustainable fishing.	1	M-03	Supplement, Improve or Modify Analyses	NMFS agrees. The FEIS has been updated to include a final preferred alternative that is designed to minimize fishing impacts on sensitive habitats.	2.7
97	I urge you to protect ecologically important and sensitive ocean habitats, including deep water corals and sponges, from destructive fishing practices in the Pacific Ocean. I urge you to protect these areas from further damage by prohibiting the expansion of bottom trawling and protecting known areas of coral and sponge.	1	M-04	Supplement, Improve or Modify Analyses	NMFS agrees. The FEIS has been updated to include a final preferred alternative that is designed to minimize fishing impacts on sensitive habitats.	2.7
98	"We request that the Northwest region designate a point person to serve as liaison to our organization and the NMFS Southwest region to insure we have the best level of communication possible on developing the EFH analysis for our area over the next year."	3	S-04	Acknowledge	NMFS acknowledges the request and notes that the NWR is pleased to provide support if it is within our means to do so. A detailed communication plan is outside the scope of the final preferred alternative; however, the commenter is encouraged to contact Joe Scordino, Deputy Regional Administrator, NMFS Northwest Region, for further discussions.	N/A
99	The DEIS alternatives cannot be adequately analyzed without the definition of a baseline in habitat protection. Need specified overall goals for which various alternatives were proposed and can be compared.	3, 15, 1	S-04, S-12, G-02	Supplement, Improve or Modify Analyses	The DEIS includes a discussion of the goals of each alternative as well as an analysis of the consequences of the alternatives for comparison among alternatives. The scientific rationale for deriving alternatives in general is provided in addition to specific goals relative to each alternative. NMFS improved these descriptions for the FEIS. See applicable sections.	Ch. 2
100	"The fundamental purpose of the DEIS is the detailed consideration of the environmental effects of implementing all practicable minimization measures. The DEIS fails to accomplish this."	4	S-05	No change to FEIS	NMFS disagrees. The range of alternatives analyzed in the EIS presents a reasonable range of choices for decisionmaking. Chapter 4 in the FEIS provides the environmental consequences of the range of alternatives.	4

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
101	"…the Fisheries Service must examine any and all impacts that reduce the quality or quantity of the habitat itself. These impacts include considerations of benthic organisms, prey species and their habitat, and other ecosystem components."	5	S-05	No change to FEIS	NMFS disagrees additional analysis is required. The analysis of adverse effects was narrowed during scoping to focus on benthic habitats and to focus decisionmaking on those areas most likely to be at risk of impact. A complete literature review of groundfish prey species was performed however and is available in Chapter 3 and the Life Histories Appendix (see next column for appropriate section). NMFS believes that the range of alternatives is sufficient to minimize potential adverse effects, and that future proposals for protection of groundfish prey may be considered during periodic EFH reviews. Please see applicable section(s).	3.2.2, 3.2.3, 3.3.3
102	NMFS must examine any and all impacts that reduce the quality or quantity of the habitat itself. These impacts include considerations of benthic organisms, prey species and their habitat, and other ecosystem components. In other words, the adverse effects inquiry is a broad one, focused on the effects of fishing on habitat and elements of the ecosystem, and not limited to the effects of fishing on fish stocks themselves.	5	S-05	No change to FEIS	NMFS disagrees additional analysis is required. The analysis of adverse effects was narrowed during scoping to focus on benthic habitats due to limitations in time and budget and to focus decisionmaking on those areas most likely to be at risk of impact. A complete literature review of groundfish prey species was performed however and is available to the decisionmaker in Chapter 3 and the Life Histories Appendix (see next column for appropriate section). NMFS believes that the range of alternatives is sufficient and that future proposals for protection of groundfish prey may be considered during periodic EFH reviews.	3.2.2, 3.2.3, 3.3.3
103	The EIS should cite and discuss the NRC report to support choices to include global literature in the description of sensitivity and recovery indices. as well as the Auster and Langton paper and others, by incorporating the discussion in Appendix A	10	S-05	Made Factual Corrections	NMFS agrees. The EIS incorporates an complete analysis of relevant global literature pursuant to recommendations of the NRC. See applicable section.	Appendix A
104	The EIS incorrectly states that Alternatives C.12-C.14 are mutually exclusive and that only one could be contained in a final preferred alternative. The mitigation strategies identified in the different alternatives can be mixed and matched for the specific areas contained in alternatives C.12-14.	11	S-05	Made Factual Corrections	NMFS agrees that alternatives C.12-C.14 are not mutually exclusive. Revisions have been made to the text. Please see revised section(s).	2.5

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105	We believe that the EIS represents a comprehensive compilation of the best information currently available	3	S-07	Acknowledge	NMFS concurs that the EIS utilizes a comprehensive compilation of the best available information.	N/A
106	Failure to identify appropriate response variables to assess the likely success or failure of a proposed action.	3	S-12	Supplement, Improve or Modify Analyses	NMFS acknowledges that development of a response variable is not possible given the best available science. The Council and NMFS will encourage new research on the effects of area closures on habitat recovery and the fishing industry. The FEIS has been updated to include a general research plan for monitoring the response of habitat to any actions that result from this process. Please see applicable section(s).	2.6, 2.7, 2.9
107	Mitigation efforts should be nested within EFH and HAPC designations, w/explicit language linking mitigation issues to attributes of concern	14	S-12	No change to FEIS	The alternatives to minimize adverse fishing effects to EFH are analyzed for their spatial overlap with EFH in Chapter 4. The has been updated to better describe the scientific and policy rationale behind each alternative relative to issues of concern. See applicable section(s).	2.5, Ch. 4
108	The DEIS Alternatives are disjoint, requiring overwhelming appendices of tables and maps. The result is inefficient and difficult to interpret.	14	S-12	No change to FEIS	Analyzing each of the alternatives separately allowed the option to group various alternatives in different combinations without repeating impacts analysis, resulting in a large quantity of information to be synthesized without repeating analysis. NMFS made the utmost attempt to make this complicated analysis user friendly.	N/A
109	Develop framework for action following a hierarchy: Broad EFH designation, ground truthed and may not be species specific; HAPC designation for areas with unique function; THEN impact reduction actions that target critical area within these combined designations	14	S-12	Supplement, Improve or Modify Analyses	The alternatives in the DEIS were developed in a fashion consistent with the comment. The FEIS has been updated with a final preferred alternative that, if implemented through an FMP amendment, would broadly describe EFH, designate specific HAPC, and impact minimization measures intended to target specific areas. See applicable section.	2.7
110	We request that you continue to allow human use of the resources to the greatest extent feasible for the benefit of both fishing and harbors	4	S-13	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative that would not impose significant curtailments of human use of the resource. See applicable section(s).	2.7
111	More analysis is needed on the benefits and costs of regulatory actions with regard to the designation of EFH and HAPC. The designation of HAPCs should be adopted only if the socioeconomic and historic uses of those areas are seriously considered in the FEIS. The cumulative effects of HAPCs were not fully explored in the DEIS.	5	S-13	No change to FEIS	Designation of EFH and HAPC do not directly impact fishing practices. However, designation could potentially result in consultation costs for federal agencies. These consultation costs are difficult to estimate without detailed information about the depth of consultation discussions required. A full analysis, consistent with the best available information, is presented in the applicable sections.	Ch. 4

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112	Alternative C.8 states that "zoning system will be regularly modified to incorporate new information". This statement requires a follow up mitigation measure and policy to ensure it is implemented	9	S-13	No change to FEIS	NMFS agrees that alternative C.8 would require significant follow-up if adopted. Alternative C.8 was not included in the final preferred alternative so no further analysis was provided beyond what is contained in the DEIS.	N/A
113	Modify Alternative C.10 to allow for a NGO and fisherman collaborative pilot project	10	S-13	No change to FEIS	Alternative C.10 does not preclude collaborative pilot projects. No change was made to the analysis.	N/A
114	There is no groundfish fishery in the Santa Barbara Channel Area due to market and infrastructure changes, NOT stock declines. However, many of the alternatives for mitigating impacts to groundfish EFH will affect the small-boat artesianal fisheries for the remaining species we fish for.	1	S-15	Supplement, Improve or Modify Analyses	The final preferred alternative was designed to allow for the continuation of all current fisheries. The FEIS has been updated to include a full description of the socioeconomic consequences of the final preferred alternative. Please see applicable section(s).	2.7, 4.7.6
115	FEIS should include a definition of "precautionary management principals" in Chapter 9	general	S-18	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a description of precautionary management principles.	9
116	Clarify and reword to make clear the fact that there is no commercial abalone fishery and abalone taken as sport cannot use dive gear.	general	S-17	Supplement, Improve or Modify Analyses	NMFS has supplemented the FEIS to address this concern. See applicable section.	3.7.1.4.12, 3.5.10.1
117	Retain the seven composite areas identified in the 1998 EFH designation, but consider other habitat designations based on structure, function and impacts. For example, splitting nearshore rocky shelf habitat (<100m depth) into a separate category is supported because of the importance of these shallow reef areas as juvenile fish habitat and increased impacts of recreational fishing gear.	7	S-12	Supplement, Improve or Modify Analyses	NMFS acknowledges the support for alternative A.1 with suggested modifications. The final EIS has been updated to include a final preferred alternative that would describe EFH based on habitat suitability profiles and includes a precautionary adjustment. The final preferred alternative is based on the best available information and allows for a more refined EFH description than the 7 composite areas described in 1998. See applicable section.	2.7
118	Alternatives C.3.4 and C.13 best meet those goals, and could be modified to reduce socioeconomic impacts.	12	S-12	Supplement, Improve or Modify Analyses	NMFS agrees. The FEIS has been updated to include a final preferred alternative that contains elements of Alternatives C.3.4 and C.13. Please see applicable section(s).	2.7

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119	Encourage less destructive gear types	1	G-08	Supplement, Improve or Modify Analyses	The FEIS has been updated with a final preferred alternative that includes gear restrictions to limit the use of destructive gear. See applicable sections.	2.7
120	Make it easier for fishermen to change to less destructive gear.	2, 1, 1	G-10, G-15, G-21	No change to FEIS	NMFS believes this suggestion has positive attributes, however, under the current management structure and agency resources, this is not practicable.	N/A
121	We hope the Council will be able to assist fishermen to develop and employ fishing gear and techniques that are less destructive than those that have caused so much damage.	1	G-12	Supplement, Improve or Modify Analyses	NMFS acknowledges the comment. Please see the preferred alternative.	2.7
122	Incentives should be offered to encourage use of gear that least damages habitat.	general	S-11	No change to FEIS	NMFS notes that such a program to offer incentives for the use of less destructive gear types is not explicitly part of the final preferred alternative. The commenter is encouraged to bring specific incentive proposals to the Council and NMFS for consideration.	2.7
123	Investment should be made in cooperative research that offers opportunity for fishermen to design and participate in studies to demonstrate the effective use of gear that minimizes damage to sensitive habitat.	general	S-11	No change to FEIS	NMFS agrees. The commenter is encouraged to take advantage of opportunities through existing grants and proposal processes to pursue this type of research.	N/A
124	Please do not close Santa Lucia Banks to vertical hook-and-line gear	1	G-03	Supplement, Improve or Modify Analyses	As part of it's preferred alternative to minimize fishing impacts to EFH, the PFMC established non-trawl areas near Morro Bay, but did not close those areas to vertical hook and line gear. Please see preferred alternative.	2.7, 4.8
125	I am opposed to closure of vast areas because there is no justifiable rationale or sufficient analysis of the impacts.	1	G-17	No change to FEIS	NMFS acknowledges the opposition of the commenter to fishery closures. The justification for considering large-scale closures is described in the Purpose and Need for action and also as part of the scientifc rationale for the minimization alternatives. Seeapplicable sections.	Ch. 1, 2.5

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
126	Statement of Purpose and Need is narrow and vague. (1) The Fisheries Service must implement all practicable measures to minimize adverse effects on EFH and must fully explore and evaluate those options in its EIS. (2) The DEIS fails to recommend to the Council which measures the agency believes would be most practicable in minimizing adverse effects to EFH, and more generally those actions necessary to comply with the requirements of Section 303(a)(7) of the MSA.	1	S-05	Supplement, Improve or Modify Analyses	The statement of purpose and need provides adequate rationale for the proposed action, which is substantially based on the legislative mandate in the Magnuson-Stevens Act at §303(a)(7). The MSA requires FMPs to "minimize to the extent practicable adverse effects on [EFH] caused by fishing." There are undoubtedly a wide range of measures that may be considered practicable, if considered individually. However, the practicability standard should be applied to the suite of management measures as implemented in toto, as we did in our practicability analysis. In this respect the DEIS provides a reasonable range of minimization measure alternatives (some 14 distinct alternatives, some of which have further sub-options) from which the Council was able to craft a practicable suite of management measures to minimize the adverse effects of fishing on EFH. [RESPONSE CONTINUED BELOW]	1, Appendix J
127	Statement of Purpose and Need is narrow and vague. (1) The Fisheries Service must implement all practicable measures to minimize adverse effects on EFH and must fully explore and evaluate those options in its EIS. (2) The DEIS fails to recommend to the Council which measures the agency believes would be most practicable in minimizing adverse effects to EFH, and more generally those actions necessary to comply with the requirements of Section 303(a)(7) of the MSA.	1	S-05	Supplement, Improve or Modify Analyses	[RESPONSE CONTINUED:] The DEIS, combined with advice received from its advisory bodies and the public, is sufficient for the Council to identify alternatives that are compliant with §303(a)(7) of the MSA. NMFS may identify an "agency-preferred alternative" but it is neither necessary nor appropriate for NMFS to make a recommendation in the DEIS as to which alternatives the Council should choose, as suggested by the commenter. NMFS did include possible parts of the preferred alternative in the DEIS. NMFS also provided general information for the practicability analysis in the DEIS. The FEIS includes NMFS' practicability analysis for the preferred alternative.	1, Appendix J
128	NMFS must determine if action is or is not necessary to comply with section 303(a)(7) of the Magnuson Act - must be included in statement of purpose and need. May not delay consideration of decision until issuing ROD because analysis leading up to the decision needs to be incorporated into NEPA process.	2	S-05	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative that will be considered in the ROD and associated FMP and regulatory amendments. NMFS final decision on what is necessary to satisfy the mandate to minimize adverse effects to EFH will be detailed in the ROD and the decision documents for the FMP amendment. The FEIS is the appropriate place to consider environmental impacts of alternative but not an agencies final decision which must be detailed in the ROD. See applicable section(s).	2.7

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
129	The Purpose and Need section has a few elements missing, such as the definition of EFH and habitat-related mandates of the Sustainable Fisheries Act.	15	S-12	Made Factual Corrections	Section 1.5 in the DEIS provides an overview of the habitat-related mandates of the Sustainable Fisheries Act. This section also references those sections in federal regulations (50 CFR 600, Subpart J) providing guidance on the identification and description of EFH. This guidance is quite detailed while Chapter 1 of the EIS is intended to provide a succinct overview of the proposed action and the context for that action.	1
130	Purpose and Need section should include description of current regs designed to reduce impacts on overfished stocks (info on these closures is only included in Chapter 2)	15	S-12	No change to FEIS	Much of Section 1.6.4 describes the measures NMFS and the Council have put in place to reduce the bycatch of overfished species. The implementation of Groundfish Closed Areas for this purpose is mentioned at the end of this section. Chapter 1, in addition to describing the proposed action, is intended to provide the broad context for that action; or, as the commenters state elsewhere "set the stage for the action." For this reason a detailed description of the current regulatory framework, which is complex, is not included.	1.6.4
131	The purpose and need does a poor job of linking the management framework to EFH designation.	15	S-12	Supplement, Improve or Modify Analyses	The statement of purpose and need provides adequate rationale for the proposed action, which is substantially based on the legislative mandate in the Magnuson-Stevens Act at §303(a)(7). The MSA does not require FMPs to implement all practicable measures, but to “minimize to the extent practicable adverse effects on [EFH] caused by fishing.” There are undoubtedly a wide range of measures that may be considered practicable, if considered individually. However, the wording of the MSA suggests that the practicability standard should be applied to a suite of a management measures as implemented in toto.	Ch. 1
132	Address how habitat management would fit into current management framework [in the Purpose and Need].	15	S-12	Supplement, Improve or Modify Analyses	The current management framework is fully described in the FEIS. Modification of the harvest specifications and management measures that may be necessary as a result of this EFH process will be considered during the development of harvest specifications and management measures. See applicable section(s).	Ch. 1
133	A research plan for ground-truthing those maps should be a top priority for the first 5 years.	7	S-12	Supplement, Improve or Modify Analyses	Efforts are underway to expand our knowledge through additional research regarding groundfish EFH. The preferred alternative incorporates HSP but with a precautionary adjustment to address these concerns based on known species distribution. Please see the preferred alternative and applicable section(s).	2.7, 2.9
134	Alternative 12 entirely closes Monterey Bay to trawling, ignoring the sandy bottom area seasonally fished for California Halibut. They request that this area remain open. Map included in comment letter.	4	S-15	Supplement, Improve or Modify Analyses	Formulation of the final preferred alternative was responsive to this and other similar concerns to maintain economically viable fisheries. The FEIS has been updated to include a description of the final preferred alternative and the associated environmental consequences. See applicable sections.	2.7, 4.7.6

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
135	Areas historically fished for halibut is requested to stay open: From Point Buchon to Pt. Arguello outside 3-mile state water, inside 60 fathom contour.	4	S-15	Supplement, Improve or Modify Analyses	Formulation of the final preferred alternative was responsive to this and other similar concerns to maintain economically viable fisheries. The FEIS has been updated to include a description of the final preferred alternative and the associated environmental consequences. See applicable sections.	2.7, 4.7.6
136	Referring to the HAPC alternatives, "ecological function" has not really been measured for any of the habitats listed.	7	S-12	Supplement, Improve or Modify Analyses	Quantitative measurement of ecological function is not available given the best available information nor is it a requirement of implementing regulations. The EIS includes a complete description of the function of specific habitat types for each species and life stage where such information is available. See applicable sections.	2.4, Appendix H
137	The designation of HAPCs is a good idea but they should be adopted only if the socioeconomic and historic uses of those areas are seriously consider in the FEIS. The FEIS should focus on the probability of further restrictions on fisheries.	5	S-13	Supplement, Improve or Modify Analyses	A full analysis of the consequences of HAPC designation is included in the EIS. It is not reasonably foreeseeable that HAPC designations would lead to additional fishery restrictions and it was therefore not analyzed. The FEIS has been updated to include a final preferred alternative that includes all the reasonabley forseeable fishery restrictions related to groundfish EFH. See applicable section(s).	2.7, 4.3
138	Supplemental EIS needed for "biogenic areas" methodologies?	general	S-01	Made Factual Corrections	Biogenic areas and associated methodology were discussed in the DEIS so supplementation is not necessary. Alternatives C.12-C.14 were based in part on biogenic areas. The methodology was discussed in Ch 3 and 4 with review occurring during the public comment period. The results of the review are included in the FEIS.	Appendix D.
139	Need improved information/ecological research on biogenic habitat features such as kelp and seagrass beds	2	S-07	Supplement, Improve or Modify Analyses	NMFS agrees that more research and monitoring is needed, and the final preferred alternative incorporates research and monitoring. Additional information has been added regarding the ecological role of kelp and seagrasses. Please see applicable section(s).	2.7, 3.2.2.1.2
140	All of these [HAPC] designations lack specific consideration of biogenic habitat associated with soft bottom habitat. Hard-substrate habitats are probably more sensitive to some effects of fishing, but focus on these areas may be at the expense of soft-bottom habitat.	8	S-12	No change to FEIS	NMFS disagrees. The HAPC alternatives include habitat types that, when combined, have spatial overlap and incorporate biogenic habitats such as sea grass that occur on soft bottom.	N/A

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
141	"While the discussion and figures in Chapter 4 of the EIS provide information on what HAPC areas would be excluded under each EFH alternative, it is not clear which EFH alternatives would be excluded by selecting all of the HAPC alternatives." This needs to be clarified in the EIS. Clarification needed as to the interaction between HAPC Alts and EFH alternatives, i.e. how HAPC could limit EFH alternatives	general	S-01	Supplement, Improve or Modify Analyses	Essential Fish Habitat is identified and described in the final preferred alternative. The description includes all areas designated as HAPC. Please see applicable section(s).	2.3, 2.4, 2.7, 4
142	"Considering HAPC as a Subset of EFH Leads to Illogical and Arbitrary Results…… the number of HAPC alternatives that can be considered fully is limited by the agency's insistence that HAPC be a subset of EFH."	4	S-05	No change to FEIS	NMFS disagrees. Regulations at 50 CFR 600.815(a)(8) define HAPCs as a subset of EFH that should be identified in an FMP. To address this issue, a full analysis of the overlap of the HAPC alternatives with each of the EFH alternatives was included in the DEIS. In addition, the FEIS has been updated with a final preferred alternative that contains elements which may be interpreted as applying outside EFH. A description of NMFS strategy for considering this issue is contained in the EIS. See applicable sections.	2.7, 4.3
143	The Council's designation of HAPC could be circumscribed by its contemporaneous designation of EFH if the HAPC alternative selected does not fit within the chosen EFH.	4	S-05	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative that includes language such that all HAPCs are to be included in the description of EFH.	2.7
144	"The EIS should make clear that the identification of HAPCs for groundfish should not be limited by alternatives for identifying and describing EFH." (page 9, paragraph 2)	9	S-05	No change to FEIS	NMFS disagrees. Regulations at 50 CFR 600.815(a)(8) define HAPCs as a subset of EFH that should be identified in an FMP. To address this issue, a full analysis of the overlap of the HAPC alternatives with each of the EFH alternatives was included in the DEIS.	N/A
145	Table 4-4 shows that only Alternative A.6 would not include B.6… but table 4-3 shows that B.6 areas are not included in several of the EFH ("A") Alternatives	14	S-12	No change to FEIS	The tables are accurate, but table 4-3 was misinterpreted by the commenter. Table 4-3 is a comparison of EFH Alternatives to each other, not a comparison of HAPC Alternatives to EFH	Appendix/Habitat Tables
146	The apparent conflicts between EFH and HAPC designation shown in Chapter 4 are of particular concern and difficult to understand.	14	S-12	Supplement, Improve or Modify Analyses	Essential Fish Habitat is identified and described in the final preferred alternative. The description includes all areas designated as HAPC. Please see applicable section(s).	2.7, Chapter 4 Figures

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147	Alternative C.7 may need to exclude some areas to allow historic and existing fishing and harbor functions	8	S-13	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative that incorporates some of the areas considered in C.7 but not those areas where historical or current use indicates significant economic importance. The alternative is designed to establish a system of trawl closures in the project area that account for recent fishing activity to maintain fisheries while protecting EFH. See applicable section.	2.7
148	FEIS should discuss the EFH habitat maps regarding corrections made due to known data inaccuracies. What were the results of those corrections	general	S-01	Supplement, Improve or Modify Analyses	The FEIS has been updated to include new EFH maps as well as maps of habitat for individual species and a report that details the peer review process utilized to make the improvements. See applicable sections.	2.3, Appendix D, Appendix J.
149	HSP used as a proxy for "essential" but NMFS fails to define a threshold level for making this determination. Identify the point at which habitat should be considered "essential" within the meaning of the law	4	S-05	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative for designation of EFH that is based on the best available science. The final preferred alternative incorporates a precautionary adjustment to account for data gaps that complicate description based on a quantitative threshold. See applicable section(s).	2.3.1, 2.7, Appendix A
150	Limitations and uncertainties in HSP should be clearly stated in the description of the Alternatives. Include more information in body of EIS on HSP modeling process from Appendix A	8	S-05	Supplement, Improve or Modify Analyses	The FEIS has been updated to better describe the limitations and uncertainties associated with HSP. In addition to updates to the body of the EIS, a peer review report has been added.	2.3.1, Appendix D
151	Too much emphasis on failure of EFH impacts model to model the relationship between fishing effort intensity and habitat effects. Model is not the best or only way to assess adverse effects. Quantitative studies not needed to meet MSA requirements	10	S-05	No change to FEIS	NMFS agrees quantitative studies are not necessary to meet MSA requirements. The discussion of issues associated with the impact model were presented to emphasize the limits of the best available science and focus decisionmakers on relevant qualitative information.	N/A
152	We urge the PFMC to utilize the GIS-based model carefully and to acknowledge the uncertainty that accumulates with each data layer by avoiding decisions that require a high level of precision.	3	S-12	Supplement, Improve or Modify Analyses	The FEIS has been updated with a final preferred alternative that incorporates HSP but with a precautionary adjustment to address these concerns based on known species distribution. The basis for the adjustment is described in the appropriate section of the FEIS and should account for uncertainty. See applicable section(s).	Section 2.7 of the EIS, Section 5.3 of Appendix A
153	Refinements to the HSP model using a tiered assessment approach are encouraged.	7	S-12	Supplement, Improve or Modify Analyses	NMFS acknowledges the encouragement to refine habitat suitability modeling. The information presented in the EIS represents the best available. Information regarding uncertainty in the information is provided. See applicable sections.	Section 5.3 of Appendix A

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
154	Use of the HSP models for identifying habitat is a reasonable approach, but subject to limitations of the data used in the analysis. Because of the inherent problems in identifying "essential fish habitat" as it has been defined, perhaps the highest purpose of this section (EFH designation) should be to recognize the diversity of species and the habitats utilized, and allow for the broadest context for the identification of really, really essential (and vulnerable) habitat in the designation of HAPC and of measures to minimize adverse impacts to EFH.	14	S-12	Supplement, Improve or Modify Analyses	NMFS shares the commenters concerns with data limitations. The preferred alternative incorporates HSP but with a precautionary adjustment to address these concerns based on known species distribution. The basis for the adjustment is described in the appropriate section of the FEIS. See applicable section(s).	Section 2.7 of the EIS, Section 5.3 of Appendix A
155	Current habitat models used in the EIS analysis are not up to the task at hand, primarily due to the lack of data. However, some Panel members believe that the fishing impacts model could be use as long as the results are presented qualitatively.	15	S-12	Supplement, Improve or Modify Analyses	NMFS shares the commenters concerns with data limitations but disagrees the impacts model could be used for qualitative analysis. The limitations associated with the impacts model are described in the SSC report on their review of the model. See applicable section(s).	Section 2.7 of the EIS, Section 5.3 of Appendix A
156	Too many alts rely too heavily on HSP to identify EFH.	general	S-01, S-05	Supplement, Improve or Modify Analyses	The preferred alternative incorporates HSP but with a precautionary adjustment to address these concerns based on known species distribution. The basis for the adjustment is described in the appropriate section of the FEIS. See applicable section(s).	2.3.1, Alt. A.2, 2.7
157	Concerned with alternatives based on HSP due to data limitations and inaccuracies.	general	S-01, S-05, S-12	Supplement, Improve or Modify Analyses	NMFS shares the expressed concerns with data limitations. The preferred alternative incorporates HSP but with a precautionary adjustment to address these concerns based on known species distribution. The basis for the adjustment is described in the appropriate section of the FEIS. See applicable section(s).	2.3.1, Alt. A.2, 2.7
158	FEIS should explain why the SSC didn't approve the impact function component (of the HSP model) and if there are plans to obtain their approval prior to selection of the preferred alternatives by NMFS	general	S-01	No change to FEIS	A complete explanation of the uncertainties associated with the impacts model is contained in the EIS in Appendix D. The final preferred alternative does not rely on the impacts model.	Appendix D

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
159	"The Recovery Index used in the EFH DEIS omits several key studies and published information on the recovery of corals and sponges."	13	S-02.3	No change to FEIS	NMFS disagrees. The recovery index is based on a comprehensive review of the global literature on empirical studies of the effects of fishing gear and associated time to recovery. The studies cited by the commenter are primarily life history studies of corals and sponges. Similar information is presented in the sections of the EIS that describe corals and sponges. See applicable sections.	3.2.3.3
160	"It is unclear why the recovery index distinguishes between gear types in its estimates of habitat recovery. Recovery should be based on the estimated time it takes for a fully damaged habitat to return to a pre-impacted state, independent from the source of damage."	14	S-02.3	Supplement, Improve or Modify Analyses	NMFS agrees that fishing gear is only one factor to consider in assessing impacts to habitat. To that end, a full analysis of non-fishing impacts and current protective measures is included in the EIS. See applicable sections.	3.6, 3.10.3, Appendix 14 to Appendix A
161	Support Sensitivity index however, concerned with alternatives based on Sensitivity Index due to data limitations and inaccuracies.	general	S-01	Supplement, Improve or Modify Analyses	The preferred alternative incorporates HSP but with a precautionary adjustment to address these concerns based on known species distribution. The basis for the adjustment is described in the appropriate section of the FEIS. See applicable section(s).	2.3.1, Alt. A.2, 2.7
162	"Since age does not include recolonization time between impact and settlement of new biogenic structures, all recovery times used in the EFH DEIS that were derived from literature on ages are systematically underestimated."	14	S-02.3	Supplement, Improve or Modify Analyses	NMFS acknowledges the potential for underestimation of recovery times and notes that a similar potential exists for overestimation. The EIS includes a description of uncertainty in the analysis as well as full disclosure of data gaps. See applicable sections.	Section 3.7 of the EIS, Section 2.4 of Appendix A and Appendix 10 of Appendix A
163	"SRI" values/model limits consideration of benthic habitat. Include quantitative analysis to supplement SRI model. EIS text should include discussion of methodology to develop this index.	6	S-05	Supplement, Improve or Modify Analyses	NMFS agrees. The EIS incorporates the full discussion of the methodology for calculating habitat sensitivity and recovery indices that is included in the Risk Assessment. See applicable section(s).	2.5.1, Ch. 3, Ch. 4, Appendix 10 to Appendix A of the EIS

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
164	The agency must include qualitative analysis in addition to its sensitivity and recovery index that considers all of the best available science pertaining to prey species and their habitat and other important ecosystem components not captured by the SRI model in order to evaluate impacts more than minimal and not temporary (MMNT).	6	S-05	Supplement, Improve or Modify Analyses	The EIS contains a full analysis of the impacts of fishing gear to habitat. The SRI index provides information on impacts to biodiversity (including prey species and other components of the ecosystem) to the extent it is found in the global literature. See applicable section.	Appendix 10 of Appendix A to the EIS
165	"It is important that all available studies and sources of information are included in the EIS, regardless of whether or not they are considered useful for the SRI"	11	S-05	No change to FEIS	NMFS agrees. The Risk Assessment includes a complete literature review of global literature that was utilized in the analysis.	Appendix A
166	"the sensitivity values do not incorporate the relationship between fishing impacts and depth."	12	S-05	Supplement, Improve or Modify Analyses	NMFS acknowledges the general lack of information on the relation between fishing impacts and depth, however notes that the information available has been fully explored in the EIS. In addition the FEIS has been updated with a final preferred alternative that would protect habitat across a wide range of depths to account for this lack of information. Please see applicable section(s).	2.7, Appendix 10 of Appendix A
167	"Finally, the SRI does not consider the issue of fishing intensity or frequency of disturbance of the bottom by fishing gear."	12	S-05	Supplement, Improve or Modify Analyses	The SRI was designed as an index of the sensitivity of specific habitat types and associated recovery times. The issues of fishing intensity and frequency of disturbance were fully assessed however in the fishing impacts model to which the SRI is an input. A complete and thorough discussion is contained in the document and appendices. See applicable section(s).	2.5, Section 4 of Appendix A
168	Postpone adoption of groundfish EFH so coastal communities/fishing industry can fully engage in discussion with NMFS and Environmental NGO's.	2	G-18	No change to FEIS	NMFS disagrees that a postponement is necessary. The Council process incorporates representatives of affected states and communities. To the extent that communities interests were not represented, they are encouraged to provide public comment on the expected forthcoming FMP Amendment and Proposed Rule to implement the final preferred alternative.	N/A
169	All of the above facts lead to a feeling of lack of empowerment and even distrust of the process that is not conducive to a positive collaborative process.	general	G-18	No change to FEIS	NMFS notes that the PFMC process is designed to be an open and transparent process with participation by members of the public. After the DEIS was published, meetings were held on the West coast with communities that were likely to be impacted by EFH impact minimization alternatives. The reason these meetings were held in local communities was to encourage participation by residents of coastal communities by making the meetings easily accessible and inexpensive to travel to. Please see applicable section(s).	1.7

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
170	Extend timeline for EFH so that coastal communities/fishing industry can fully engage in discussion with NMFS and environmentalists	general	G-18	No change to FEIS	NMFS notes that it does not have legal discretion to change the timeline. A description of the relevant mandates is contained in the EIS. See applicable section(s).	1.1, 1.7
171	A feeling of disappointment with respect to public comment process in general and certain aspects of the trawl buyback program specifically. Two buyback boats are in arrears to the City. Reallocation of quotas hasn't happened as we felt promised	general	G-18	Supplement, Improve or Modify Analyses	NMFS, the Council, and State fisheries agencies conducted an outreach effort and provided for extensive public comment as evidenced by the large number of comments received. The effects of the buyback program are included in the description of the affected environment, and considered as part of practicability and cumulative effects.	3, 4, Appendix J
172	EIS should describe all efforts made to inform all low income and minority communities about proposed action and potential impacts it will have on their communities. How were these groups specifically targeted?	9	S-01	No change to FEIS	Section 1.7 describes the process that was followed in development of this EIS. After the DEIS was published, NMFS worked with stakeholders to participate in meetings in coastal communities that were likely to be impacted by EFH impact minimization alternatives. In addition, the PFMC process utilizes advisory bodies which have representative seats for groups of stakeholders. Section 3.9.4.5 details the process and results of identifying Minority and Low Income Communities and Addressing Environmental Justice. Please see applicable sections.	1.7, 3.9.4.5
173	Lack of Federally sponsored public education on the Alternatives	2	S-07, G-18	No change to FEIS	NMFS believes the public outreach for the EIS has been extensive and sufficient. The PFMC process is designed to be an open and transparent process with participation by members of the public. After the DEIS was published, meetings were held on the West coast with communities that were likely to be impacted by EFH impact minimization alternatives. Meetings were held in local communities to encourage participation by residents of coastal communities. For more information, see applicable section(s).	1.7
174	More effort should have been made to communicate the short and long term impacts on fisheries and coastal communities of these alternatives.	1	S-11	No change to FEIS	NMFS notes the Council system is designed to incorporate stakeholder representation. In addition, after the DEIS was published, meetings were held on the West coast with communities that were likely to be impacted by EFH impact minimization alternatives. NMFS has used available quantitative and qualitative information to describe impacts to communities, however available data limits the ability to analyze impacts to communities and efforts are underway to expand our knowledge of fishing-dependent communities.	N/A
175	Final designation of EFH should be based on maps that include the most recent information from multiple sampling sources.	7	S-12	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative for EFH description that relies on the best available information. Appropriate updates have been made from the DEIS and are described in the FEIS. See applicable section.	2.7, Appendix D

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
176	Area from Santa Barbara Point to Pitas Point from 1-2 miles offshore is predominantly soft mud bottom, NOT gravel bottom.	2	S-15	Acknowledge	NMFS used the best available information but acknowledges uncertainties where they exist. Underlying data can be updated for the 5-year EFH review process. A full description of data uncertainty is contained in the FEIS. See applicable section.	Section 5.3 of Appendix A
177	Areas noted in the DEIS as gravelly or rocky bottom are grossly inaccurate for the SCB. This information disconnect should be corrected (Southern California Trawlers Assn. is available for consultation)	2	S-15	No change to FEIS	NMFS used the best available information but acknowledges uncertainties where they exist. Underlying data can be updated for the 5-year EFH review process. A full description of data uncertainty is contained in the FEIS and was considered prior to selecting the final preferred alternative. See applicable section.	Section 5.3 of Appendix A
178	Discussion in Alternative [C.] 12 lacks any of the habitat typing specificity readily available from the CINMS website. This results in erroneous assumptions.	2	S-15	No change to FEIS	The habitat classification scheme (habitat typing) utilized for this analysis was developed specifically for this EIS and does not track exactly to other systems such as that described on the CINMS website. NMFS disagrees this is a weakness. Conversely, it is a strength because the classification scheme tracks specifically to the FMP species which are the subject of the EIS. To the extent that erroneous assumptions are possible, a full discussion of data uncertainty is included in the EIS. See applicable section.	Section 5.3 of Appendix A
179	Provide approximate coordinate points for potential closed areas, especially for complex impacts minimization alternatives (C.12-C.14)	2	S-07	Supplement, Improve or Modify Analyses	NMFS agrees. Coordinates are expected to be published in a proposed rule to implement appropriate components of the final preferred alternative.	2.7
180	There is a comparable mismatch between the general text description of areas potentially closed to fishing by one or more gear types, the depiction of these areas in figures of EIS Chapter 2, and the very detailed estimates of proportion of substrate type or habitat area protected in the habitat tables of Chapter 4. (go on to suggest adding coordinate point to clarify)	2	S-07	Supplement, Improve or Modify Analyses	More detailed maps of the preferred alternative for impacts minimization have been developed for the Final EIS. In addition, the precise coordinates for each of these closures are available on the Northwest Region's website and as part of the Proposed Rule.	4.1.2.1
181	Better to more closely match the geographic scales of habitat feature distribution and fishing activity.	2	S-07	No change to FEIS	NMFS agrees. Unfortunately, existing data do not support trawl information at same scale as habitat data. The data were considered together in a GIS analysis that incorporated issues of scale. See applicable section(s).	App. A, Ch. 3
182	Unclear which areas are open/closed to trawling in the western Santa Barbara Channel.	2	S-15	No change to FEIS	NMFS disagrees the information is unclear. The alternatives are presented in the EIS in mapped form that show the precise areas that would be affected. See applicable sections.	Ch. 2

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
183	"The Fisheries Service must implement all practicable measures to minimize adverse effects on EFH and must fully explore and evaluate those options in its EIS."	2	S-05	Supplement, Improve or Modify Analyses	NMFS notes that the FEIS has been updated with a final preferred alternative that addresses the requirement to minimize adverse effects to EFH from fishing to the extent practicable. See applicable section(s).	2.7, Appendix J
184	NMFS provides no guidance about which adverse effects of fishing on EFH must be minimized, despite clear evidence that there are negative effects of fishing on EFH that is more than MMNT, therefore minimization is required. (pg. 2-12 - 2-13, 4-2)	6	S-05	Supplement, Improve or Modify Analyses	NMFS formulated this analysis using the best available scientific information and, at this point, there is no conclusive evidence that adverse effects have occurred or are occurring. The FEIS has been updated to include a final preferred alternative that includes measures to minimize adverse effects to EFH. The ROD that will follow the FEIS will include NMFS final determination of what actions within NMFS authority are necessary to comply with the mandate to minimize adverse effects that are than more than minimal and not temporary. See applicable section(s).	2.5.1, 2.7
185	The agency must include qualitative analysis in addition to its sensitivity and recovery index that considers all of the best available science pertaining to prey species and their habitat and other important ecosystem components not captured by the SRI model in order to evaluate impacts more than minimal and not temporary (MMNT).	6	S-05	Supplement, Improve or Modify Analyses	The EIS contains a full analysis of the impacts of fishing gear to habitat including thorough quantitative and qualitative analyses of fishing effects on habitat to the extent that it is possible given available information. The SRI index provides information on impacts to biodiversity (including prey species and other components of the ecosystem) to the extent it is found in the global literature. See applicable section.	Appendices 8 and 10 of Appendix A to the EIS
186	The description of the development of the alternatives should be revised to clearly state the definition of adverse impacts and that the tools necessary to identify and minimize the adverse effects of fishing gears on EFH are contained within the EIS as opposed to couching the alternatives as "precautionary" by using a groundfish production and quantifiable impacts standard.	9	S-05	Supplement, Improve or Modify Analyses	The best available information does not allow for a geographically explicit conclusion regarding an MMNT threshold and therefore, it was not included in the DEIS. A full discussion of this limitation is presented in the rationale for alternatives and the Risk Assessment. To overcome this data gap, all the best available information was presented in the DEIS as a tool for decisionmaking that provides the basis for the final preferred alternative. Please see applicable section(s).	2.5.1, 2.7, Appendix A

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
187	"These minimal and temporary thresholds are arbitrary. In the absence of evidence that can demonstrate that these values do in fact equate to minimal and temporary, the proper standard should be values of 0 for sensitivity and recovery in the SRI." (page 13, paragraph 1)	13	S-05	No change to FEIS	The MMNT standard is not arbitrary and is explained in the preamble to the EFH regulations. Second, for groundfish EFH, the best available information does not allow for a geographically explicit conclusion regarding an MMNT threshold and therefore, it was not included in the DEIS. To overcome this data gap, all the best available information was used in considering the environmental consequences of the alternatives and the practicability of the alternatives . There is no basis to use a SRI of 0 instead of the MMNT threshold.	N/A
188	Define MMTT (MM Temporary Threshold).	13	S-05	Supplement, Improve or Modify Analyses	The best available information does not allow for a geographically explicit conclusion regarding an MMNT threshold and therefore, it was not included in the DEIS. A full discussion of this limitation is presented in the rationale for alternatives and the Risk Assessment. To overcome this data gap, all the best available information was presented in the DEIS as a tool for decisionmaking, please see applicable section(s).	2.5.1, 2.7, Appendix A
189	The EIS needs to provide additional information in its analysis in order to improve the precision of its EFH model, such as coral and sponge records.	3	S-05	No change to FEIS	The information used in the EIS to support decisionmaking represents the best available information. A complete description of the information used in the EFH model, why it represents the best available information, and data gaps, is described in the FEIS and appendices. See applicable sections.	2.3, Appendix A
190	We support expanding the logbook, vessel monitoring system (VMS) and research reserve programs, and also increasing observer coverage and manned and remote sensing devices that are nondestructive to marine habitats (which were not in the original alternatives).	general	S-01	Supplement, Improve or Modify Analyses	NMFS agrees with the need for additional monitoring and research. The FEIS has been updated with a final preferred alternative that includes research and monitoring components. See applicable section(s).	2.7
191	Establish a network of marine reserves	1, 1	G-15, G-21	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative that does not include marine reserves, but does contains areas that are closed to certain fishing activities. See applicable section.	2.7
192	We strongly encourage the PFMC to include a network of research reserves in its effort to designate, protect and understand present and future EFH.	5	S-14	Supplement, Improve or Modify Analyses	NMFS notes that the FEIS has been updated to include a final preferred alternative that contains a network of marine protected areas and research and monitoring components. See applicable section.	2.7
193	Include Fishermen's Marketing Association proposal to protect EFH while minimizing impacts to the trawl fishery as an alternative.	general	G-02	Supplement, Improve or Modify Analyses	NMFS notes that, while it is not included as a formal alternative, an comparison of proposal to the final preferred alternative is included in the FEIS. In addition, the Council considered the proposal during the development of the final preferred alternative. See applicable section.	2.7.3.2.2

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
194	There should be a defined alternative for insuring the fishing heritage of each port by adaptively managing the fisheries with experimental zone harvest policies with no take representative habitat heritage reserves as monitoring control sites.	general	S-04	No change to FEIS	NMFS disagrees that another alternative is required. The DEIS analyzed a reasonable range of alternatives and their consequences on the human environment.	N/A
195	Range of alternatives (1): While the agency and Council clearly may consider alternatives refined in response to public comment, and refine or combine alternatives in response to public comments, the Fisheries Service may not consider or adopt any alternate proposals not included within the range of alternatives presented within the DEIS absent full NEPA review.	2	S-05	Supplement, Improve or Modify Analyses	The final preferred Alternative is within the range of alternatives described in the DEIS. The EFH identification and description preferred alternative incorporates Alternative A.2. The HAPC designation preferred alternative incorporates Alternatives B.2, B.3, B.4, and B.6, and a subset of the areas of interest described in Alternative B.7 and the oil production platforms described in Alternative B.8. Alternative B.9, process for new HAPC designations, was adopted with a modification to allow review of existing designations. [RESPONSE CONTINUED BELOW]	2.7
196	Range of alternatives (1): While the agency and Council clearly may consider alternatives refined in response to public comment, and refine or combine alternatives in response to public comments, the Fisheries Service may not consider or adopt any alternate proposals not included within the range of alternatives presented within the DEIS absent full NEPA review.	2	S-05	Supplement, Improve or Modify Analyses	[RESPONSE CONTINUED] The minimization measures preferred alternative incorporates modifications of alternatives including; Alternative C.2, applying footrope restrictions, C.4, closing deepwater areas to trawling, Alternative C.10, Central California no-trawl zones, and Alternatives C.12, C.13, and C.14, which close areas to different gear types. Based on public comment, the number and configuration of areas adopted from C.12, C.13, and C.14 were modified, but the resulting impacts are within the range predicted in the DEIS. Research and monitoring alternatives were adopted at an advisory level with the idea that these measures will be adopted as part of ongoing programs, subject to broad priorities.	2.7
197	Fishery managers should use simple tools to regulate the groundfishery, i.e. seasonal closures, size limits on the nearshore, quotas, gear modifications, mammal population controls, etc.	1	G-13	Supplement, Improve or Modify Analyses	NMFS notes that the FEIS has been updated to include a final preferred alternative that includes fishery management measures. See applicable section.	1.6.4, 2.7

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
198	We support expanding the logbook, vessel monitoring system (VMS) and research reserve programs, and also increasing observer coverage and manned and remote sensing devices that are nondestructive to marine habitats (which were not in the original alternatives).	general	S-01	Supplement, Improve or Modify Analyses	NMFS agrees with the need for additional monitoring and research. The FEIS has been updated with a final preferred alternative that includes research and monitoring components. See applicable section(s).	2.7
199	There should be an alternative for insuring the fishing heritage of each port thru adaptive management, i.e. experimental zonal harvest policies conducted w/no-take representative habitat as a control (Key elements to proposal are listed in the comment letter).	2	S-04	Supplement, Improve or Modify Analyses	The commenter describes a proposal with a variety of elements that was not included during scoping for the DEIS, which would make it difficult for the Council to consider the proposal as part of their final action. Many of the elements are beyond the scope of the proposed action. However, these could be implemented separately as part of ongoing programs, depending on agency priorities. (For example, the NMFS NWFSC has an ongoing project to develop socioeconomic profiles of West Coast ports.) Groundfish management has assumed a strong spatial element in response to the bycatch of overfished species with the implementation of GCAs, which will be increased through the implementation of EFH closed areas. This may in part address the commenter's recommendation for "zonal harvest policies." The final preferred Alternative includes support for coordinating research efforts through the identification of research areas, which allow experimental designs with treatment (i.e., fishing) and control (i.e., nonfishing) sites. Please see preferred alternative.	2.7
200	No alternative considers reduced harvest limits as a means of minimizing adverse effects to EFH. DEIS also fails to give basis to omit this from consideration. Effort reduction is a reasonable management tool that NMFS must add to its suite of minimization measures under consideration.	7	S-05	Supplement, Improve or Modify Analyses	NMFS disagrees that a reduction in harvest limits is an effective tool for minimizing adverse effects to EFH unless such limits are accompanied by a decrease in fishing effort on sensitive habitat. To that end, an alternative to reduce fishing effort was included in the DEIS. The FEIS has been updated with a final preferred alternative that incorporates appropriate components of the effort reduction alternative. Please see applicable section(s).	2.5.2, 2.7
201	The EIS should have more consideration and analysis of other management measures that will reduce the risks to EFH. (see comment letter for list of actions starting on page 2, ending on page 4). Request the actions are combined into a new alternative and analyzed in the FEIS.	3	S-15	No change to FEIS	NMFS disagrees additional alternatives (management measures) are necessary. The EIS contains a reasonable range of alternatives that were developed in an open and transparent process. The FEIS has been updated to include a final preferred alternative and analysis of how it reduces risks to EFH. See applicable section.	2.7, 4.1

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202	Since 1994 75% of trawl effort has been removed by limited entry permit retirement, vessel buyback program and migration of part of the fleet to Alaska. This along with changes in fishing practices has significantly reduced fishing effects. For this reason no new mitigation measures are necessary.	1	S-27	No change to FEIS	New mitigation measures are necessary to comply with provisions in the Magnuson-Stevens Fishery Conservation and Management Act (MSA), requiring that FMP's include a comprehensive strategy to conserve EFH, including its identification and the implementation of measures to minimize adverse impacts to EFH from fishing, to the extent practicable. For additional information, please see applicable section(s).	1.3, 1.5, 1.6.4
203	Logbooks and VMS should be addressed in the normal regulatory process.	2	S-27	Supplement, Improve or Modify Analyses	The final preferred Alternative incorporates elements of the research and monitoring alternatives that will be implemented through other, ongoing processes. A specific example is the expansion of VMS currently being evaluated under a separate NEPA process. As part of their preferred alternative, the Council directed that the environmental assessment for this action consider expansion to bottom trawl vessels other than those participating in the limited entry groundfish fishery.	2.7
204	Modify alt. B.8 to address concerns of oil platforms. Need to analyze both pluses and minuses. Update and add citations.	general	S-01	Supplement, Improve or Modify Analyses	NMFS has clarified language and presented both views so that they are available to decisionmakers. Please see applicable section(s).	3.2.2.2.4, 4.3.3
205	We use “platform reefs” (in reference to oil platforms) to emphasize the need for decision-makers to consider the habitat value of the underwater portion of the platform structure, and that both future groundfish fishery management and platform decommissioning decisions should consider their potential impact on the habitat that the platform reefs provide.	1	S-03	Acknowledge / No change to FEIS	NMFS finds the term "platform reefs" somewhat misleading when discussing HAPC designation. HAPC designation does not create a reefing program.	N/A

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
206	A careful, thorough and balanced analysis of potential positive and negative consequences associated with this alternative is essential to enable decision-makers to make informed decisions among the alternatives. The Final EIS should acknowledge and evaluate the environmental consequences of the decision whether or not to adopt Alternative B.8	1	S-03	Supplement, Improve or Modify Analyses	NMFS agrees that assessment of environmental consequences of designating oil platform habitat as HAPC deserves careful consideration . The FEIS has been updated to more fully inform the reader. Please see applicable section(s).	2.4, 3.2.2.2.4, 4.3.3
207	The Final EIS should acknowledge and evaluate the environmental consequences of the decision whether or not to adopt Alternative B.8 based on the information discussed in these (CARE) comments.	1	S-03	Supplement, Improve or Modify Analyses	NMFS agrees that assessment of environmental consequences of designating oil platform habitat as HAPC deserves full and fair consideration. The FEIS has been updated to more fully inform the reader. Please see applicable section(s).	4.3.3
208	Cross-reference "oil rig as habitat" discussion on p.2-10 and p.3-8 - 3-10 with the discussion in Chapter 4	2	S-03	Made Factual Corrections	Cross references to discussion in chapters 1 and 2 have been added within the chapter 4 text. Please see applicable section(s).	2.4, 3.2.2.2.4, 4.3.3
209	"We are very disappointed with the lack of attention in the "Environmental Consequences" analysis to the scientific evidence supporting the important ecological role of platform reefs and the need for their protection….. The Final EIS must be revised to take into account the information presented in our prior comments and in these comments in order to present an unbiased basis for decision-making."	2	S-03	Supplement, Improve or Modify Analyses	NMFS agrees that assessment of environmental consequences of designating oil platform habitat as HAPC deserves full and fair consideration . The FEIS has been updated to more fully inform the reader. Please see applicable section(s).	4.3.3
210	Inclusion of information on groundfish populations at platform reefs in the "Alternatives" and "Affected Environment" sections is not an adequate substitute for full and fair consideration of this information in the evaluation of environmental consequences.	2	S-03	Supplement, Improve or Modify Analyses	NMFS agrees that assessment of environmental consequences of designating oil platform habitat as HAPC deserves full and fair consideration . The FEIS has been updated to more fully inform the reader. Please see applicable section(s).	4.3.3

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
211	The Final EIS should acknowledge and evaluate these environmental consequences of Alternative A.6 on limiting the designation of some oil platforms as HAPC.	3	S-03	Supplement, Improve or Modify Analyses	The environmental consequences of limiting the designation of oil platforms as HAPC is discussed in Chapter 4 of the FEIS. The FEIS has been updated to more fully inform the reader. Please see applicable section(s).	4.2.3, 4.3.3
212	The analysis presented of environmental consequences is inadequate by failing to take into account the “one-way” nature of those consequences: If HAPC designation indirectly leads to any adverse consequences from the presence of the platform reefs, those consequences can be addressed in future decisions. If lack of HAPC designation indirectly leads to adverse consequences from elimination of the platform reefs, they and their existing groundfish populations cannot be restored.	3	S-03	Supplement, Improve or Modify Analyses	NMFS agrees that there are 'one way' consequences of platform removal. The HAPC designation would not in and of itself affect decommissioning. Such a designation only ensures that issues associated with groundfish habitat are fully explored before decommissioning can occur. The FEIS has been updated to more fully inform the reader. Please see preferred alternative and applicable section(s).	4.3.3
213	The one-sided discussion on DEIS p. 4-13 (re oil platforms) fails "to provide the Council and NMFS with the information they need to better account for the function of Pacific Coast groundfish EFH when making fishery management decisions" as stated in the purpose and need.	3	S-03	Supplement, Improve or Modify Analyses	NMFS agrees that assessment of environmental consequences of designating oil platform habitat as HAPC deserves full and fair consideration . The FEIS has been updated to more fully inform the reader. Please see applicable section(s).	4.3.3
214	Only in the analysis of alternative B.8 is the “lack of conclusive research” cited as an objection to HAPC designation. Any scientific uncertainties should be a basis for conservative assumptions in favor of protecting platform reefs.	4	S-03	Supplement, Improve or Modify Analyses	NMFS agrees. The FEIS has been updated to more fully inform the reader. Please see preferred alternative and applicable section(s).	2.7, 4.3.3

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
215	Concerns were raised during the Council meeting that designating platform reefs as HAPC would set a precedent that would allow discarded articles, such as furniture, oil cans and sunken boats to be left in the ocean as artificial reefs. This is not the case.	5	S-03	Acknowledge	Although the concern was raised during the Councils deliberation, the Council did not reject designation of oil platforms as HAPC because of concerns that it would allow discarded articles to be left in the ocean as artificial reefs. See preferred alternative.	N/A
216	To the extent that concerns raised by Council members at the November 2004 Council meeting may be considered in evaluating the alternative, they should be disclosed to the public readers of the EIS and addressed in its analysis.	5	S-03	Supplement, Improve or Modify Analyses	Concerns raised at the November 2004 Council meeting were considered in evaluating alternative B.8 and in crafting the preferred alternative. Briefing books, agendas and other information regarding PFMC meetings can be obtained from the Council website (www.pcouncil.org) or by contacting the Council directly.	2.7
217	The “motives” of those who advocate designating platform reefs as HAPC are irrelevant. The only relevant issue is whether a suggested course of action conserves and enhances EFH and assists in the recovery of fish populations.	5	S-03	Supplement, Improve or Modify Analyses	NMFS notes that although the concern was raised during the Councils deliberation, the Council did not reject designation of oil platforms as HAPC due to the motivation behind advocates for designating oil platforms as HAPC. See preferred alternative.	2.7
218	The Council raised a concern with Alternative B.8 as to whether “man-made” habitat should be preferred over “natural” habitat in EFH and HAPC designations. To reject platform reefs as HAPC for the reason that they are artificial would be inconsistent with the EFH regulations and the purposes of the Magnuson-Stevens Act.	6	S-03	Supplement, Improve or Modify Analyses	Although the concern was raised during the Councils deliberation, the Council did not reject designation of oil platforms as HAPC because of concerns that it would allow discarded articles to be left in the ocean as artificial reefs. The FEIS has been updated with a final preferred alternative that would designate oil platforms as HAPC. See preferred alternative.	2.7
219	In order to fully inform the decision makers and the public of the alternatives being considered, the DEIS should clearly state which platform reefs would be included in and excluded from the area identified as EFH under Alternative A.6.	6	S-03	Supplement, Improve or Modify Analyses	NMFS agrees. A new table has been added and the FEIS has been updated to more fully inform the reader. Please see applicable section(s), table(s), and figure(s).	Table 2-1, Figure 2-13, 4.2.3, Figure 4-8

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220	The “uniqueness” of the platform reef habitat should be emphasized and considered in evaluating the environmental consequences of designating platform reefs as HAPC.	7	S-03	Acknowledge	"Rarity of the habitat type" is one of the considerations for designating areas as HAPC, however NMFS feels that 50 CFR 600.815 (a)(8)(i), ecological importance, is the most appropriate consideration to designate HAPC under this alternative. Please see applicable section(s).	3.2.2.2.4
221	High concentrations of groundfish are associated with platform reefs, including overfished species. These facts must be considered in evaluating the environmental consequences of designating platform reefs as HAPC and provide support for the environmental benefits of Alternative B.8.	7	S-03	Supplement, Improve or Modify Analyses	NMFS agrees that there is evidence of high concentrations of groundfish at oil platforms. The FEIS has been updated to more fully inform the reader. Please see applicable section(s).	3.2.2.2.4, 4.3.3
222	The DEIS states that Alternative B.8 was developed to be consistent with 50 CFR § 600.815(a)(8)(i), but does not explain the reasoning behind this statement.	8	S-03	supplement, Improve or Modify Analyses	The FEIS has been updated to provide additional rationale for the justification of this alternative under 50 CFR 600.815 (a)(8)(i). Please see applicable section(s).	2.4, 4.3.3
223	Expand the environmental consequences analysis in chapter 4 regarding the importance of ecological function provided by habitat (see details in CARE comment letter, Specific Comment 11, Page 8)	8	S-03	Supplement, Improve or Modify Analyses	The FEIS has been updated to indicate that NMFS agrees there is evidence that oil platforms provide important ecological functions. Please see applicable section(s).	3.2.2.2.4, 4.3.3
224	Platform reefs provide important ecological functions that must be addressed in the environmental consequences analysis of the Final EIS	8	S-03	Supplement, Improve or Modify Analyses	NMFS agrees that there is evidence that oil platforms provide important ecological functions. Please see applicable section(s).	3.2.2.2.4, 4.3.3

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225	The DEIS's understatement of the number of managed species that utilize platform reefs as habitat reflects the failure to rely on the best available scientific information on the habitat value of platform reefs. List of 31 managed species known to use offshore artificial structures is understated. Annual surveys indicate 42 species have been ID'd around platform reefs.	9	S-03	Made Factual Corrections	NMFS acknowledges that the list of species associated with oil platforms was incomplete, however it was not intended to be an exhaustive list. It should also be noted that the 42 species identified around oil platforms are not all managed under the Groundfish FMP, and so fall outside the scope of this EIS. Please see applicable section(s).	3.2.2.2.4
226	Analysis in section 2.4 (page 2-10) should state that Alt. B.8 is consistent with [50 CFR 600.815 (a)(8)(ii)], i.e. that "Platform reefs are sensitive to human-induced environmental degradation by removal of the structures"	9	S-03	supplement, Improve or Modify Analyses	The FEIS has been updated to provide additional rationale for the justification of this alternative under 50 CFR 600.815 (a)(8)(i). Please see applicable section(s).	2.4
227	The DEIS does not mention the fact that the current platform decommissioning regulations require complete removal of the platforms.	9	S-03	Supplement, Improve or Modify Analyses	The FEIS has been updated to discuss the decommissioning process. Please see applicable section(s).	4.3.3
228	"... to reject platform reefs as HAPC for the reason that they are artificial would be inconsistent with the EFH regulations and the purposes of the Magnuson-Stevens Act."	12	S-03	Supplement, Improve or Modify Analyses	Oil platforms were not rejected as HAPC for the reason that they are artificial. The FEIS has been updated with a final preferred alternative that would designate oil platforms as HAPC. For complete discussion on oil platforms, please see the preferred alternative and applicable section(s).	2.7, 3.2.2.2.4, 4.3.3
229	"It appears that these personal communications relied solely on Holbrook (2000) ... to support their assertions. To the extent that the Final EIS relies on these personal communications, it should explain the qualifications of the persons cited and identify any supporting evidence for their statements."	12	S-03	Supplement, Improve or Modify Analyses	Concerns raised by Mr. Charter and Mr. Chabot during public scoping are restated in Section 4.3.3 as a personal communication. Information on personal communications can be found in Chapter 10. For additional analysis and updated text, please see applicable section(s).	4.3.3, 10

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230	Contradicting statements need clarification: artificial reefs could attract increased fishing effort or act as defacto marine refuges. CARE argues that physical platform structure restricts fishing gear, and that the Coast Guard restricts access.	13	S-03	Supplement, Improve or Modify Analyses	The FEIS has been updated to clarify contradicting language. Please see applicable section(s).	2.4, 4.3.3
231	CARE does not support speculation that HAPC designation of oil platforms would prevent restoration of SOFT-BOTTOM hiding places, since soft-bottom have none to begin with. This should be mentioned as an exception to what was published in the DEIS. Comments directed to page 4-13 of the DEIS. NOTE: Love (2003) states that platform reefs create hard bottom habitat in areas that are primarily soft-bottom habitat.	13	S-03	Supplement, Improve or Modify Analyses	NMFS agrees that restoration of natural, soft-bottom, habitat would not be likely to also create hiding places for groundfish and that the underlying concern of preventing the return of platform areas to natural habitat is a legitimate one and has updated the FEIS to present this information to the decisionmaker. Please see applicable sections.	4.3.3
232	Designation of platform reefs as HAPC would not increase the potential hazards to navigation, no formal complaints have been made etc.	14	S-03	Supplement, Improve or Modify Analyses	NMFS agrees that HAPC designation will not directly affect potential hazards to navigation. Please see applicable section(s).	4.3.3
233	"To the extent that the Final EIS relies on his assertions, it should explain Mr. Charter's qualifications and any supporting evidence for his statement."	13, 14-15	S-03	Made Factual Corrections	Concerns raised by Mr. Charter during public scoping are restated in Section 4.3.3 as a personal communication. Information on Mr. Charter can be found in Chapter 10. NMFS found no published scientific studies on mercury contamination of oil and gas platforms off of the Southern California Coast to either support or contradict Mr. Charters concerns. For additional analysis and updated text, please see applicable section(s).	4.3.3, 10
234	CARE does not support claim that platform reefs could increase predation: fish assemblages are distributed differently, physically separating adults (predators) and juveniles (prey); other natural predators do not appear to be attracted (Love 2005, personal communication). The DEIS gave no contradicting evidence to these points.	13-14	S-03	Supplement, Improve or Modify Analyses	NMFS agrees that there is scientific evidence suggesting age-depth stratification at oil platforms. However that the underlying concern of the potential for attraction of natural predators to aggregates of fishes around platforms is a legitimate one. The FEIS has been updated to address these concerns. Please see applicable section(s).	4.3.3

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
235	No scientific evidence cited as basis for assertions of increased mercury levels in fish populations residing at oil platforms.	14-15	S-03	Supplement, Improve or Modify Analyses	NMFS agrees that there is little direct scientific evidence for mercury contamination in fish surrounding oil platforms. However, the underlying concern of the potential for contamination is a legitimate one. Please see applicable sections.	4.3.3
236	Consider how platforms would qualify as HAPC under 50 CFR 600.815 (a)(8)(iii) due to environmental consequences of complete removal of platforms as they are decommissioned .	8, 9	S-03	Supplement, Improve or Modify Analyses	NMFS feels that 50 CFR 600.815 (a)(8)(i) is the most appropriate consideration to designate HAPC under this alternative. Please see applicable section(s).	2.4, 4.3.3
237	The Final EIS should acknowledge and evaluate the environmental consequences of the decision whether or not to adopt Alternative B.8 based on the information discussed in these (CARE) comments.	general	S-03	Supplement, Improve or Modify Analyses	NMFS has taken all of your comments into consideration. Please see the preferred alternative and applicable sections.	2.4, 2.7, 3.2.2.2.4, 4.3.3
238	The EIS should consider decommissioning of oil reefs which will kill fishes in the vicinity when the explosives are detonated.	general	S-03	Supplement, Improve or Modify Analyses	NMFS disagrees. The decommissioning process is not within NMFS authority and so outside the scope of this EIS. The FEIS has been updated to better describe the relationship of designating oil platforms as HAPC and the decommissioning process, including the generic consequences of HAPC designations. See applicable sections	4.3.1, 4.3.3
239	The Final EIS should acknowledge and evaluate these environmental consequences of Alternative A.6, which would not include some platform reefs.	general	S-03	Supplement, Improve or Modify Analyses	The environmental consequences of limiting the designation of oil platforms as HAPC is discussed in Chapter 4 of the FEIS. The FEIS has been updated to more fully inform the reader. Please see applicable section(s).	4.2, 4.3.3
240	The EIS should include a review of studies quantifying the benefits of previous area closures.	general	S-02.3	Supplement, Improve or Modify Analyses	NMFS agrees. The FEIS has been updated with additional information specifically related to the practicability of the final preferred alternative. See applicable sections.	4.7, 4.8, Appendix J
241	With respect to long-term ecological costs of failing to protect habitat, any analysis of practicability must include a discussion of the long-term ecological costs and benefits of habitat protection.	general	S-02.3	Supplement, Improve or Modify Analyses	The FEIS has been updated to provide additional information on the practicability of the final preferred alternative. See applicable section.	Appendix J

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
242	Manage and make these (EFH) decisions on a precautionary principle.	2, 2	G-08, G-10	Acknowledge	NMFS has used the precautionary principle in its rationale for the alternatives. For references to NMFS' use of precautionary approaches, please see applicable section(s).	1.6.3, 2.3.1, 2.4, 2.5.1.1, 2.5.2, 2.7, 4.1.1.3, 4.1.1.5, 4.4.8, Appendix J
243	Apply "precautionary management principles" in all cases where information needed for decision making is unavailable.	general	G-15	Acknowledge	NMFS has used the precautionary principle in its rationale for the alternatives. For references to NMFS' use of precautionary approaches, please see applicable section(s).	1.6.3, 2.3.1, 2.4, 2.5.1.1, 2.5.2, 2.7, 4.1.1.3, 4.1.1.5, 4.4.8, Appendix J
244	We urge that management of groundfish on the Pacific coast be governed by the "precautionary principle."	1	G-21	Acknowledge	NMFS has used the precautionary principle in its rationale for the alternatives. For references to NMFS' use of precautionary approaches, please see applicable section(s).	1.6.3, 2.3.1, 2.4, 2.5.1.1, 2.5.2, 2.7, 4.1.1.3, 4.1.1.5, 4.4.8, Appendix J
245	We feel it is imperative for the PFMC to take a precautionary approach to management of Pacific groundfish, while we improve our limited understanding of the impacts of fishing on diverse habitats and the ability of habitats to recover from fishing impacts.	5	S-14	Acknowledge	NMFS has used the precautionary principle in its rationale for the alternatives. For references to NMFS' use of precautionary approaches, please see applicable section(s).	1.6.3, 2.3.1, 2.4, 2.5.1.1, 2.5.2, 2.7, 4.1.1.3, 4.1.1.5, 4.4.8, Appendix J
246	We feel it is important that all possible EFH protection measures be adopted in the near-term, rather than deferring measures for future understanding.	6	S-14	Supplement, Improve or Modify Analyses	NMFS notes that the FEIS has been updated with a final preferred alternative that includes a comprehensive suite of practicable measures to protect EFH. If appropriate, NMFS will publish a proposed rule to implement the measures as quickly as is practicable. See applicable section(s).	2.7, Appendix J

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
247	Evaluate extent to which freshwater habitat should be considered EFH due to abundance of prey species	general	S-01	No change to FEIS	Unfortunately, limited time and resources do not allow model levels of detail, such as a complete analysis of every possible component of EFH. Therefore the analysis was narrowed during public scoping. Estuaries were included in the HAPC designations for the final preferred alternative. Estuaries and prey species are addressed in the EIS. Please see applicable section(s).	2.7, 3.2.2.1, 3.3.3
248	Is incorporating krill as a Coastal Pelagic Species (CPS) in the FMP as effective as Alt. C.5? If equally protective, choose the one which could be implemented more quickly	general	S-01	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative. The krill harvest ban, alternative C.5, is not contained within the final preferred alternative; however, the Council chose to address krill through the CPS FMP and has initiated a process to do so. The results of that process are not final so it is not knowable at this time if it will be "more protective" or when the process will be complete. See applicable section.	2.7
249	There should be more discussion on habitat for major prey species included in the range of alternatives. If no information is available, clearly state this. Also include information on direct harm or capture (as done for krill).	9	S-05	Supplement, Improve or Modify Analyses	Other than krill, as represented in alternative C.5, the analysis of adverse effects was narrowed during scoping to focus on benthic habitats and to focus decisionmaking on those areas most likely to be at risk of impact. A complete literature review of groundfish prey species was performed however and is available in Chapter 3 and the Life Histories Appendix (see next column for appropriate section) and can be used for subsequent EFH consultations. NMFS believes that the range of alternatives is sufficient and that future proposals for protection of groundfish prey may be considered during periodic EFH reviews. Please see applicable section(s).	1.1, 2.5, Alternative C.5, 3.3.3, Appendix H
250	Sport fishing has been the lifeblood of many small communities on the Oregon coast and supports local and state economies.	1	G-07	Supplement, Improve or Modify Analyses	NMFS has used available quantitative and qualitative information to describe impacts to communities, however available data limits the ability to analyze impacts to communities and efforts are underway to expand our knowledge of fishing-dependent communities. NMFS acknowledges the importance of recreational fishing to state and local economies. Section 3.7.3 contains information on recreational fishing participation by state. Section 3.7.3.2. contains discussion on the economic impact of recreational fishing. The FEIS has been updated to include a final preferred alternative that is designed to minimize negative socioeconomic effects. See applicable section(s).	2.7, 3.7.3, Ch. 4
251	Take into account that the sport fishery has positive socioeconomic impacts and minimal environmental impacts when considering closed areas	1	G-07	No change to FEIS	Section 3.7.3.2 contains discussion on the economic impact of recreational fishing. Additional data on sport angler expenditures will be collected in 2006. The data will be used in an economic impact model to describe the contribution of the sport fishery to communities and regional economies. Appendix A, Section 2.4 contains information on the impact of various types of fishing gear. Please see applicable section(s).	2.4, 3.7.3.2, Appendix A

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
252	Ban on all bottom-contact fishing is a very severe measure. Consider sport fishing and crabbing and their lack of evidence for impact on EFH.	1, 2	G-07, G-18	Supplement, Improve or Modify Analyses	The FEIS has been updated with a final preferred alternative that bans bottom contact gear in a much smaller area than described in alternative C.14. The impacts of sport and crab fisheries have been fully considered in the EIS. Please see preferred alternative and applicable section(s).	2.7, Appendix 10 to Appendix A
253	NMFS has not fully analyzed the potential impacts on the anglers who harvest and recreate these areas	1	G-17	No change to FEIS	NMFS has used available quantitative and qualitative information to describe impacts to recreational fishers. Available data limitations constrain NMFS's ability to analyze impacts to recreational fishers. However, a new data collection effort will begin in 2006 aimed at estimating the value of fishing trips and catch to recreational anglers. The data will also be used how these values and participation rates vary due to regulatory and environmental changes.	4
254	Sportfishing needs to be discussed more because it has, in many cases, an equal or greater community impact	1	S-20	No change to FEIS	NMFS has used available quantitative and qualitative information to describe impacts to recreational fishers. However available data limits the ability to analyze impacts to recreational fishers. Please see applicable section(s).	Ch. 3
255	Identify examples of habitat types to serve as ecological benchmarks.	1	G-08	Supplement, Improve or Modify Analyses	NMFS acknowledges the concept of using specific habitat types as benchmarks in a research and monitoring plan. The FEIS has been updated to include a general research plan; however, the level of specificity requested by the commenter is beyond the scope of this analysis.	2.6, 2.7, 2.9
256	Establish reference reserves for researchers to identify fishing impacts.	general	G-08, G10	Supplement, Improve or Modify Analyses	The Council and NMFS will encourage new research on the effects of area closures on habitat recovery and the fishing industry. The FEIS has been updated to include a general research plan. Please see applicable section(s).	2.6, 2.7, 2.9
257	Include connectivity between habitat types as a criteria for designating EFH	general	G-10	Supplement, Improve or Modify Analyses	NMFS acknowledges the comment however chose not to add additional alternatives for describing EFH based on the fact that the EIS contains a full and reasonable range of alternatives. Modification of the criteria for designating EFH may be the subject of the required 5-year review of EFH descriptions.	N/A
258	A partnership of NMFS, PFMC, and Sea Grant should initiate a pilot strategic plan for habitat mapping in the California Bight.	3	S-04	Supplement, Improve or Modify Analyses	NMFS agrees that additional habitat mapping is an important part of ongoing research to fill data gaps related to groundfish EFH. A detailed research plan is outside the scope of this analysis; however, the FEIS has been updated to include a general research plan. See applicable section(s).	2.9
259	We strongly recommend intensive pre- and post-closure monitoring of any closed areas that may result from adoption of the alternatives outlined in this DEIS.	13	S-12	Acknowledge	NMFS will encourage new research on the effects of area closures on habitat recovery and the fishing industry. A specific research plan is beyond the scope of this analysis; however, the FEIS has been updated to include a general research plan. Please see applicable section(s).	2.6, 2.7, 2.9

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
260	Many of these areas on the continental shelf and slope have already been closed to fishing, some for up to 6 years. During that time there have been no efforts to evaluate if these closures were beneficial, detrimental, or neutral for fish production.	1	S-27	Supplement, Improve or Modify Analyses	NMFS acknowledges the need for additional research on the effects of area closures on habitat recovery and the fishing industry. Closures contained in the final preferred alternative may function well as research areas; however, A specific research plan is beyond the scope of this analysis; however, the FEIS has been updated to include a general research plan. Please see applicable section(s).	2.6, 2.7
261	It is premature for the Council to establish a research "reserve system" without consideration of the effectiveness of this system and its effect on fishing.	2	S-27	Supplement, Improve or Modify Analyses	NMFS disagrees that it is premature to implement fishery closures. The FEIS has been updated to include a final preferred alternative that incorporates well-reasoned management measures. See applicable section(s).	2.6, 2.7
262	NMFS must determine if action is or is not necessary to comply with section 303(a)(7) of the Magnuson Act - must be included in statement of purpose and need. May not delay consideration of decision until issuing ROD because analysis leading up to the decision needs to be incorporated into NEPA process.	2	S-05	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative that will be considered in the ROD and associated FMP and regulatory amendments. NMFS final decision on what is necessary to satisfy the mandate to minimize adverse effects to EFH will be detailed in the ROD and the decision documents for the FMP amendment. The FEIS is the appropriate place to consider environmental impacts of alternative but not an agencies final decision which must be detailed in the ROD. See applicable section(s).	2.7
263	NMFS must decide which alternatives best satisfy its mandate to minimize adverse effects on EFH.	2	S-05	Supplement, Improve or Modify Analyses	The FEIS has been updated to include a final preferred alternative that will be considered in the ROD and associated FMP and regulatory amendments. NMFS final decision on what is necessary to satisfy the mandate to minimize adverse effects to EFH will be detailed in the ROD and the decision documents for the FMP amendment. See applicable section(s).	2.7
264	NMFS provides no guidance about which adverse effects of fishing on EFH must be minimized, despite clear evidence that there are negative effects of fishing on EFH that is more than minimal and not temporary (MMNT), therefore minimization is required. (pg. 2-12 - 2-13, 4-2)	6	S-05	Supplement, Improve or Modify Analyses	There is no conclusive evidence that adverse effects have occurred or are occurring. The alternatives are based on a precautionary response to the inability to determine adverse effects. The FEIS has been updated to include a final preferred alternative that includes measures to minimize adverse effects to EFH. The ROD that will follow the FEIS will include NMFS final determination of what actions within NMFS authority are necessary to comply with the mandate to minimize adverse effects that are than more than minimal and not temporary. See applicable section(s).	2.5.1, 2.7
265	We find that many of the alternatives in the EFH DEIS do not comply with MSA National Standards 2 and 8.	general	S-09	Supplement, Improve or Modify Analyses	NMFS notes that the alternatives were developed to provide for a comparison of effects to facilitate decisionmaking. The FEIS has been updated to include a final preferred alternative that is intended to comply with national standards and applicable law. See applicable section.	2.7

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
266	The commenters found it confusing to have the EIS presented as a document describing the effects of conservation action on habitat when the mandate is to determine the effects of fishing on habitat.	15	S-12	No change to FEIS	NMFS regrets the confusion. The purpose of the EIS involved not only assessing the effects of fishing on EFH, but consideration of alternatives to minimize such effects, if adverse, to the extent practicable. The requirements for the contents of the EIS are described in the applicable sections.	Ch. 1
267	NMFS should expand the discussion of EO 12866 and provide additional analysis of the impacts of proposed regulations on fishing fleets, harbors, and marinas in the central California coast study area.	13	S-13	Supplement, Improve or Modify Analyses	This analysis has been expanded and is addressed in the RIR/RFA. Please see applicable section(s).	Ch. 4, Appendix J
268	EFH process should allow for both closing and reopening of areas to fishing activity	16	S-12	Supplement, Improve or Modify Analyses	NMFS agrees. The FEIS has been updated with a final preferred alternative that includes a procedural element to establish a process for evaluating the EFH measures based on the receipt of new scientific information to determine whether specific areas should be modified or eliminated or new areas implemented. See applicable sections.	2.7
269	Modify alternative B.9 to have a process for removing HAPC designation if science supporting original designation is not longer valid	general, 8, 6	S-09, S-12, S-13	Supplement, Improve or Modify Analyses	The Council incorporated this provision into its preferred alternative as part of a procedural measure that would also allow evaluation of areas closed to bottom trawl. Please see preferred alternative.	2.7
270	Please exclude Scottish seine from any fishing prohibition as it has minimal impact to groundfish EFH	general	S-22, S-23, S-25, G-04, G-05	Modified Alternative	The final preferred Alternative exempts Scottish seine from the Ecologically Important Habitat Closed Areas applicable to bottom trawl gear in waters off of California. (Currently, this gear type is only used off of California.) Scottish seine gear would be prohibited in those Ecologically Important Habitat Closed Areas closed to all bottom contact gear or all gear types. Other measures intended to minimize the adverse effects of fishing on EFH included in the final preferred Alternative (gear restrictions, effort reduction) do not affect the use of Scottish seine gear. Please see the preferred alternative.	2.7
271	There does not appear to be a human dimension to what is essential fish habitat	general	S-04	Supplement, Improve or Modify Analyses	NMFS disagrees there is a required human dimension to the description of EFH, which is a function of the biology and habitat associations of fish. NMFS notes however that the FEIS includes a section describing the socioeconomic component of the fishery is included as part of the Affected Environment chapter (Chapter 3) and that the FEIS has been updated with a final preferred alternative that was designed to minimize adverse effects to EFH while maintaining healthy socioeconomic conditions.	2.7, Ch. 3

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
272	Language in section 2.5.2 regarding "Tribal Fisheries" should be made consistent with Section 2.2 or removed altogether as section 2.2 would provide necessary exemption. (pg. 2-27)	1	S-08	Made Factual Corrections	The NMFS position on the application of the alternatives to tribal fisheries is stated in section 2.2 and is clear that the alternatives would not apply to tribal fisheries. The text in Section 2.5.2 cited by the commenter is appropriate.	2.2, 2.5.2
273	Paragraph 11, 2nd sentence reads, "In developing these trawl fisheries, the tribes . . .". It should read, "In developing these trawl fisheries, the Makah . . ." as they are the only tribe with trawl fisheries.	1	S-08	Made Factual Corrections	Changes have been made, please refer to appropriate section(s) (next column).	3.7.2
274	Paragraph 14, change "Tribe's" or "the Tribe" to tribes as this philosophy of sustainability is shared by all coastal tribes.	1	S-08	Made Factual Corrections	Changes have been made, please refer to appropriate section(s) (next column).	3.7.2
275	Paragraph 3, 1st sentence begins, "Twelve western Washington. . .". This should be changed to "Thirteen".	1	S-08	Made Factual Corrections	Changes have been made, please refer to appropriate section(s) (next column).	3.7.2
276	Section 3.7.2, "Tribal Fisheries" (p.3-164 to 168): Paragraph 2, 2nd sentence reads, " . . .the tribes annually . . .". For groundfish this is now biennially.	1	S-08	Made Factual Corrections	Changes have been made, please refer to appropriate section(s) (next column).	3.7.2
277	Paragraph 2, 3rd sentence reads, " . . .occurs primarily with hook and line and pots. . .". This should be changed to, " . . .hook and line and trawl . . .". Pots are for crab only (see tables 3-55 and 3-56).	1	S-08	Made Factual Corrections	Changes have been made, please refer to appropriate section(s) (next column).	3.7.2, Tables 3-56 and 3-57

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
278	Several important scientific studies of the habitat value provided by platform reefs located off of California have been published since the 1999 MMS Report…… The DEIS fails to present the best available scientific information on pp. 3 8 to 3-10, and disregards the breadth and depth of this research in concluding that there is a “lack of conclusive research" regarding these issues specifically for the West Coast.	10	S-03	Supplement, Improve or Modify Analyses	NMFS has conducted a literature review and has updated sections of the EIS with results of recent scientific research. Please see applicable section(s).	3.2.2.2.4, 4.3.3
279	“The DEIS, relying on the outdated reference to Holbrook et al., wholly fails to take into account these crucial findings in discussing the environmental consequences of Alternative B.8.”	10	S-03	Supplement, Improve or Modify Analyses	NMFS has conducted a literature review and has updated sections of the EIS with results of recent scientific research. Please see applicable section(s).	3.2.2.2.4, 4.3.3
280	The DEIS, in discussing the environmental consequences of Alternative B.8 fails to take into account the crucial findings that platform reefs are important habitat for rockfish and function just as natural reefs do, in that they both produce and attract fish depending on species, site, season and ocean conditions.	10	S-03	Supplement, Improve or Modify Analyses	NMFS has conducted a literature review and has updated sections of the EIS with results of recent scientific research.	3.2.2.2.4, 4.3.3
281	The Final EIS should rely on the most up-to-date research in order to evaluate environmental consequences, and should consider the 7 findings identified by CARE (pp. 11-12) from Love et al. (2003) and Love (2005) with respect to as to the habitat value of platform reefs.	11	S-03	Supplement, Improve or Modify Analyses	NMFS has conducted a literature review and has updated sections of the EIS with results of recent scientific research. Please see applicable section(s).	3.2.2.2.4, 4.3.3

Comment ID #	Comment	Page of Comment letter	Commenter ID	Response	Rationale for response	Applicable Chapter/ Section(s)
282	"In sum, the uncertainty as to the habitat value of platform reefs discussed in Holbrook (2000) has been rebutted by more recent research….the Final EIS should rely on the most up-to-date research in order to evaluate environmental consequences, and should consider each of the above findings."	12	S-03	Supplement, Improve or Modify Analyses	NMFS has conducted a literature review and has updated sections of the EIS with results of recent scientific research. Please see applicable section(s).	3.2.2.2.4, 4.3.3

11.3 Public Comment Letters

Table 11-2: Public Comments Received

Comment	Source	Signed By	File Type	Comments
S-1	EPA	Reichgott	**Comment**	
S-2	Oceana	Jim Ayers	**Comment**	Oceana provided 6 Attachments, listed below
S-2.1	~	~	Attachment	
S-2.2	~	~	Attachment	
S-2.3	~	~	Attachment	
S-2.4	~	~	Attachment	
S-2.5	~	~	Attachment	
S-2.6	~	~	Attachment	
S-3	CARE	George Steinbach	**Comment**	CARE provided reference materials, Exhibits 1-11 listed below
n/a*	~	~	Reference Material	no response necessary
n/a	~	~	Reference Material	no response necessary
n/a	~	~	Reference Material	no response necessary
n/a	~	~	Reference Material	no response necessary
n/a	~	~	Reference Material	no response necessary
n/a	~	~	Reference Material	no response necessary
n/a	~	~	Reference Material	no response necessary
n/a	~	~	Reference Material	no response necessary
n/a	~	~	Reference Material	no response necessary
n/a	~	~	Reference Material	no response necessary
n/a	~	~	Reference Material	no response necessary
S-4	California Lobster and Trap Fishermen's Assn.	Chris Miller	**Comment**	Miller provided 3 figures, listed below
S-4.1	~	~	Figure	
S-4.2	~	~	Figure	
S-4.3	~	~	Figure	

Table 11-2: Public Comments Received (continued)

Comment	Source	Signed By	File Type	Comments
S-5	Oceana/NRDC/Ocean Conservancy	Ayers/Newman/Dorsett	**Comment**	
S-6	NRDC/Ocean Conservancy	Garrison / Dorsett	**Comment**	
S-7	ODFW	Burke	**Comment**	
S-8	NWIFC	Jones	**Comment**	
S-9	Oregon Anglers	Holloway	**Comment**	
S-10	Coastside Fishing Club	Wolford	**Comment**	
S-11	PMCC	Blouser / Huhtala	**Comment**	
S-12	PMCC	Huhtala	**Comment**	
S-13	Port San Luis Harbor District	Elder	**Comment**	
S-14	Audubon Society of Portland	Ash / Murray / Englemeyer	**Comment**	
S-15	Southern CA Trawlers Assn.	McCorkle	**Comment**	The last page of the PDF is a correction to their analysis of Alternative C.10
S-16	Coos Bay Trawlers Assn., Inc.	Bodnar	**Comment**	
S-17	Marine Life Conservancy	Cozens	**Comment**	
S-18	Marine Life Conservancy	Cozens	**Comment**	
S-19	Public	Craven	**Comment**	
S-20	Advisory Committee	Green	**Comment**	
S-21	F/V Adante	Heikkila	**Comment**	
S-22	Market Seafood Inc.	Johnson / Worthington	**Comment**	comments regarding Scottish Seine
S-23	Ports Seafood	Ports	**Comment**	comments regarding Scottish Seine
S-24	Public	Lee	**Comment**	
S-25	Osprey Seafood of CA, Inc.	Weinberg-Lynn	**Comment**	comments regarding Scottish Seine
S-26	Public	Rock	**Comment**	
S-27	F/V Excalibur	Retherford	**Comment**	
G-1	Oregon State University	Hixon	Endorsement	Endorsement of PMCC's Independent review panel comments

Table 11-2: Public Comments Received (continued)

Comment	Source	Signed By	File Type	Comments
G-2	Fisherman's Marketing Assn.	Leipzig	**Comment**	
G-3	F/V Regina	Stickle	**Comment**	
G-4	Exclusive Fresh, Inc.	Bruno	**Comment**	
G-5	Exclusive Fresh, Inc.	Bruno	**Comment**	
G-6	Moss Landing Harbor Dist.	McIntyre	**Comment**	
G-7	Public	Keene	**Comment**	
G-8	Public	Alderson	**Comment**	
G-9	Public	Aldridge	**Comment**	
G-10	Public	Anspacher-Meyer	**Comment**	
G-11	Public	Capozzelli	**Comment**	
G-12	Public	Feldman	**Comment**	
G-13	Public	Hafer	**Comment**	
G-14	Public	Hansen	**Comment**	
G-15	Public	Kitchen	**Comment**	
G-16	Public	Lish	**Comment**	
G-17	Recreational Fishing Alliance	Merriman	**Comment**	
G-18	City of Morro Bay	Peters	**Comment**	
G-19	Public	Savlove	**Comment**	
G-20	DOI	Sleeger	**Comment**	Statement of "No Comment"
G-21	Rogue Valley Audubon Society	Trail	**Comment**	
M-1	~	~	**Mass Mailing**	We received about 3486 copies of this general support e-mail.
M-2	~	~	**Mass Mailing**	We received about 9891 copies of this general support e-mail/postcard.
M-2.1	~	~	**Mass Mailing**	We received about 17478 copies of this e-mail, identical to Mass E-mail 2 except it specifically indicates support for Alternative C 12.
M-3	~	~	**Mass Mailing**	We received about 4232 copies of this general support e-mail.
M-4	~	~	**Mass Mailing**	We received about 4614 copies of this general support e-mail/fax.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

May 11, 2005

Reply To
Attn Of: ETPA-088 Ref: 05-008-NOA

D. Robert Lohn, Regional Administrator
NMFS/NOAA - Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115-0070

Dear Mr. Lohn:

The U.S. Environmental Protection Agency (EPA) has reviewed the draft Environmental Impact Statement (EIS) for **Essential Fish Habitat Designation and Minimization of Adverse Impacts** (CEQ No. 20050049) in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Section 309, independent of NEPA, specifically directs EPA to review and comment in writing on the environmental impacts associated with all major federal actions and the document's adequacy in meeting NEPA requirements.

The draft EIS evaluates the effects of a strategy to conserve and enhance essential fish habitat (EFH) for fish managed under the Pacific Coast Groundfish Fishery Management Plan (FMP). The EIS includes alternatives for identification of EFH and Habitat Areas of Particular Concern (HAPC), measures to minimize adverse impacts to EFH from fishing activities, and research and monitoring actions to encourage the conservation and enhancement of EFH. The proposed action is to ensure compliance with section 303(a)(7) of the Magnuson-Stevens Act and will amend the Pacific Coast Groundfish FMP.

The EIS provides six alternatives for identifying and designating EFH, nine alternatives for designating HAPC, fourteen alternatives with various options for minimizing adverse fishing impacts to EFH and four alternatives with two expanded logbook program options for research and monitoring. The following tables provide ratings for each of the alternatives and options provided in the EIS.

An overall rating of EC-2 (Environmental Concerns - Insufficient Information) along with a summary of our comments will be published in the *Federal Register*. A copy of the rating system used in conducting our review is enclosed for your reference.

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Pacific Coast Groundfish Fishery Management Plan Essential Fish Habitat Designation and Minimization of Adverse Impacts Draft Environmental Impact Statement			
Alternative Designation	**Alternative Name**	**Preliminary Preferred Alt. (Yes/No)**	***Rating**
Category: Essential Fish Habitat			
A.1	No Action	No	LO
A.2	Depths less than 3,500 m	Yes	EC-2
A.3	100% Habitat Suitability Probability Area	Yes	EC-2
A.4	Habitat Suitability Probability Based on Management Status	No	EC-2
A.5	70% Habitat Suitability Probability Area	No	EC-2
A.6	30% Habitat Suitability Probability Area	No	EC-2
Category: Habitat Areas of Particular Concern			
B.1	No Action	No	EC-2
B.2	Estuaries	Yes	LO
B.3	Canopy Kelp	Yes	LO
B.4	Seagrass	Yes	LO
B.5	Core Habitat	No	EC-2
B.6	Rocky Reefs	Yes	LO
B.7	Areas of Interest	No	LO
B.8	Oil Production Platforms	No	EC-2
B.9	Process for new Habitat Areas of Particular Concern	No	LO

*LO – Lack of Objection
EC-2 Environmental Concerns – Insufficient Information

Pacific Coast Groundfish Fishery Management Plan
Essential Fish Habitat Designation and Minimization of Adverse Impacts
Draft Environmental Impact Statement

Alternative Designation	Alternative Name	Preliminary Preferred Alt. (Yes/No)	*Rating
Category: Minimize Adverse Fishing Impacts to Essential Fish Habitat			
C.1	No Action	No	EC-2
C.2.1	Depth-based Gear Restrictions – Option 1	No	EC-2
C.2.2	Depth-based Gear Restrictions – Option 2	No	LO
C.2.3	Depth-based Gear Restrictions – Option 3	No	EC-2
C.3.1	Close Sensitive Habitat – Option 1	No	EC-2
C.3.2	Close Sensitive Habitat – Option 2	No	EC-2
C.3.3	Close Sensitive Habitat – Option 3	No	EC-2
C.3.4	Close Sensitive Habitat – Option 4	No	EC-2
C.4.1	Prohibit Geographic Expansion of Fishing – Option 1	Yes	EC-2
C.4.2	Prohibit Geographic Expansion of Fishing – Option 2	Yes	LO
C.5	Prohibit a Krill Fishery	No	LO
C.6	Close Hotspots	No	EC-2
C.7.1	Close Areas of Interest – Option 1	No	EC-2
C.7.2	Close Areas of Interest – Option 2	No	EC-2
C.8.1	Zoning Fishing Activities – Option 1	No	EC-2
C.8.2	Zoning Fishing Activities – Option 2	No	EC-2
C.9.1	Gear Restrictions: Prohibit Roller Gear Larger than 15 inches	Yes	LO
C.9.2	Gear Restrictions: Prohibit Flat Trawl Doors	Yes	LO
C.9.3	Gear Restrictions: Limit Longline Groundline Length to 3 nm	Yes	LO
C.9.4	Gear Restrictions: Employ Habitat-Friendly Anchoring Systems	Yes	LO
C.9.5	Gear Restrictions: Prohibit Dredge Gear	Yes	LO
C.9.6	Gear Restrictions: Prohibit Beam-Trawl Gear	Yes	LO
C.9.7	Gear Restrictions: Prohibit Set-Gillnets in Waters Deeper than 60 fm	Yes	LO
C.9.8	Gear Restriction: Prohibit Dingle Bar Gear (Troll Groundfish Gear)	Yes	LO
C.10	Central California No-Trawl Zones	Yes	LO
C.11	Relax Gear Endorsement Requirements	Yes	LO
C.12	Close Ecologically Important Areas to Bottom Trawl	Yes	EC-2
C.13	Close Ecologically Important Areas to Bottom-Contacting Gear	Yes	EC-2
C.14	Close Ecologically Important Areas to Fishing	Yes	LO

*LO – Lack of Objection
EC-2 – Environmental Concerns – Insufficient Information

Pacific Coast Groundfish Fishery Management Plan Essential Fish Habitat Designation and Minimization of Adverse Impacts Draft Environmental Impact Statement			
Alternative Designation	**Alternative Name**	**Preliminary Preferred Alt. (Yes/No)**	***Rating**
Category: Research and Monitoring			
D.1	No Action	No	EC-2
D.2.1	Expanded Logbook Program – All Fishing Vessels	No	LO
D.2.2	Expanded Logbook Program – Random Sample	No	EC-2
D.3	Expanded Vessel Monitoring System Program	No	LO
D.4	Research Reserve System	No	LO

*LO – Lack of Objection
EC-2 Environmental Concerns – Insufficient Information

Our concerns with the EIS focus on data limitations and inaccuracies, the roles of NOAA-Fisheries and the Pacific Fisheries Management Council in the development and selection of alternatives, and the need for additional information on the Fisheries Economic Assessment Model and the Environmental Justice analysis. Detailed comments discussing our concerns and the alternatives are provided in the enclosure. EPA recognizes it might not be possible to address all data limitations prior to completion of the final EIS. Consequently, our ratings of the alternatives presented in the EIS reflect our concerns and recommend a protective approach to identifying and minimizing impacts to EFH in light of the stated uncertainties.

Thank you for the opportunity to review this draft EIS. If you would like to discuss these comments in detail, please contact Mike Letourneau at (206) 553-6382.

Sincerely,

/S/ Peter Contreras for

Christine Reichgott, Manager
NEPA Review Unit

cc: J. DeVore, PFMC
K. Dahl, PFMC

Enclosure

Pacific Coast Groundfish Fishery Management Plan
Essential Fish Habitat Designation and Minimization of Adverse Impacts
Draft Environmental Impact Statement

General Comments

We support the Habitat Suitability Probability (HSP) approach utilized in the EIS for identifying Essential Fish Habitat (EFH) and the associated sensitivity index approach used for identifying habitat for closure under Alternative C.3. However, due to the current data limitations and reported inaccuracies in some of the data used in the HSP and sensitivity indices, we have concerns about selecting alternatives that utilize these approaches.

We support your efforts to obtain additional high quality data and correct inaccuracies. In addition to expanding the logbook, vessel monitoring system (VMS) and research reserve programs, we support increasing observer coverage and manned and remote sensing devices that are nondestructive to marine habitats. We agree that combining VMS, logbook and observer data would result in a more complete picture of fishing activities and that VMS data with a higher resolution track line of trawl and fixed gear sets would be a significant benefit. We also support efforts to develop new fishing gear that is less destructive of EFH.

We appreciate the discussion on the non-fisheries related activities in the EIS. These activities described in the upland, riverine, estuarine, coastal and marine sections provide good information for evaluating cumulative impacts to EFH. While the suite of groundfish does not include anadromous species, like krill, they are prey species of groundfish and are impacted by the groundfish fishing activities. Consequently, the EIS would benefit from evaluating the extent to which freshwater habitats should be considered essential groundfish habitat and techniques and opportunities for identifying freshwater HAPC.

The EIS states that EFH recommendations from the National Marine Fisheries Service (NMFS) or a Fisheries Management Council (Council) to federal or state agencies are non-binding. The EIS needs to clarify that only the NMFS, not the Council, can provide EFH recommendations to federal or state agencies. In addition, the EIS should discuss how EFH recommendations from NMFS will impact the Council and its processes.

Alternatives for Identification and Description of Essential Fish Habitat (EFH)

As discussed above, we support the HSP approach utilized for identifying EFH, however, the limitations and inaccuracies of the data utilized in this approach could leave some essential habitat for groundfish species unprotected. Therefore, we support the No Action alternative that designates all waters from the mean higher high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California to the seaward boundary to the U.S. Exclusive Economic Zone (EEZ) as EFH.

The EIS states that some of the essential fish habitat maps generated from the information collected on the managed species and utilized in some of the Identification and Description EFH alternatives were incorrect. The final EIS should discuss if the essential fish habitat maps generated from the information collected on the managed species inaccuracies have been corrected and if so, the results of those corrections.

The EIS states that the Council and NMFS will attempt to have the methodology for calculating "biogenic areas" peer-reviewed by the Council's Scientific and Statistical Committee (SSC) during the

draft EIS review period, and that the methodology may be incorporated into the formal adoption of a Fisheries Management Plan (FMP) amendment and regulatory action. The EIS should clarify if such an action would require the development of a supplemental EIS.

The EIS discusses how the Scientific and Statistical Committee (SSC) approved the methodology for developing the indices used in the HSP model, but did not approve the impact function component of the model used for developing the alternatives. The EIS needs to explain why the SSC did not approve the impact function component of the model and if there are plans to obtain their approval prior to the selection of preferred alternatives by the NMFS.

Alternatives for Habitat Areas of Particular Concern (HAPC)

The EIS states that the HAPC alternatives are not mutually exclusive and that all of the action alternatives could be included in a final preferred alternative, even if some of the designated areas were to overlap. While the EIS is clear that HAPC must be a subset of EFH, it must also be clear that if all of the HAPC action alternatives (Alternatives B.2 through B.9) were selected, selection of a preferred EFH alternative would be limited. While the discussion and figures in Chapter 4 of the EIS provide information on what HAPC areas would be excluded under each EFH alternative, it is not clear which EFH alternatives would be excluded by selecting all of the HAPC alternatives. This needs to be clarified in the EIS.

While we support the approach of combining alternatives into a final preferred alternative, we have concerns with Alternatives B.5 (Core Habitat) and B.8 (Oil Production Platforms). The Core Habitat under Alternative B.5 is defined as the upper 10% area of an HSP greater than 0%, for the juvenile and adult life history stages of overfished and precautionary zone groundfish species. Because of the limitations and inaccuracies of the data utilized in the HSP analyses, there is a potential that some HAPC for some of the overfished and precautionary zone groundfish might not be protected under this alternative. Consequently, we have environmental concerns with this proposed alternative.

While there have been high concentrations of groundfish observed in association with many of the oil platforms off the coast of California, including overfished species, it is uncertain if this is a net benefit to the ecosystem. These unnatural structures may be attracting fish populations away from natural reefs, exposing fish to mercury contamination, attracting predators resulting in a net loss to the fish populations, and increasing fishing effort in the area. We recommend that Alternative B.8 be modified to address these concerns. Once it is determined that decommissioned platforms scheduled for removal do not pose a mercury contamination threat, we recommend that the platforms remain in place until such time that it is demonstrated that adequate natural habitat exists and overfished species meet maximum sustainable yield (MSY). Such an alternative would include the benefits these platforms provide to the groundfish species, address the mercury contamination and the potential attraction of fish from natural reefs, and protect the species from increased effort by fishers.

We support a process for new HAPC designations such as the one proposed in Alternative B.9. As additional information is obtained there is the potential for identifying new areas that are important to the survival and sustainability of a species. This information should undergo a technical and public review for consideration as HAPC. Alternative B.9 provides for such reviews in a streamlined process for designating new HAPC.

Alternatives to Minimize Adverse Fishing Impacts to EFH

The proposed alternatives for minimizing adverse fishing impacts on EFH include gear modifications, area closures and fishing effort reductions. Alternative C.2 includes three options for

Depth-based Gear Restrictions. Alternative C.2.2 would prohibit the use of large footrope trawl gear throughout the EEZ and prohibit all fixed gear shoreward of 100 fm north of 40°10' N latitude and 150 fm south of 40°10' N and consequently would be the most protective of EFH. We recommend that Alternative C.2.2 be selected as the preferred alternative.

Alternative C.3 (Close Sensitive Habitat) includes four options all based on sensitivity and recovery indices developed as part of the fishing impact model component of the comprehensive risk assessment. Of the four options, Alternative C.3.4 would provide the most protection, however, because of the limitations and inaccuracies of the data utilized in this modeling effort, there is a potential that some sensitive habitats might not be protected under this alternative. Therefore, we have concerns with these proposed alternatives.

Alternative C.4 (Prohibit Geographic Expansion of Fishing) has two options which generally cover the same geographic area. However, Alternative C.4.1 prohibits fishing in areas that were not trawled between 2000 and 2002, leaving some 10 minute blocks westward of the 2000m contour vulnerable to fisheries impacts. In addition, Alternative C.4.2 accounts for all bottom-tending gear and addresses the lack of geo-referenced fishing effort data for fixed-gear fisheries. Therefore, we recommend that that Alternative C.4.2 be selected as the preferred alternative.

Despite the prohibition of krill fishing in Washington, Oregon and California waters and the lack of a krill fishery in Council managed waters, we believe Alternative C.5 (Prohibit a Krill Fishery) would be a good preventative measure to protect this important prey species and its habitat. We understand that the Council has elected to address this issue by incorporating krill as a management unit species in the Coastal Pelagic Species FMP, potentially eliminating the need for Alternative C.5. The EIS should discuss if incorporating krill as a Coastal Pelagic Species in the FMP would be as effective as Alternative C.5 and which process could be implemented in the shortest amount of time. If both processes are equally protective of krill, the least time consuming process should be implemented.

Alternative C.6 (Close Hotspots) would prohibit trawling in habitat that has a high probability of being EFH for a large number of groundfish based on the HSP modeling analyses. Because of the limitations and inaccuracies of the data utilized in the HSP modeling, there is a potential that some EFH might not be protected under this alternative. Alternative C.2.2 would prohibit trawling and all fixed gear over a larger geographic area including the area that would be protected by Alternative C.6. Therefore, we recommend selecting Alternative C.2.2 as the preferred alternative instead of Alternative C.6.

Alternative C.7 (Close Areas of Interest) calls for closing the areas of interest designated under Alternative B.7 to fishing either to bottom trawling (Alternative C.7.1) or to all bottom-contacting activities (Alternative C.7.2). These areas of interest would be based on various HSP sensitivity values depending on gear types. While we recommend that Alternative C.7.2 be given preference above C.7.1 as it would protect more EFH from impacts by fishing gear, we have concerns that some areas might not be protected due to the limitations and inaccuracies in the data utilized in the HSP analyses.

Alternative C.8 (Zoning Fishing Activities) would limit the use of bottom-tending gear to specified zones where the agency determines that such activities can be conducted without altering or destroying a significant amount of habitat. Bottom tending fishing gear would be prohibited in all areas deeper than the 2,000 m contour along the continental slope extending to the maximum westward range of groundfish EFH. There would be a five-year transition period to gear specific zones for the remaining area inside the 2,000 m contour, which would remain open to bottom-tending fishing gear.

During the five-year transition period, NMFS would conduct research to delineate zones where specified fishing activities would be permitted. Alternative Option C.8.1 would establish fishing zones for bottom-contact trawls, dredges, and similar bottom-tending mobile fishing gear. Other bottom-contacting gear including bottom longlines, traps, and pots would not be restricted. Alternative Option C.8.2 would establish fishing zones for all bottom-contacting gear types including bottom longlines, traps, and pots. This alternative would include a gear modification and substitution program that cooperatively involves fishers in the design and testing of new gear. The western boundary of the geographic area covered by Alternative C.8 would be dependent on the Identification and Description EFH alternative selected. If the Alternative A.1 (No Action) Identification and Description EFH were selected, the western boundary of Alternative C.8 would be the boundary of the EEZ.

Alternative C.8 in combination with Alternative A.1 would provide a protective approach westward of the 2000 m contour and control fishing activities within the 2000 m through the establishment of fishing zones that would not be significantly impacted by various bottom contact gear types. While we support the adaptive management approach and the inclusion of fishers in the gear research aspects of the program, the EIS does not provide information on how the NMFS will define 'significant' when determining the amount of habitat that can be altered or destroyed under this alternative. The EIS states that the best scientific information available will be utilized for determining whether unavoidable adverse impacts would be minimal and temporary, however, it does not discuss if the HSP model inputs or other information will be used to make these determinations. It is recommended that the EIS provide additional information on potential approaches for determining the significance of habitat impacts under this alternative.

We support the selection of Gear Restriction Alternative C.9 (all options) as a preferred alternative and believe that all the options should be combined into a single alternative. We also support Alternatives C.10 (Central California No-Trawl Zones), and C.11 (Relax Gear Endorsement Requirements). Alternatives C.12 (Close Ecological Important Areas to Bottom Trawl), C.13 (Close Ecological Important Areas to Bottom-Contacting Gear), and C.14 (Close Ecologically Important Areas to Fishing) are variations of the Comprehensive Collaborative Mitigation Alternative. While Alternatives C.12 and C.13 would restrict trawl fishing and bottom contact gear fishing in these ecologically important areas, they would be left vulnerable to some fisheries impacts. Therefore, we recommend that Alternative C.14 be selected as the preferred alternative.

Research and Monitoring Alternatives

Currently, there is limited data on the distribution of groundfish species and their associated habitats, and habitat-specific productivity. In addition, habitat-specific densities are only available for a few species. We agree that there is a critical need for comprehensive, detailed and accurate information on benthic habitats and associated groundfish assemblages on spatial scales relevant to fisheries management and habitat production. Core nursery grounds and spawning areas need to be identified and protected and there is a need to better understand the relationship between climatic events and abundance, growth, spawning success and survival of groundfish species.

We support the Research and Monitoring alternatives that will obtain information that will better define and minimize impacts to EFH. Including all fishing vessels in the Expanded Logbook Program Alternative (Alternative D.2.1) would provide the largest amount of data for updating and increasing the precision and accuracy of the model inputs used for identifying and minimizing EFH. We acknowledge the added economic impacts expanding the Vessel Monitoring System (VMS) Program (Alternative D.3) would have on fishers. However, the EIS is clear that minimizing impacts to EFH will increase enforcement needs and the VMS program could be utilized to address some of these needs. In addition,

combining VMS, logbook and observer data would result in a more complete picture of fishing activities and VMS data with a higher resolution track line of trawl and fixed gear sets would be a significant benefit. Finally, we support the Research Reserve System (Alternative D.4) as a means of better understanding the effects of fishing on habitat. The EIS is clear that additional information is needed regarding the length of time needed for habitat features and functions to cover from fisheries impacts. Alternative D.4 provides a mechanism to obtain such information.

Fisheries Economic Assessment Model

The EIS needs to provide additional information on the Fisheries Economic Assessment Model. Specifically, the EIS should include a detailed description of the model, the assumptions used in the model and the process that was utilized to rectify the model with groundfish fishery economic data. While the EIS discusses potential economic impacts to fishers, processors and fishing communities based on this model, it also needs to discuss the uncertainty of these predicted economic impacts and how the model, originally developed for the limited entry trawl sector, has been adapted to project economic impacts in all groundfish fisheries.

Environmental Justice

While we agree that the geographic scope of the EIS results in some difficulties in identifying and determining if low income or minority populations will be disproportionately impacted by the proposed actions, we believe that the EIS would benefit from additional discussion on how it obtained meaningful public participation from low income and minority populations that may be impacted by the proposed action. The information presented in Appendix E demonstrates that some areas have higher minority and low income populations than others. For example, The Hispanic Population by State, Port Group, County and Port data presented in Appendix E shows that the percentage of the population in Santa Barbara that is Hispanic (54.28%) is higher than any other area. The EIS should discuss what measures were taken to assure that the Hispanic population in the Santa Barbara area was afforded the opportunity for meaningful participation in the process for the proposed action. In particular, the EIS should describe what was done to target the Hispanic communities of Santa Barbara, whether materials regarding the proposed action were translated into Spanish, and if there were translators present during public meetings held in the Santa Barbara area. In addition, the EIS should describe what feedback was received from the Santa Barbara Hispanic communities and how that was incorporated into the decisions for the proposed action.

The EIS should describe what was done to inform all low income and minority communities about the proposed action and the potential impacts in will have on their communities (notices, mailings, fact sheets, briefings, presentations, exhibits, tours, news releases, translations, newsletters, reports, community interviews, surveys, canvassing, telephone hotlines, question and answer sessions, stakeholder meetings, and on scene information), what input was received from the communities, and how that input was utilized in the decisions that were made regarding the proposed action.

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May 11, 2005

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Pacific Fishery Management Council
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Re: Comments on Pacific Coast Groundfish Fishery Management Plan Essential Fish Habitat Designation and Minimization of Adverse Impacts Draft Environmental Impact Statement

Dear Mr. Lohn and Mr. Hansen:

Thank you for the opportunity to comment on the Essential Fish Habitat Draft Environmental Impact Statement for Pacific Coast groundfish. We urge the National Marine Fisheries Service (Fisheries Service) to adopt and implement designation Alternative A.2 plus seamounts. We further urge adoption and implementation of Revised Alternative C.12 as the minimization alternative. Revised Alternative C.12 is thoroughly documented and discussed in Attachment 1: Detailed Description, Discussion, and Comparison of Original Alternative C.12 and Revised Alternative C.12. This attachment includes detailed maps of Revised Alternative C.12. We will fax and mail copies to your office since the file size exceeds the capacity for many email systems to accommodate.

The National Environmental Policy Act ("NEPA") is the "basic national charter for protection of the environment." 40 C.F.R. 1500.1. Congress' goal in enacting the statute was "to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore and enhance the environment." Id. To meet this purpose, NEPA requires that agencies prepare an Environmental Impact Statement (EIS) for all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. 4332(C); see also American Oceans Campaign v. Daley, 183 F.Supp.2d 1 (D.D.C. 2000). One of the cornerstones of NEPA is the solicitation and consideration of informed public views of agency decisionmaking.

Since the original development of Alternative C.12, we have gathered and analyzed more data and information to refine the alternative to better reflect the current bottom trawl footprint, decrease potential displacement to bottom trawl fishermen, and provide practicable protection for Essential Fish Habitat on the West Coast. We have ensured that the alternative is based on the

Mr. Robert Lohn
Mr. Don Hansen
May 11, 2005
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best available information and protects sensitive habitats while maintaining vibrant fisheries. As part of our public comments on the Essential Fish Habitat Draft Environmental Impact Statement ("EFH DEIS"), Oceana is submitting an updated, revised Alternative C.12. Revised Alternative C.12 is well within the scope of the original Alternative 12 as described in the EFH DEIS, and is fully consistent with NEPA's purposes in soliciting public comment. 40 C.F.R. 1503.4. Inclusion, selection and implementation of Revised Alternative C.12 in the Final EFH EIS does not require a supplemental Environmental Impact Statement.

The changes reflected in Revised Alternative C.12 are the result of recommendations by the Scientific and Statistical Committee to pay closer attention to the presence of corals, sponges, and other living seafloor substrates in NOAA trawl survey and other data; analysis of spatial distribution of trawl track information from logbooks; and information provided by the bottom trawlers on areas they suggest be open or closed. By adopting the Revised Alternative C.12, the Fisheries Service and Pacific Fishery Management Council (Council) are able to maintain vibrant fisheries and provide important practicable mitigation measures for protecting Essential Fish Habitat.

The Revised Alternative C.12 is based on the Oceana Approach and is substantially similar to the version submitted in 2004 with some boundary changes which accommodate information referenced above. Though some boundaries have been modified to accommodate commercial trawlers and protect habitat, all management provisions proposed in the original Alternative C.12 remain intact in the Revised Alternative C.12.

As a steward for public resources, the Fisheries Service has an obligation to conserve, protect, and manage living marine resources responsibly. In the Sustainable Fisheries Act of 1996, Congress amended the federal statute governing fishing in the waters off of America's coasts by adding conservation provisions. The Magnuson-Stevens Act requires that the Fisheries Service describe and identify Essential Fish Habitat, and minimize the adverse effects of fishing on that habitat to the extent practicable. It was the Fisheries Service's non-compliance with the law that resulted in a court order to conduct the EFH EIS process now in progress. In particular, the Court noted, "There is no substantive discussion of how fishing practices and gear may damage corals, disrupt fish habitat, and destroy benthic life that helps support healthy fish populations." (District Court Order at 41).

The Fisheries Service has acknowledged the importance of living benthic substrates in a variety of fora. In addition, numerous scientific papers, including those published by Fisheries Service scientists, describe the importance of corals, sponges, and other living substrates to both commercial and noncommercial fish species and marine life. Further, over the past several years, the body of science concerning both the importance of intact marine habitat and the effects of fishing gear on habitat has grown substantially. The National Academy of Sciences (2002) clearly identifies the adverse impacts of bottom trawling on corals, sponges, and other living seafloor animals. The Academy recommends fishing effort reduction, gear modifications, and area closures to mitigate the adverse impacts of bottom trawling on seafloor habitats.

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Despite the recognition of the importance of corals, sponges, and other living substrates as keystones of the ocean ecosystem and Essential Fish Habitat; and the clear scientific reports of threats of bottom trawling to this sensitive long-lived habitat, the Fisheries Service still has not adopted or implemented measures for mitigation to stop this destruction. Revised Alternative C.12 provides a strong, viable, practicable action to do so.

The Fisheries Service and the Pacific Fishery Management Council urged Oceana privately and criticized us publicly to move away from litigation and become more involved in the EFH EIS process by helping develop viable and practicable alternatives. We have done so in good faith. Over the past three years, we have developed a viable and practicable management alternative for the Pacific by working with the Fisheries Service, the Pacific Fishery Management Council, other conservation organizations, commercial fishermen, recreational fishermen, state officials from Washington, Oregon, and California, scientists, local residents, and critics. Revised Alternative C.12 recognizes both the importance of corals, sponges, and other living seafloor animals as essential fish habitat, and the importance of maintaining healthy vibrant fisheries in the Pacific.

As the Fisheries Service and the Pacific Fishery Management Council consider adoption and implementation of minimization alternatives, we ask that you keep in mind that bottom trawling is a privilege granted by the American people through the Secretary of Commerce and the Council. It is not the right of a few to risk unmitigated destruction with long-term consequences to ocean ecosystems simply to achieve a short-term financial gain. We request the agency and Council adopt Revised Alternative C.12 as the preferred alternative in the Final EIS and implement it through regulations.

Sincerely,

Jim Ayers
Oceana, Pacific Regional Director

cc: Pacific Fishery Management Council Chair Don Hansen and Council Members

Attachments:

1. Detailed Description, Discussion, and Comparison of Original Alternative C.12 and Revised Alternative C.12
2. Displacement Comparison Chart of Original Alternative C.12 and Revised Alternative C.12
3. Detailed Support and Justification of Revised Alternative C.12
4. Bibliography
5. AAAS International Scientist Letter, February 15, 2004
6. North Pacific EFH EIS Scientist Letter, April 15, 2004

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Revised Alternative C.12 **May 11, 2005**

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Revised Comprehensive Alternative C.12

Preface: Overview of Modifications to the November 2004 original Alternative C.12 proposal

Modifications based on Washington, Oregon, and California Trawl Logbook Analysis

The Washington Department of Fish and Wildlife (WDF&W) generated maps of the areas closed to bottom trawling proposed in original Alternative C.12 overlaid with all 2003 bottom trawl logbook data, which mostly consisted of set points and haul out points, however in some cases, only the set points were available. WDF&W also performed an economic analysis using the set points only of the trawl logbook data, which attributed catch to a closed area when the set point fell within that closed area. It is interesting to note that the displaced 2003 revenue estimated by WDF&W with the set point method was higher than Oceana's estimate using the proportional overlap method using the mean revenue from 2000 to 2003 in 10 by 10 minute blocks. For original Alternative C.12, WDF&W estimated the 2003 displaced bottom trawl revenue represented by the proposed bottom trawl closures at $5,463,659 and Oceana estimated the annual displaced revenue at $4,810,730. The Oregon Department of Fish and Wildlife (ODF&W) provided tables with an economic analysis of the 2000-2003 trawl logbook set points contained within the closed areas proposed in original Alternative C.12. The California Department of Fish and Game (CDF&G) provided maps of the entire California coast that displayed all bottom trawl logbook data, including set points and haul points. Also displayed were the state fisheries for California halibut, and some shrimp and sea cucumber trawl information.

The information provided above was used to modify the boundaries of the proposed closed areas, and to improve the accuracy of the existing bottom trawl footprint. Modifications to the boundaries of closed areas where made by visually comparing the spatial pattern of the 2000-2004 trawl set points to the existing boundaries. With the finer level of detail, it was possible to identify specific important fishing areas within the 10 by 10 minute blocks and modify boundaries as appropriate to reopen areas containing clusters of set points and to exclude additional untrawled areas from the trawl footprint. The finer level of detail also allowed for greater refinement of the bottom trawl footprint, particularly in California. The result is Revised Alternative C.12, a practicable, comprehensive conservation alternative that protects essential fish habitat while maintaining vibrant fisheries.

Modifications based on greater incorporation of presence/absence information on habitat forming invertebrates (Scientific and Statistical Committee suggestion)

At the March Pacific Fishery Management Council (PFMC) meeting, the Scientific and Statistical Committee suggested paying greater attention to presence/absence data from the National Marine Fisheries Service (NMFS) trawl survey information that was used in the identification of biogenic areas. As such, a few additional closure areas were identified using information on habitat-forming invertebrates as the primary criterion.

Other modifications

- An additional seamount (located outside of the trawl footprint), Rodriguez Seamount, is included in Alternative C.12.
- Some proposed closed areas were split into parts by reopening high value trawl areas.
- Several nearshore rocky reefs were added to the proposed closed areas.
- Canyons in Northern California were added to the suite of trawl closures based on additional habitat information.
- Based on input from trawl fishermen at the March PFMC meeting in Tacoma, an area of rugged bottom terrain with pinnacles outside of the Rogue Canyon area was added.
- Based on input from trawl fishermen at the April 29 Morro Bay EFH Meeting, a significant area in the northern area of the proposed Monterey Bay trawl closure was reopened, as well as a section of the “Morro Ridge” proposed closure.
- The trawl industry also suggested some areas for closure in April 2005, and we attempted to include consideration of those boundaries.
- Some of the previously proposed areas were renamed to better describe the habitat features in question.

Introduction

Revised Alternative C.12, the Comprehensive Collaborative Alternative seeks to maintain vibrant fisheries while protecting habitat and biodiversity. The Alternative focuses on reducing the impacts of bottom trawling on Essential Fish Habitat (EFH). Using the mandate of the Sustainable Fisheries Act of 1996 to identify and protect EFH, Oceana developed this science-based alternative using all available data and information which included a comprehensive literature review of fish habitat studies, habitat-fishery linkages, and fishing impacts. This approach was recently used by the North Pacific Fishery Management Council to minimize adverse impacts to EFH in Alaska's Aleutian Islands region. The currently available fisheries data, habitat data, and economic data from the U.S. West Coast, while not perfect, allowed us to design a cost-effective Alternative that is precautionary yet practicable.

According to the National Academy of Sciences (2002), bottom trawling reduces habitat complexity, causes shifts in benthic (bottom-dwelling) communities, and reduces productivity of benthic habitats. The Academy recommends three management measures to reduce the effects of bottom trawling: area closures, gear modifications, and effort reduction. Revised Alternative C.12 employs all three of these management measures while maintaining commercial fishing opportunities.

Specifically, the Revised Alternative C.12 includes the following management measures:

1. Prohibit bottom trawling outside the current trawl footprint (defined by using spatially explicit trawl logbook data from 2000-2004 with methodology to draw boundaries as described in this document).
2. Implement 61 year-round bottom trawl area closures in known sensitive habitat areas (identified in maps appended to this document).
3. Extend the 8 inch maximum roller size trawl footrope restriction to all bottom trawling. throughout the U.S. West Coast EEZ. The footrope restriction is made permanent instead of re-authorized on an annual basis.
4. Bottom trawl effort reductions as developed by the Pacific Fisheries Management Council ("PFMC").
5. Consideration by the PFMC of gear conversion opportunities for bottom trawlers.
6. Comprehensive monitoring of individual vessel performance and habitat damage including:
    a. Increase onboard observer coverage on bottom trawl vessels to a level determined to be necessary by NOAA to estimate annual bycatch of habitat-forming invertebrates and quantify habitat interactions with fishing gear;
    b. Require vessel Monitoring Systems (VMS) on all vessels using bottom trawl gear to catch groundfish in the U.S. West Coast EEZ with positions recorded at a time stamp of every 5 minutes (time);
    c. Improve electronic logbooks to provide better fishing effort information to NOAA and state authorities;
    d. Annual publication of a NMFS *West Coast Groundfish Habitat Status Report* to make habitat impact and bycatch data available to the Council, the public and the fleet at as high a spatial and temporal resolution as possible; and
    e. Establish baseline data and a process for setting and implementing bycatch limits on structure-forming invertebrates and/or other habitat performance standards.
7. Comprehensive research and benthic mapping program to improve EFH information levels.

a. Funding for additional gear impacts research;
b. Coastwide biogenic seafloor mapping project; and
c. Ecological and behavioral studies of habitat use by commercial fish and invertebrate species.

This document provides a summary of the approach, science, methodology, and data used to develop and modify Alternative C.12.

The Precautionary Approach

Revised Alternative C.12 is a precautionary approach to mitigate the effects of fishing on habitat. When undertaking the task of identifying and protecting EFH in Alaska, NMFS contracted the Center for Independent Experts (CIE) to review their assessment of fishing effects on EFH in the North Pacific Region (Drinkwater 2004). The CIE panel repeatedly emphasized the need to be precautionary, both when assessing effects on habitat and when taking management actions.

> *Use the **precautionary approach** especially where the data are unclear, where recovery times are long (e.g. for corals and sponges), or where habitat reduction is high even if the abundance levels are above MSST. Since it is likely difficult to detect an influence on the stock until after the habitat is damaged, perhaps even until much of the habitat is destroyed, the use of the **precautionary approach** is paramount. This is especially true for those habitats with long recovery times, e.g. hard corals and sponges*

(Drinkwater 2004).

On the U.S. West Coast, the recent discovery of a new species of deep-sea coral (*Antipathes dendrochristos*) (Opresko 2005), is an example that highlights the very real possibility that Essential Fish Habitat may be destroyed before researchers know anything about it. Since very little benthic habitat on the U.S. West Coast has been explored to date, the potential for adverse impacts is enormous. The loss of Essential Fish Habitat may have devastating long-terms consequences for U.S. West Coast fisheries. Therefore, the high risk inherent in conducting the groundfish fisheries with bottom trawl gear justifies prescriptive, precautionary management measures to protect EFH.

Spatial Management Measures

The spatial management measures of the Comprehensive Alternative define the areas that are open and closed to bottom trawling. These management measures are in addition to all existing closures in the Pacific Groundfish Fishery Management Plan ("FMP") and implementing regulations. These areas are determined based on several criteria described in detail in the following sections. Areas closed to bottom trawling are based on the locations of sensitive and complex habitat areas and/or areas with low economic value to the bottom trawl fleet. Boundaries were drawn to minimize overlap with high value fishing areas and to follow closely the sensitive habitat features. The proposed closures incorporate the Pew Oceans Commission (2003) Final Report (Ch 11, Sections 3-4) recommendations to:

- Prohibit bottom trawling on corals, sponges, and seamounts;
- Allow bottom trawling only in designated areas; and

- Close all other areas to bottom trawling.

The overall formulation of the spatial management measures is based on a combination of various data layers provided by NMFS and other data sources.

Summary of Methods

1. Determine the spatial extent of recent bottom trawl effort (setting the existing bottom trawl footprint);
2. Assess the distribution of fishery value within the footprint;
3. Determine where areas containing complex sensitive habitat occur;
4. Close areas of complex sensitive habitat within the footprint with consideration of displaced revenue; and
5. Establish bottom trawl permitted open area.

[Area of bottom trawl footprint] **minus** [Complex sensitive habitats] **minus** [Existing management closures] **equals** [Area open to bottom trawling]

Spatial Management Summary

Delineating the bottom trawl footprint

To define the boundaries of the U.S. West Coast bottom trawl footprint, we examined bottom trawl logbook records from PACFIN of groundfish catch occurring from 2000-2003. We selected this time span to include annual variability of trawl activity, which incorporates transitions that may have resulted from recent management measures. For example, in 2000 a footrope restriction in some areas altered the distribution of trawl effort (Bellman and Heppell, EFH DEIS Appendix 19). Trawl restrictions in the Rockfish Conservation Areas ("RCA") also altered distribution of trawl effort over this period. However, Bellman and Heppell (Appendix A-19) conclude that trawl effort along the U.S. west coast is patchy and has been consistent in its overall distribution over their entire study period (1995-2002). They state (p. 30):

> *Overall, fishing effort exhibited patchy distribution and maintained similar statewide patterns over the entire study period. This consistency is common when fishermen return to areas previously known to harbor high abundances of target species and suitable seafloor for trawling.*
>
> *From a conservation standpoint, this patchiness may be desired if fishing efforts do not also expand into the unaffected areas. Patchy distribution of trawl effort disturbs the same areas of seabed frequently, but in turn leaves large areas unaffected by the impacts of fishing gear. Spatial management measures, such as closed areas, can have the effect*

of shifting fishing activity to areas that were previously lightly fished or very rarely fished.

This provides both rationale and justification for identifying the bottom trawl footprint as accurately as possible to protect "previously lightly fished or very rarely fished" areas. Therefore, the objective of closing all areas outside the trawl footprint is threefold:

1. To prevent further geographic expansion of bottom trawling;
2. To prevent unintended displacement of trawl effort into new areas; and
3. To maintain the trawl industry's ability to harvest their allocated quota in remaining open areas.

Fishing vessels are required to record their catches in electronic logbooks and/or fish tickets which are then gathered and maintained by the Fisheries Service. The agency provided a dataset aggregated in 10 by 10 minute blocks with species or species group resolution, and excluding any information which the Fisheries Service asserted to be confidential. Given these constraints, a spatial resolution of 10-minute blocks was selected to ensure consistency with the analyses performed by Terralogic and MRAG for the Pacific Groundfish EFH EIS, and to minimize data loss due to confidentiality. Data with a finer resolution is preferable and is much more useful for spatial analysis, but the public faces a tradeoff when requesting spatial fishery data from the Fisheries Service. Requesting data on a fine scale results in a significant loss of data, since the Fisheries Service withholds information if fewer than 3 fishing vessels operate in the area for which fishing information is requested.

The footprint was further refined in 2005 by analyzing the spatial arrangement of trawl track information within the blocks. State agencies provided maps of the proposed areas closed to bottom trawling overlaid with set point and haul back points of commercial bottom trawl hauls. This information confirmed that trawl effort is not uniform across a block, but occurs in specific discrete, patchy areas. The footprint was refined by removing portions of blocks where no or very little trawl effort was recorded. The footprint excludes the area within 3 nm of shore in the state waters of Washington and California that are already closed to bottom trawling. The total area of the revised delineated bottom trawl footprint was estimated at 82,000 km^2 using the best available data.

Distribution of bottom trawl fishery ex-vessel revenue

The dataset described above was also used to estimate the distribution of fishery value within the footprint. For each 10 by 10 minute block, we calculated the total catch of each species throughout the four-year period. The dollar value for each unit of catch of each species was determined from the *PFMC INPFC Area Report: Groundfish Estimated Ex-vessel Prices-per-pound for 2004 for all Gears*. We multiplied the total catch of each species in each block over the four year period by each species' respective value per unit, and summed the values for all species in each block. This allowed us to calculate the total ex-vessel value for the total bottom trawl catch in each block for the four year period from 2000-2003.

Due to data limitations, this method inherently assumes an even distribution of trawl effort throughout each entire block. Since the modified closed areas are intentionally drawn to avoid

the concentrations of trawl effort within each block, the results of this method will consistently overestimate the actual displaced revenue in the analysis of our proposed closures.

Areas of sensitive habitat

Boundaries of areas of complex sensitive habitat were identified using the best available datasets (see footnotes) and applying the following criteria:

- Hard substrate, including rocky ridges and rocky slopes[1]
- Habitat-forming invertebrates[2]
- Submarine canyons and gullies[1]
- Untrawlable areas (trawl hangs and abandoned trawl survey stations)[3]
- Seamounts[1]
- Highest 20% habitat suitability for overfished groundfish species as defined by NOAA[4]

Boundaries were developed to reflect most precisely the specific habitat features identified, while attempting to minimize the number of way points for the sake of enforceability. The justifications for considering these areas as complex sensitive habitat are discussed below.

Hard substrates

Hard substrates, which include rocky ridges and rocky slopes, are one of the least abundant benthic habitats, yet they are among the most important habitats for fishes (Hixon et al. 1991, Pacific EFH PDEIS 2005). Hard substrates are also the seafloor substrate type most sensitive to bottom trawling and take the longest to recover (NAS 2002, Pacific EFH PDEIS 2005).

The EFH DEIS states:

> *Many managed species are dependent on hard bottom habitat during some portion of their life cycle. Typically, deeper water hard bottom habitats are inhabited by large, mobile, nektobenthic fishes such as rockfish, sablefish, Pacific hake, spotted ratfish, and spiny dogfish (MMS 2002). Cross and Allen (1993) estimated that about 30% of the fish species and 40% of the families occur over hard substrates. Many managed groundfish species use hard bottom habitats during one or more life stages including aurora rockfish, bank rockfish, black rockfish, black-and-yellow rockfish, blackgill rockfish, blue rockfish, bocaccio, bronzespotted rockfish, brown rockfish, cabezon, calico rockfish, California scorpionfish, canary rockfish, chilipepper, China rockfish, copper rockfish, cowcod, dusky rockfish, flag rockfish, gopher rockfish, grass rockfish, greenblotched rockfish, greenspotted rockfish, greenstriped rockfish, harlequin rockfish, honeycomb rockfish, kelp greenling, kelp rockfish, leopard shark, lingcod, Mexican rockfish, olive rockfish, Pacific cod, Pacific ocean perch, pink rockfish, quillback rockfish, redstripe*

[1] *Consolidated GIS Data, Volume 1, Physical and Biological Habitat data disk* (PFMC 2003).
[2] AFSC slope and shelf trawl surveys from 1977 to 2001; NWFSC slope and shelf trawl surveys from 2001 to 2003; MCBI's database of deep sea coral records (Etnoyer and Morgan 2003).
[3] Zimmerman (2003).
[4] Habitat Comprehensive Risk Assessment (PFMC 2004).

rockfish, rosethorn rockfish, rosy rockfish, rougheye rockfish, sharpchin rockfish, shortbelly rockfish, shortraker rockfish, silvergray rockfish, speckled rockfish, spotted ratfish, squarespot rockfish, starry rockfish, stripetail rockfish, tiger rockfish, treefish, vermilion rockfish, widow rockfish, yelloweye rockfish, yellowmouth rockfish, and yellowtail rockfish.

Ch.3, p. 3-7

Managed species known to use hard bottom habitat in the coastal zone include black rockfish, black-and-yellow rockfish, brown rockfish, cabezon, calico rockfish, California scorpionfish, chilipepper, copper rockfish, gopher rockfish, kelp greenling, leopard shark, lingcod, olive rockfish, quillback rockfish, redstripe rockfish, rosethorn rockfish, shortbelly rockfish, silvergray rockfish, and spotted ratfish.

Ch3. p. 3-5

Over 10,000 hard substrate polygons from the *Consolidated GIS Data, Volume 1, Physical and Biological Habitat data disk* (PFMC 2003) were plotted in GIS to determine where hard substrate habitat occurred.

Habitat-forming invertebrates

The planet's life-support systems are the source of stability for all peoples, all nations. Cold-water coral reefs are emerging as a new piece in this vital web of life which now requires our urgent attention.

-Klaus Toepfer, Executive Director, UNEP

Deep sea corals and sponges provide three dimensional structures that form habitat for commercial groundfish, shellfish, and other marine life in the Pacific (Krieger and Wing 2002; Malecha et al. 2002; Heifetz 2002) and other parts of the world (Costello et al. 2003; Scott and Risk 2003; Sulak et al. 2003; Rocha et al. 2000; Mortensen et al. 1995; Buhl-Mortensen and Mortensen 2004; Husebo et al. 2002; Sainsbury 1987). Structure-forming invertebrates (or biogenic habitat) are sensitive to impacts from bottom trawl gear (NAS 2002, Anderson et al. 2003, Engel and Kvitik 1998, Krieger 2001, Malecha and Stone 2003, MacDonald et al. 1996, Kaiser et al. 2000, Mortensen et al. 2003, Van Santbrink and Bergman 1994). Deep-sea corals and sponges, including species found on the U.S. West Coast, have been shown to be extremely long-lived (Leys and Lauzon 1998, Risk et al. 2002, Roark et al. 2005, Andrews et al. 2003). Recently, more than 1,100 scientists from around the world signed a statement (attached) on protecting deep sea coral and sponge ecosystems:

"*In short, based on current knowledge, deep-sea coral and sponge communities appear to be as important to the biodiversity of the oceans and the sustainability of fisheries as their analogues in shallow tropical seas.*"

Throughout this DEIS process, perhaps no other criterion has generated as much discussion as the data on habitat-forming invertebrates. Despite the growing global concern for these species evidenced by the United Nations Report on Cold-water corals (Freiwald et al. 2004), consideration of the available data on habitat forming invertebrates has been viewed with trepidation and skepticism during the Pacific EFH process. We recognize that there are some limitations with the coral and sponge data, as with all marine and fisheries databases.

Nevertheless, because of the importance and sensitivities of these habitats, and the recognized need to be precautionary in management decisions in general and with regard to sensitive habitats in particular, we developed a reasonable approach using all available data.

In fact, a repeated criticism of the Alaska Region EFH DEIS by the Center for Independent Experts was that coral, sponge, and bryozoan bycatch from observer records were not analyzed, utilized, or incorporated (Drinkwater 2004). Specifically, the Center for Independent Experts recommended that NMFS "…analyze catch and effort data, observer bycatch data, field studies and consult with the industry to assess the damage done to the long-lived corals and sponges as well as the possible encroachment of fishing trawls into new areas containing corals and sponges" (Drinkwater 2004). It is worth noting that several studies to date have used trawl survey and observer bycatch records to assess distribution of these invertebrates and adverse impacts of trawling (Heifetz 2002, Heifetz et al. 2005, Anderson and Clark 2003).

Due to apparent confidentiality constraints, NMFS has not shared the Pacific observer bycatch dataset with the public. However, an analysis of the data images shows that the observer bycatch records for habitat-forming megafaunal invertebrates corroborates the areas identified for mitigation measures in the Comprehensive Alternative.

The validity of any data source depends on whether the methods used to collect the data are able to meet the objective of its use. Our specific policy objective in using the trawl survey data is to determine areas have high likelihood of containing corals and sponges within "trawlable" areas of the bottom trawl footprint. This is because areas outside the footprint and "untrawlable" areas are already protected in Revised Alternative C.12.

While direct submersible observations are the most accurate source of data for coral and sponge locations, the extremely limited spatial extent of submersible exploration on the U.S. west coast and the need to use the best available data requires the use of additional data sources. The most extensive data source containing records of habitat-forming invertebrates is the trawl survey database. Since sampling effort in the Pacific has not been uniformly distributed across habitat types, our intent in utilizing this data is not to predict the distribution of these animals across unsampled habitats, but merely to focus on regions where repeated samples have occurred. We are aware of the potential limitations in using bottom trawl surveys to identify precise abundances of habitat-forming invertebrates. Therefore, we have been extremely cautious in our use of the data. It stands to reason that an area which contains repeated samples of corals and sponges contains habitat suitable for corals and sponges. In fact, the PFMC's Science and Statistical Committee recommended that a reasonable approach is to focus on areas where corals and sponges have been documented, either from trawl surveys or other sources.

Coral and sponge records from trawl surveys must be considered a conservative estimate of the presence of biogenic habitat. Unfortunately, little information exists to ground-truth the extensive trawl survey databases with seafloor habitat. Of the thousands of NOAA trawl survey hauls that have occurred through the years, only one trawl survey track has been crossed by known submersible dive transects. The survey track, which occurred in 1986, was crossed by three dive transects on Heceta Bank in 2002. That 1986 trawl survey haul recorded 4 kg of an unidentified sponge species, or an estimated CPUE of 1 kg/hr. In 2002, the three dive transects that crossed this survey track recorded high densities of sponge of up to 167 vase sponges/ $100m^2$ (Wakefield, unpublished data). This reflects that a coral or sponge record from a trawl

survey is indicative of areas of biogenic habitat. An initial focus on regions where corals and sponges have been documented, either from trawl surveys or other sources, is a reasonable approach, and was specifically recommended by the PFMC Scientific and Statistical Committee in its review of Alternative C.12. Given the importance and sensitivities of these habitats, and the recognized need to be precautionary in management decisions, we developed a responsible and reasonable approach to consider all available data in making management decisions.

We also recognize the trawl survey sampling and statistical design creates a possibility for false negatives. In other words, the data sets may fail to identify habitat-forming invertebrates in many places where they actually occur. We are aware that sampling invertebrates is not the primary goal of trawl surveys. This may result in failing to sample "untrawlable" areas where habitat-forming invertebrates occur and/or failing to record occurrences at sampled sites. The former, as discussed, does not appear to pose a problem since we are only using the data for identifying positive locations. The latter possibility is likely to be reduced significantly by repeated sampling at the same location, which is a sampling strategy used in the trawl survey.

Trawl surveys do not pinpoint exact locations, but rather transects. Therefore a positive record of habitat-forming invertebrates means that the habitat may be found anywhere along the trawl track. Therefore, in drawing boundaries, we attempted to include the entire trawl track inside the closure boundary for each record we used to justify a biogenic area closure. Furthermore, invertebrate identification is recorded at the taxonomic group level rather than at the species level. This does not pose a significant problem because identification to taxonomic group level is sufficient to classify an invertebrate as "habitat-forming".

An extensive database was used to determine "hotspots" where the presence of habitat-forming invertebrates (corals, sea whips, sea pens and sponges) was frequently recorded or large samples of these invertebrates occurred. The database comprised records from Alaska Fisheries Science Center slope and shelf trawl surveys from 1977 to 2001, Northwest Fisheries Science Center slope and shelf trawl surveys from 2001 to 2003, and MCBI's database of deep-sea coral records. MCBI's database was commissioned by NOAA and includes coral records from the California Academy of Sciences, Smithsonian Institution, MBARI, and Scripps compiled from various research cruises and scientific collections (Etnoyer and Morgan 2003).

Two types of point density analyses were performed using the ArcView 9.0 Spatial Analyst Point Density Tool (ESRI 2004) to determine clusters of coral and sponge records. The first analysis explored the density of records, with each point weighted equally. A total of 3,691 coral and sponge records were used in the analysis. For trawl survey data (3,291 records), the start point of the trawl was used to plot points. For other coral and sponge data (400 records from MCBI dataset) the sample location point was plotted. Using a cell size of 2,000 meters and a search radius of 10,000 meters, the point density function outputs the mean density per kilometer of coral and sponge records. This approach identifies areas that have had numerous records of habitat-forming invertebrates.

The second analysis explored clusters of coral and sponge records with high survey catches. Only trawl survey data, with associated records for catch weight and CPUE, were used in the analysis. A total of 3,291 survey start points from NOAA trawl surveys from 1977-2003 were plotted. This density analysis weighted the points by the rounded integer of the catch of coral or sponge. For example, a CPUE of 10 kg/km^2 would be counted ten times. This approach

identifies areas with the highest relative weights of coral and sponge sample records. Both analyses were useful for identifying "hotspots" of records of habitat-forming invertebrates.

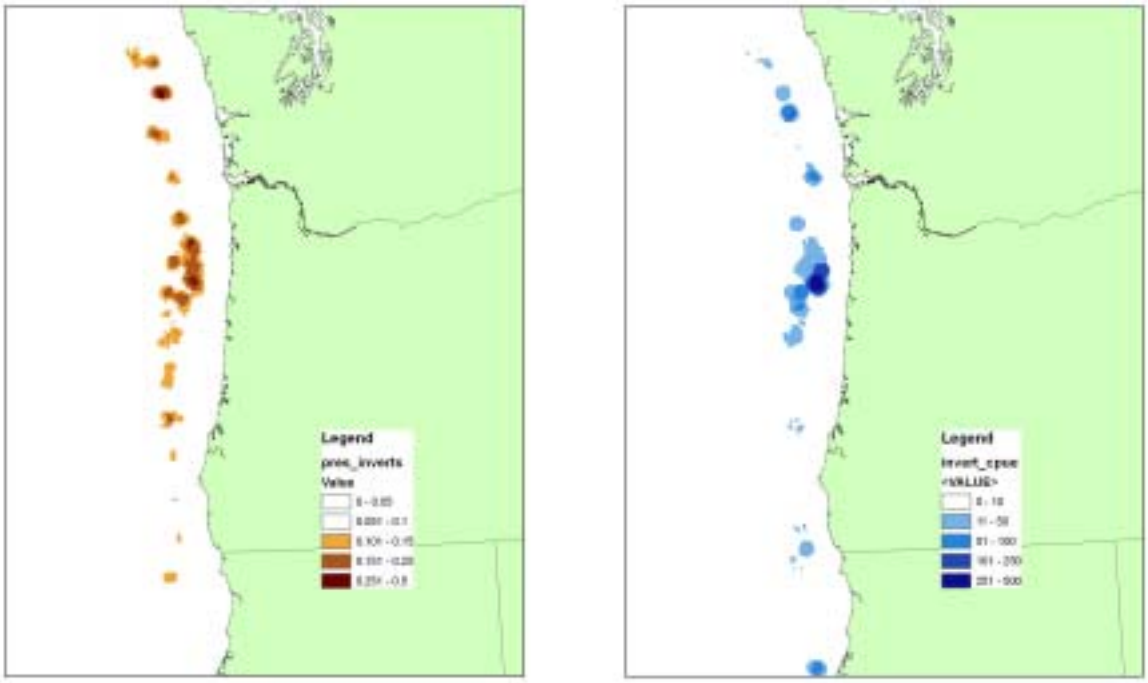


Figure 1: Point density analysis of coral and sponge records. The figure on the left displays output when all points are weighted equally. The legend shows density of points per square kilometer. The figure on the right displays output from point density analysis with points weighted by CPUE. The legend shows mean CPUE per square kilometer.

At the March 2005 PFMC meeting, the Scientific and Statistical Committee suggested paying greater attention to presence data from the NMFS trawl survey information that was used in the identification of biogenic areas. As such, a few additional closure areas were identified using information on habitat-forming invertebrates as the primary criterion.

Submarine canyons and gullies

Submarine canyons are known to be areas of enhanced productivity due to current upwelling zones (Freeland and Denman 1982). For this reason, canyons show enhanced concentrations of benthic invertebrates (Haedrich et al. 1980; Sarda et al. 1994; Vetter and Dayton 1999), plankton (Cartes et al. 1994; Macquart-Moulin and Patriti 1996), demersal fishes (Stefanescu et al. 1994), and whales (Kenney and Winn 1987; Schoenherr 1991) relative to surrounding areas on the slope and shelf. Brodeur (2001) found dense concentrations of Pacific ocean perch (*Sebastes alutus*) and krill associated with biogenic habitats in a Bering Sea submarine canyon, while areas with damaged biogenic structures had far fewer rockfish, and areas in the canyon without biogenic structure had no rockfish. In the North Pacific Ocean, rockfishes in the genus *Sebastes* often inhabit the offshore edges of banks or canyons and are known to capitalize on advected prey resources such as euphausiids (Pereyra et al. 1969; Brodeur and Pearcy 1984; Chess et al. 1988; Genin et al. 1988). Therefore, submarine canyons provide essential habitat for groundfish that is highly vulnerable to fishing impacts.

Vetter and Dayton (2001) found that submarine canyons in Southern California provide large quantities of food in aggregated form on the deep sea floor by acting as conduits for marine macrophyte production produced in the intertidal and shallow subtidal zone. This study also found elevated abundance of Pacific hake and turbot in these canyons. Starr et al. (2002) found evidence for site fidelity in green-spotted rockfish (*S. chlorostictus*) and suggested large-scale reserves for boccacio (*S. paucispinus*) at a canyon in Monterey Bay.

Submarine canyons provide habitat for larger sized rockfish that seem to prefer structures of high relief such as boulders, vertical walls, and ridges. Yoklavich et al. (2000) found high abundance of large rockfish associated with complex structural habitat in Soquel Canyon with lower size and abundance in fished areas. Canyon heads are the upper, shallower portions of submarine canyons where coastal upwelling fronts have been shown to contain high abundance of rockfish larvae (Bjorkstedt 2002). Additionally, Hooker (1999) found higher abundance of cetaceans in a submarine canyon known as "The Gully" off Nova Scotia relative to surrounding areas of the shelf and slope. The cover and protection offered by submarine canyons allow pockets of rockfish populations to flourish, in contrast to more exposed areas where the populations are more easily fished. Because submarine canyons on the U.S. West Coast are typically upwelling zones, they often contain higher abundances of filter feeding invertebrates, such as corals, sponges, tunicates, and bryozoans, which contribute to the structural complexity of the seafloor.

Canyon habitat polygons from the *Consolidated GIS Data, Volume 1, Physical and Biological Habitat data disk* (PFMC 2003) were plotted in GIS.

Untrawlable areas

The Zimmerman (2003) database includes all records from the NMFS West Coast Triennial Trawl Survey where major trawl net hangs and untrawlable survey stations were recorded. These areas are considered unsuitable for trawling due to areas of high structural complexity, such as boulders or rock outcrops (Zimmerman, pers. com.). Substrates or structures that induce a trawl hang provide habitat for juvenile fish (Link and Demarest 2003). The study found that a buffer of 3.7 km (2 nautical miles) around these features would encompass 17-30% of juvenile fish. Since most trawl net hangs are concentrated, these authors recommend a methodology of identifying these concentrations and establishing a no-trawl buffer around them. Other work on this topic suggests that such a methodology would only close 1-4% of the ocean bottom to trawling (Link 1997).

Furthermore, it is expensive to fisherman to replace trawl gear that has been damaged or lost due to contact with benthic structure. Since fishermen wish to avoid hangs, closing areas with high relative densities of areas known to be "untrawlable" will help avoid damage to trawl nets and close areas fishermen probably avoid anyway. Therefore, the economic effects of bottom trawl closures based on the Zimmerman dataset are likely to be negligible.

The GIS data used in the manuscript by Zimmerman (2003) was plotted in GIS.

Seamounts

Seamounts are sites of enriched biological activity relative to the surrounding waters (Mullineaux and Mills 1997, Dower and Perry 2001, Haney et al. 1995). Koslow et al. (2001) conducted a survey of Tasmanian seamounts where 30% of species identified were new to science and 30-60% were found nowhere else on earth. Studies indicate that seamounts function as deep-sea islands of localized species distributions, dominated by suspension feeders like corals and sponges which can be easily damaged by fishing gear that makes contact with the bottom (Monterey Bay National Marine Sanctuary, Sanctuary Integrated Monitoring Network, URL: www.mbnmssimon.org/sections/seamounts/overview.php).

Recent studies conducted by the Monterey Bay Aquarium Research Institute on West Coast seamounts have documented unique and diverse biological communities. (http://www.mbari.org/volcanism/seamounts/seamountsresearchtop.htm). Along the crests and slopes of several seamounts, MBARI scientists observed long-lived coral and sponge habitats. DeVogelaere et al. (2003) found 24 coral taxa on Davidson Seamount off California and described numerous species associations, particularly that *Paragorgia sp*. were found in areas with highest species diversity. Guyots are a type of volcanic seamount with a flat top or plateau. Because the tops are flat, they may be particularly vulnerable to trawling due to the relative ease of setting trawl gear. The rarity, uniqueness, and vulnerability of seamount faunal communities provide strong scientific justification for a highly precautionary approach (de Forges et al. 2000, Stocks 2004, Probert et al. 1997).

Eight seamounts have been identified within the jurisdiction of the PFMC. These are President Jackson, Thompson, San Juan, Guide, Pioneer, Gumdrop, Davidson, and Rodriguez Seamounts. The location and area delineation of most of the seamounts were plotted in GIS from data on the *Consolidated GIS Data, Volume 1, Physical and Biological Habitat data disk* (PFMC 2003). Rodriguez Seamount was not included in the dataset but has been incorporated into the revised alternative.

Highest 20% habitat suitability for overfished groundfish species

Several major groundfish species have been designated as overfished and are currently being fished pursuant to rebuilding plans. Most of these species have been documented to use complex structural habitat. Protecting habitats specifically for these species will aid in their recovery.

Habitat suitability modeling performed in the Habitat Comprehensive Risk Assessment (PFMC 2004) identified areas of the highest suitability for overfished groundfish species. The proposed spatial management measures in Alternative C.12 were selected to ensure protection of habitat important for overfished groundfish species.

Consideration of all available data

With data in hand, we began to construct the spatial management component of Alternative C.12, identifying areas that would be open or closed to bottom trawling. Because we recognized that it was not practicable to close every area of sensitive habitat to bottom trawling, we attempted to reach a reasonable solution that is as cost-effective and equitable as possible. In other words, we attempted to protect as much important habitat as possible while minimizing

short-term economic costs. Many factors were carefully considered while drawing boundaries for the open/closed areas to bottom trawling:

- Avoid high fishery value areas when considering closed areas;
- When habitat features overlapped high fishery value areas, minimize the overlap of the resultant boundary;
- Distribute open/closed areas equitably among regions; and
- Draw closed area boundaries that conform to the habitat feature, minimizing closure area

Results

Overview

Table 1: Summary Statistics of Revised Alternative C.12

Area Description	Square kilometers	Square miles (nautical)
Area within Pacific EEZ	826,680	241,021
Area of existing bottom trawl footprint (fished area)	82,000	23,908
Area remaining open to bottom trawling	70,000	20,409
Area to be closed within the existing footprint	12,000	3,499
Area closed outside existing footprint (unfished)	745,000	217,207
Total area closed	757,000	220,706

Freezing the existing bottom trawl footprint resulted in approximately 745,000 km^2 of untrawled or lightly trawled habitat within PFMC jurisdiction closed to bottom trawling. Most of this area comprises habitat prohibitively deep for trawl fisheries to fish with current technology. Additionally, 61 areas of sensitive habitat were identified for potential bottom trawl closures. In many cases, portions of the above-mentioned areas were located outside of the trawl footprint, and would be closed by freezing the footprint. Sensitive habitat areas proposed for closure within the trawl footprint (i.e. trawled areas that would be closed) totaled approximately 12,000 km^2 of habitat. The total area where bottom trawling would be permitted (the "open" area) totaled approximately 70,000 km^2.

The spatial management component of Revised Alternative C.12 provides substantial protection of sensitive habitat features while allowing for continued bottom trawling opportunities. A large proportion of sensitive habitat types are protected by the areas selected. In other words, Revised Alternative C.12 is a practicable alternative to minimize the adverse impacts of bottom trawling on Essential Fish Habitat. The following maps (Figure 2 to Figure 7) display the spatial management component of Revised Alternative C.12 and illustrate the areas open or closed to bottom trawling. For a detailed illustration of individual areas and the criterion used to develop boundaries of the open or closed areas, see the figures at the end of this document (Figures 8 through 61).

Overview maps of Revised Alternative C.12

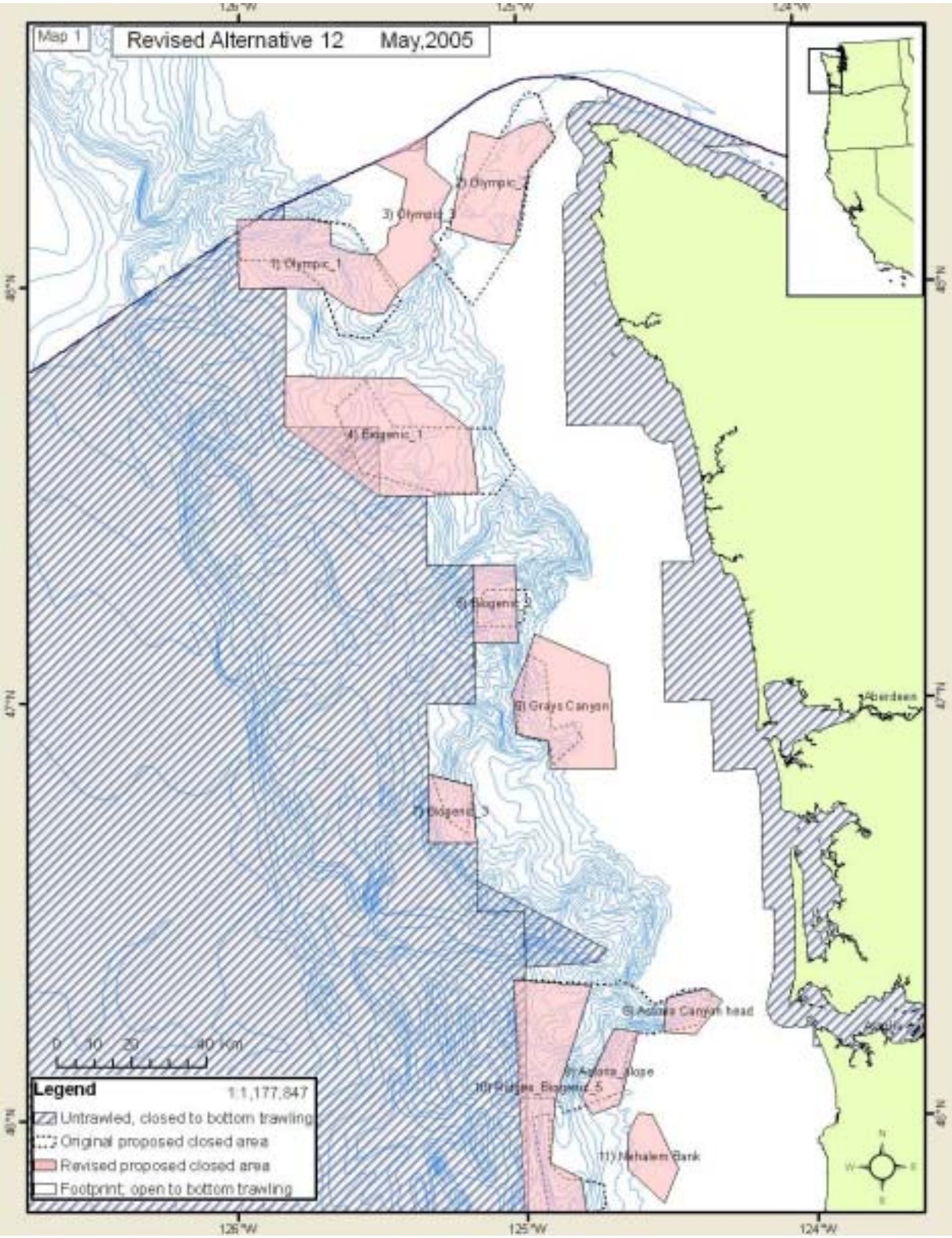


Figure 2: Revised Alternative C.12, Overview Map 1

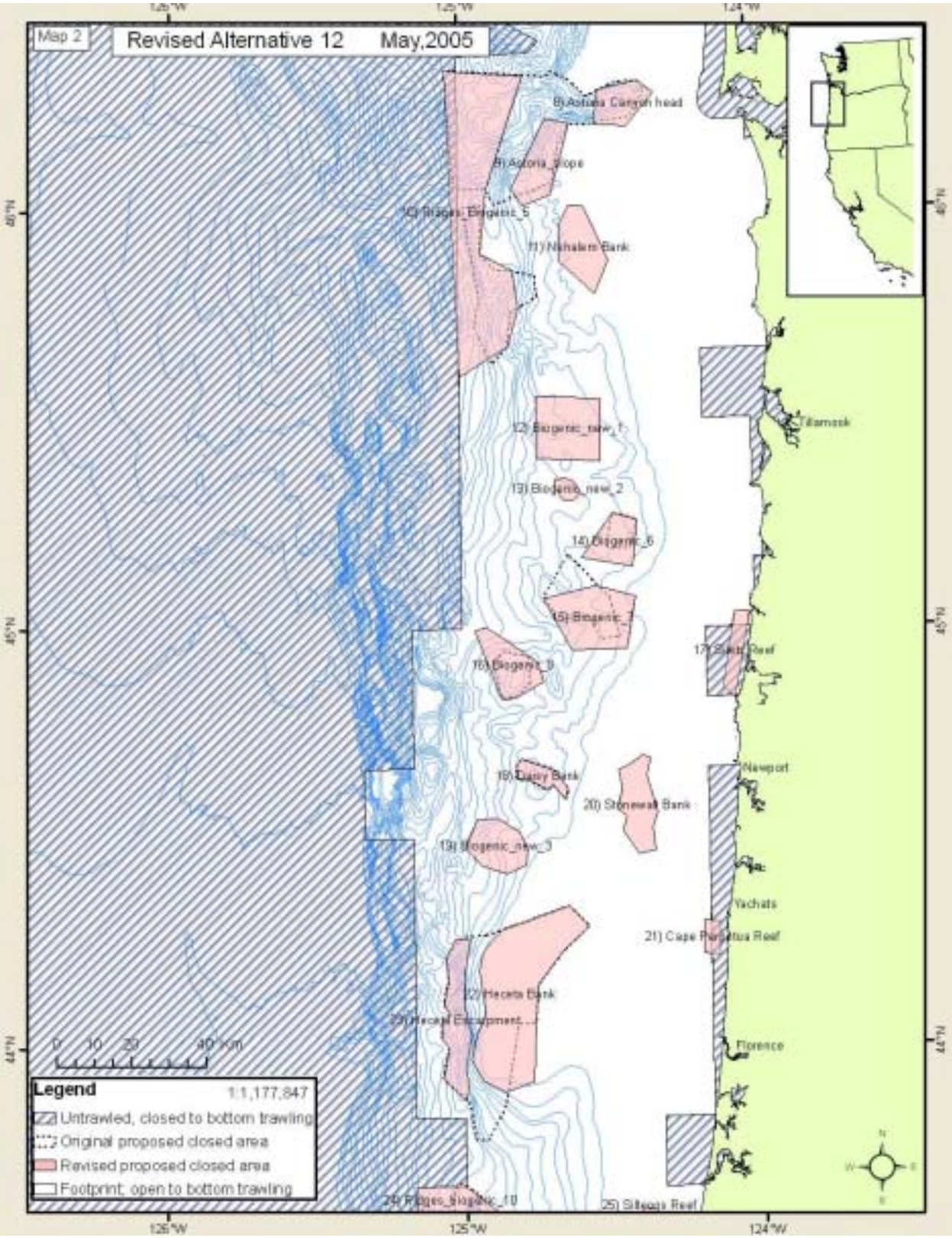


Figure 3: Revised Alternative C.12, Overview Map 2

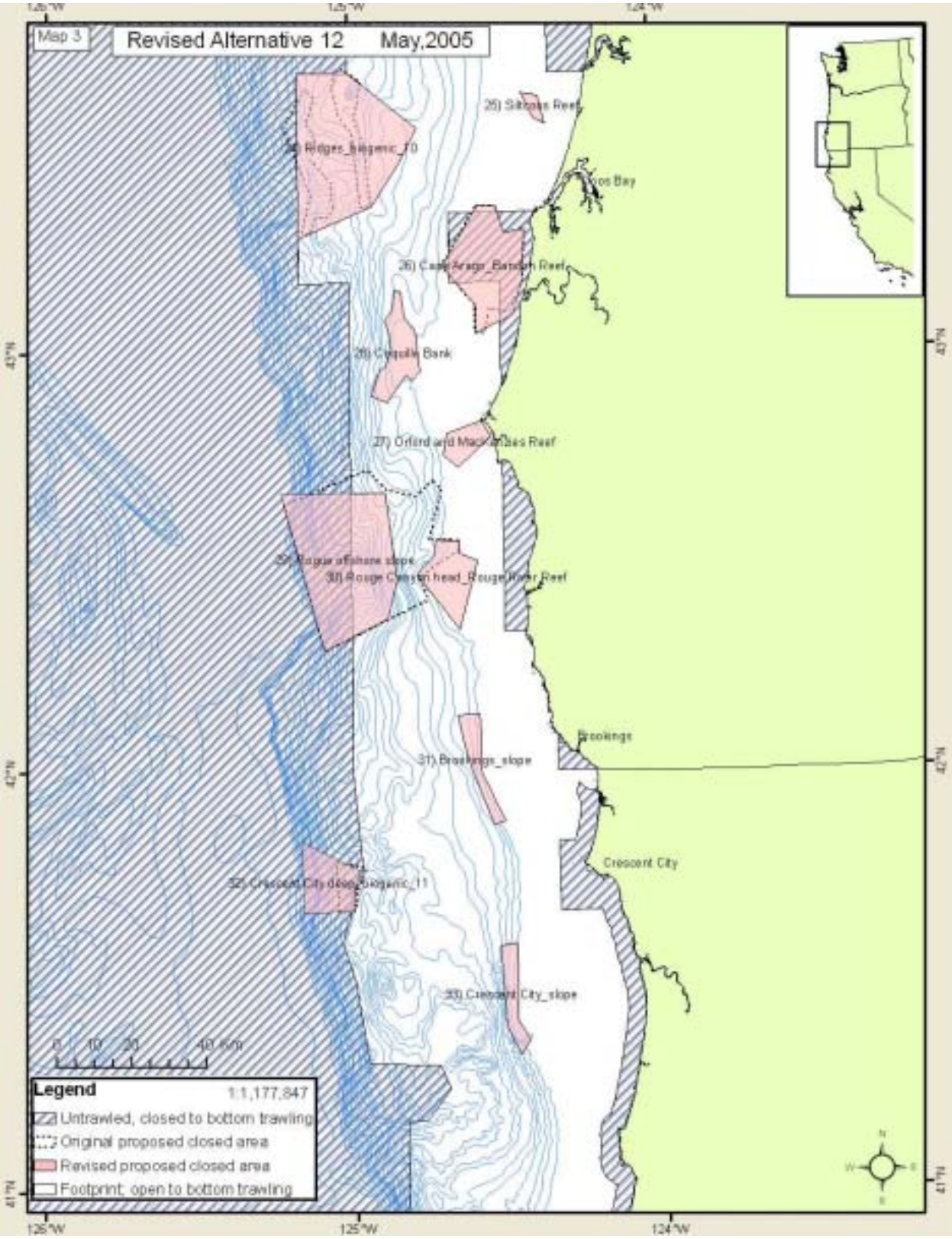


Figure 4: Revised Alternative C.12, Overview Map 3

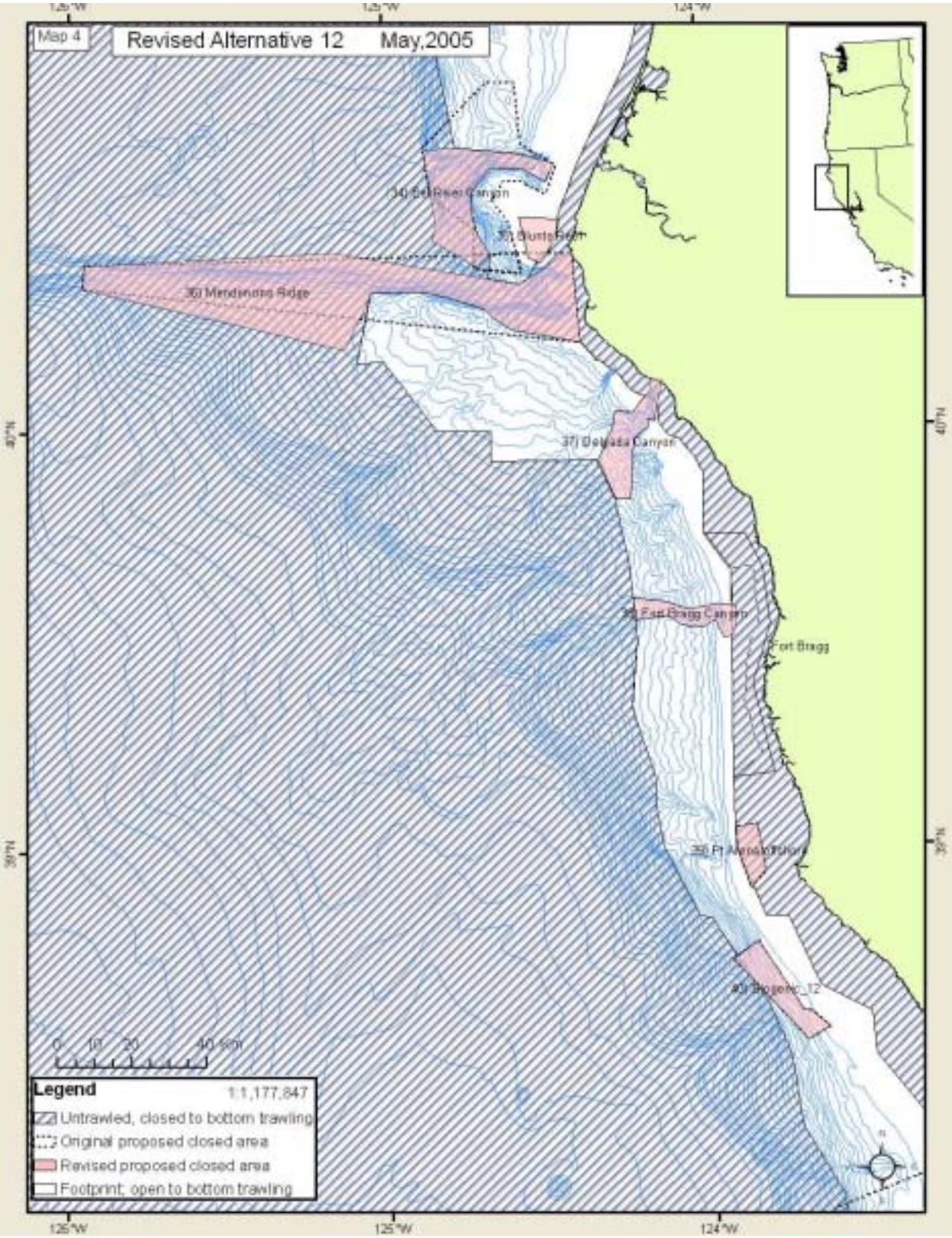


Figure 5: Revised Alternative C.12, Overview Map 4

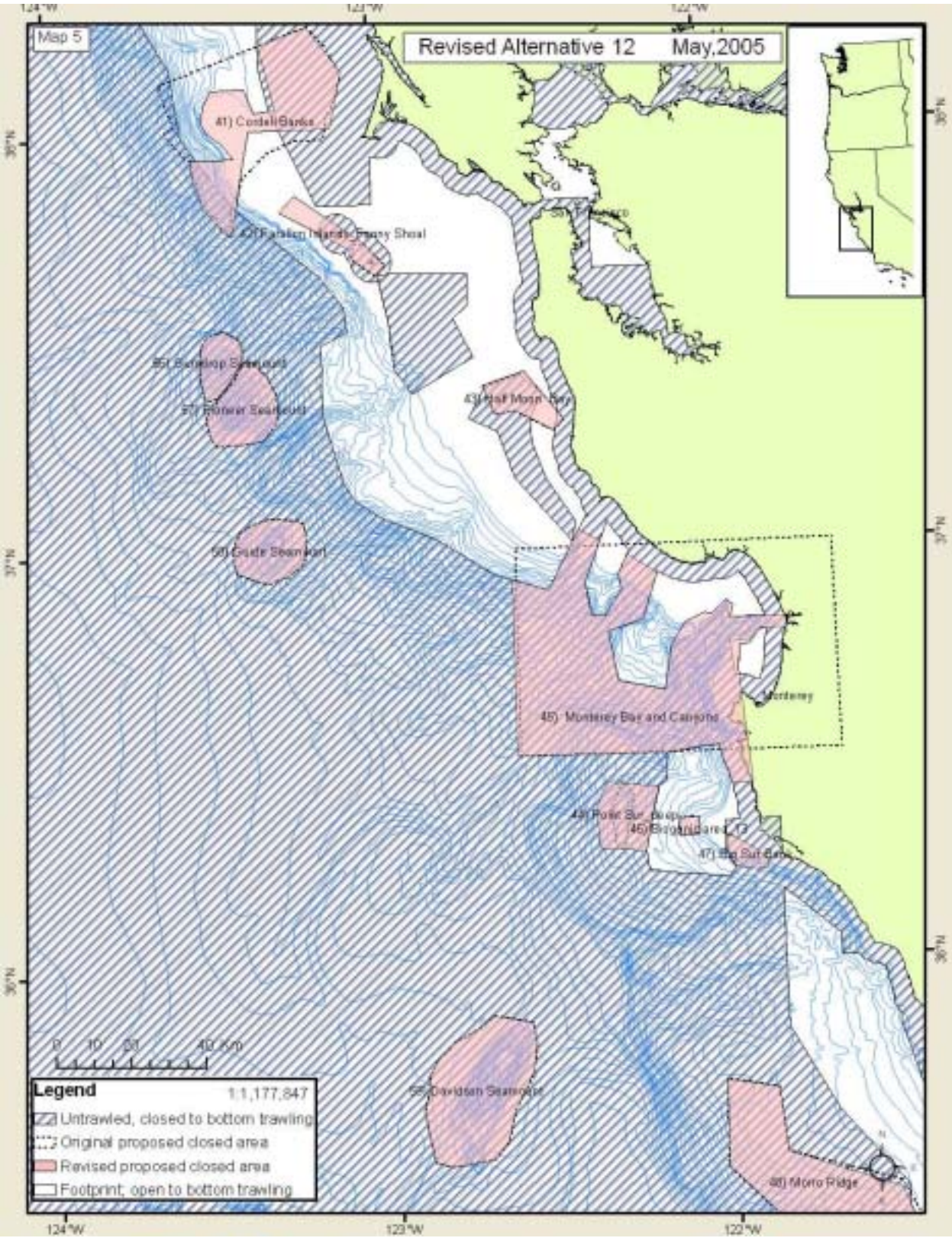


Figure 6: Revised Alternative C.12, Overview Map 5

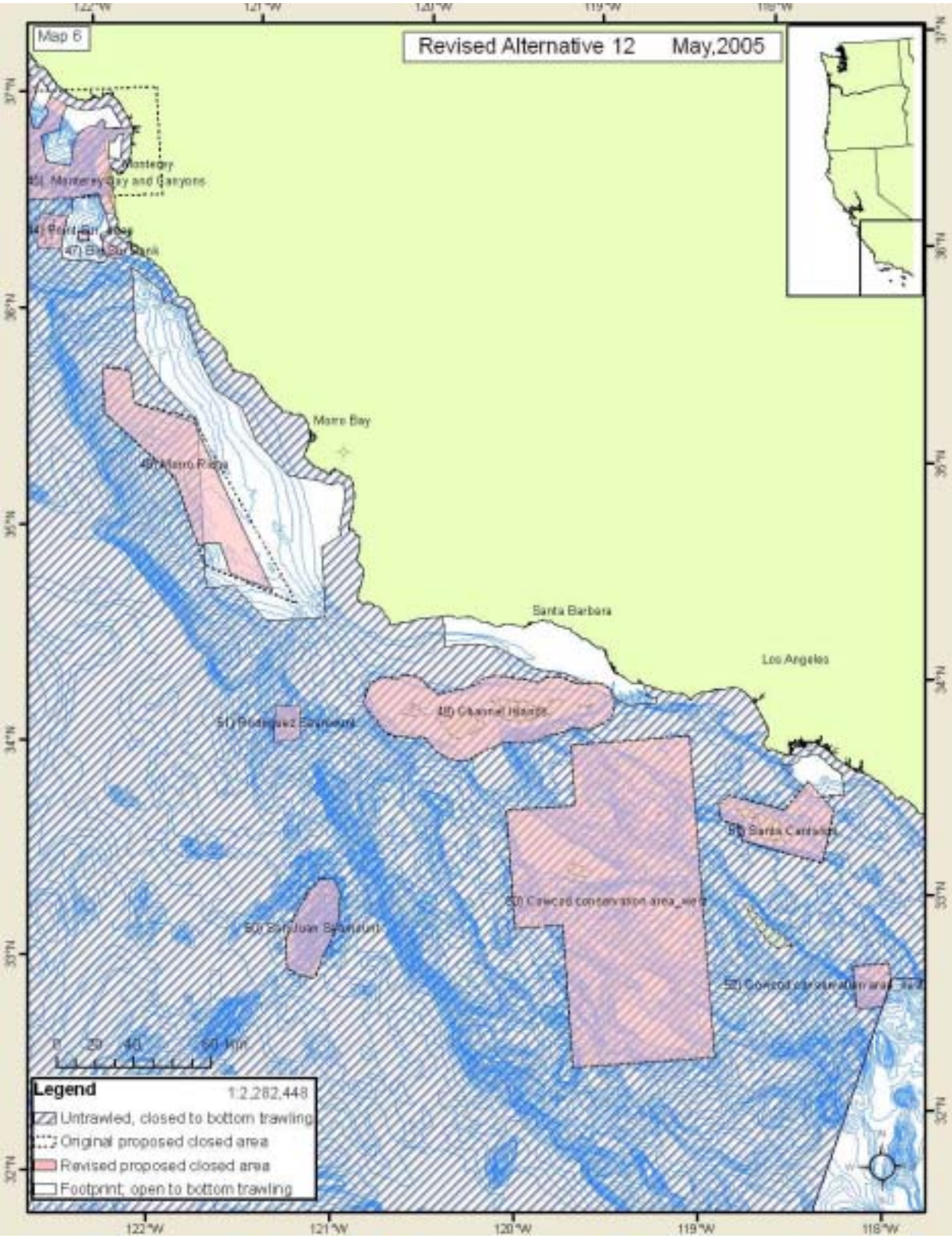


Figure 7: Revised Alternative C.12, Overview Map 6

Habitat-forming invertebrate data

NOAA bottom trawl surveys from 1977 to 2003 document 3,270 occurrences, totaling 16,765 kilograms, of habitat-forming invertebrates (corals, sponges, sea whips and sea pens) off the Pacific coast. Revised Alternative C.12 would close a significant portion of areas where those animals occurred. The area closed to bottom trawling under Revised Alternative C.12 contains 1,288 records of habitat-forming invertebrates (39% of all occurrences documented during NOAA trawl surveys). Further, the proposed closed areas contain a larger proportion of high density records, encompassing areas where 11,275 kg, or over 67% of the invertebrate biomass, was sampled. Deep sea coral records from other sources (Etnoyer and Morgan 2003) are well represented in the proposed closed areas with 356 of 400 coral records (89%) located within the proposed closed areas.

Unfortunately, this metric of analysis to consider important seafloor habitat was not used in the EFH DEIS to evaluate most of the other mitigation alternatives. As such, Revised Alternative C.12 encompasses far more records of this habitat type than other alternatives that did not consider this criterion.

Table 2: Records[5] of habitat-forming invertebrates (corals, sponges, sea whips and sea pens) in proposed areas. Areas where no or low numbers of records exist are likely due to lower sampling effort and do not indicate the absence of these animals in that area.

Number	Name	total records
1	Olympic_1	54
2	Olympic_2	18
3	Olympic_3	9
4	Biogenic_1	140
5	Biogenic_2	64
6	Grays Canyon	48
7	Biogenic_3	46
8	Astoria Canyon head	10
9	Astoria_slope	13
10	Ridges_Biogenic_5	118
11	Nehalem Bank	4
12	Biogenic_new_1	77
13	Biogenic_new_2	26
14	Biogenic_6	24
15	Biogenic_7	71
16	Biogenic_8	50
17	Siletz Reef	0
18	Daisy Bank	7
19	Biogenic_new_3	39
20	Stonewall Bank	2
21	Cape Perpetua Reef	0
22	Heceta Bank	16

[5] The database comprised records from Alaska Fisheries Science Center slope and shelf trawl surveys from 1977 to 2001, Northwest Fisheries Science Center slope and shelf trawl surveys from 2001 to 2003, and MCBI's database of deep-sea coral records. MCBI's database was commissioned by NOAA and includes coral records from the California Academy of Sciences, Smithsonian Institution, MBARI, and Scripps compiled from various research cruises and scientific collections (Etnoyer and Morgan 2003).

23	Heceta Escarpment	50
24	Ridges_biogenic_10	103
25	Siltcoos Reef	0
26	Cape Arago_Bandon Reef	2
27	Orford and MacKenzies Reef	1
28	Coquille Bank	6
29	Rogue offshore slope	26
30	Rogue Canyon head_ Rogue River Reef	2
31	Brookings_slope	4
32	Crescent City deep_ biogenic_11	35
33	Crescent City_slope	5
34	Eel River Canyon	7
35	Blunts Reef	0
36	Mendocino Ridge	6
37	Delgada Canyon	7
38	Fort Bragg Canyon	0
39	Pt Arena offshore	0
40	Biogenic_12	40
41	Cordell Bank	20
42	Farallon Islands_ Fanny Shoal	3
43	Half Moon Bay	0
44	Point Sur_deep	11
45	Monterey Bay and Canyons	303
46	Biogenic area_13	21
47	Big Sur Bank	1
48	Morro Ridge	81
49	Channel Islands	10
50	Cowcod conservation area_west	5
51	Santa Catalina	10
52	Cowcod conservation area_east	0
53	Thompson Seamount	0
54	President Jackson Seamount	0
55	Taney Seamount	0
56	Gumdrop Seamount	1
57	Pioneer Seamount	1
58	Guide Seamount	0
69	Davidson Seamount	27
60	San Juan Seamount	0
61	Rodriguez Seamount	0
	Total records in revised closed areas	1624

Untrawlable areas

The closed areas in Revised Alternative C.12 encompass 4,935 of 8,943 polygons, or 1,057 km^2 (over 57%) of 1,847 km^2, of "untrawlable" area (trawl hangs, pinnacles) as defined by Zimmerman (2003).

Estimated displaced tows, catch, and ex-vessel revenue

The estimates of displaced revenue of the original Alternative C.12 proposal were provided by the WDF&G, who estimated displaced revenue by summing catch from 2003 trawl logbook set points contained within the closed area. The estimates of the revised Alternative C.12 were made by determining the proportional overlap of a closed area with 2000-2003 trawl effort data that was provided in 10 x 10 minute blocks. The proportional method assumes a uniform distribution of fishing effort across a block. However, the revised closed area boundaries were made with the spatial distribution of trawl tracks. The estimates of displaced revenue from the revised Alternative C.12 reported below are likely grossly overestimated (Table 3). The methodology used to determine displaced revenue relied on the assumption that trawl effort and catches were distributed uniformly within the block area for which economic information was provided. Analysis of trawl logbook set and haul back points indicated that this is not the case. Trawl activity is patchy, and is located in discrete areas. This was confirmed by the overlay maps of the set points with the proposed closed areas. Since the boundaries of closed areas were refined to avoid patches of heavy trawl effort, the actual displaced revenue is minimized much more than simply reducing the area would indicate. Nonetheless, even assuming uniform fishing effort across a block, our modified closed areas reduced the previously estimated displaced revenue by over 30% from displaced revenue of $5.4 million in original Alternative C.12 to $3.4 million in Revised Alternative C.12 (Table 3).

As a result of analyses of the spatial distribution of trawl track information from logbooks, input from trawl fishermen, and comments from the SSC, areas of Alternative C.12 were revised to provide for expanded trawl grounds while protection of habitat areas. This revised Alternative C.12 reduces revenue displacement across the EFH area while maintaining integrity of protection/mitigation. The revised Alternative C.12 results in displacement of less than 15% and far less loss in any actual revenue.

Table 3: Revised Alternative C.12 revenue displacement comparison to original Alternative C.12

		Estimated displaced ex-vessel revenue	
Number	Name	**Original**	**Revised**
1	Olympic_1	1,286,058	431,115
2	Olympic_2	326,284	280,685
3	Olympic_3	N/A *	395,676
4	Biogenic_1	172,849	36,486
5	Biogenic_2	31,982	15,438
6	Grays Canyon	5,917	34,512
7	Biogenic_3	2,351	4,554
#8	Astoria Canyon head	509,857	33,399
#9	Astoria_slope		74,755

10	Ridges_Biogenic_5	189,585	136,537
11	Nehalem Bank	N/A *	8,824
12	Biogenic_new_1	N/A *	69,960
13	Biogenic_new_2	N/A *	5,969
14	Biogenic_6	3,585	29,402
15	Biogenic_7	76,470	91,908
16	Biogenic_8	36,172	41,852
17	Siletz Reef	N/A *	132
18	Daisy Bank	0	11,768
19	Biogenic_new_3	N/A *	70,573
20	Stonewall Bank	N/A *	7,252
21	Cape Perpetua Reef	N/A *	125
#22	Heceta Bank	379,291	200,810
#23	Heceta Escarpment		28,665
24	Ridges_biogenic_10	12,121	94,628
25	Siltcoos Reef	N/A *	383
26	Cape Arago_Bandon Reef	2,016	12,018
27	Orford and MacKenzies Reef	N/A *	3,929
28	Coquille Bank	N/A *	75,004
#29	Rogue offshore slope	491,706	81,296
#30	Rouge Canyon head_ Rouge River Reef		63,876
31	Brookings_slope	N/A *	48,884
32	Crescent City deep_biogenic_11	2,734	9,635
33	Crescent City_slope	N/A *	49,779
34	Eel River Canyon	551,397	201,696
35	Blunts Reef	N/A *	25,495
36	Mendoncino Ridge	201,902	108,769
37	Delgada Canyon	N/A *	79,978
38	Fort Bragg Canyon	N/A *	51,128
39	Pt Arena offshore	N/A *	47,324
40	Biogenic_12	109,117	61,321
41	Cordell Banks	140,883	49,064
42	Farallon Islands_Fanny Shoal	78	9,967
43	Half Moon Bay	580	41,073
44	Point Sur_deep	0	10,173
45	Monterey Bay and Canyons	645,196	191,468
46	Biogenic area_13	26,257	11,282
47	Big Sur Bank	N/A *	1,694
48	Morro Ridge	258,779	30,125
49	Channel Islands	0	11,016
50	Cowcod conservation area_west	0	0
51	Santa Cantalina	0	2,315
52	Cowcod conservation area_east	0	0
53	Thompson Seamount	0	0
54	President Jackson Seamount	0	0
55	Taney Seamount	0	0
56	Gumdrop Seamount	0	0
57	Pioneer Seamount	0	0
58	Guide Seamount	0	0
59	Davidson Seamount	0	0

60	San Juan Seamount	0	0
61	Rodriguez Seamount	0	0
	Grand Total	5,463,659	3,408,709
Percent of annual revenue displaced		22%	14%

* Indicates areas in the revised Alternative C.12 proposal which were not identified in the original Alternative C.12.
# Indicates areas in the original Alternative C.12 proposal which were split into component areas in the revised Alternative C.12

Table 4: Estimated annual displaced tows, catch, and ex-vessel revenue for Revised Alternative C.12 based on the proportional overlap of closed areas with fishing effort blocks generated from logbook data from 2000-2003.

Number	Name	Estimated tows	Estimated catch (mt)	Estimated value ($)
1	Olympic_1	1,972	597.9	431,115
2	Olympic_2	1,809	277.2	280,685
3	Olympic_3	1,990	595.9	395,676
4	Biogenic_1	248	20.3	36,486
5	Biogenic_2	57	9.7	15,438
6	Grays Canyon	1,051	56.7	34,512
7	Biogenic_3	8	2.0	4,554
8	Astoria Canyon head	686	30.7	33,399
9	Astoria_slope	534	61.6	74,755
10	Ridges_Biogenic_5	675	83.4	136,537
11	Nehalem Bank	71	6.7	8,824
12	Biogenic_new_1	390	50.9	69,960
13	Biogenic_new_2	32	3.8	5,969
14	Biogenic_6	172	18.0	29,402
15	Biogenic_7	518	57.8	91,908
16	Biogenic_8	189	27.8	41,852
17	Siletz Reef	1	0.1	132
18	Daisy Bank	81	9.4	11,768
19	Biogenic_new_3	344	47.8	70,573
20	Stonewall Bank	53	5.7	7,252
21	Cape Perpetua Reef	1	0.1	125
22	Heceta Bank	873	151.5	200,810
23	Heceta Escarpment	98	18.1	28,665
24	Ridges_biogenic_10	294	62.2	94,628
25	Siltcoos Reef	4	0.4	383
26	Cape Arago_Bandon Reef	109	12.8	12,018
27	Orford and MacKenzies Reef	27	3.6	3,929
28	Coquille Bank	401	59.5	75,004
29	Rogue offshore slope	204	49.4	81,296
30	Rogue Canyon head_Rogue River Reef	310	52.1	63,876
31	Brookings_slope	347	39.4	48,884
32	Crescent City deep_biogenic_11	15	4.5	9,635

33	Crescent City_slope	318	36.0	49,779
34	Eel River Canyon	630	147.6	201,696
35	Blunts Reef	86	21.3	25,495
36	Mendocino Ridge	248	77.6	108,769
37	Delgada Canyon	261	56.4	79,978
38	Fort Bragg Canyon	145	30.7	51,128
39	Pt Arena offshore	226	34.3	47,324
40	Biogenic_12	137	45.8	61,321
41	Cordell Bank	262	33.0	49,064
42	Farallon Islands_Fanny Shoal	42	4.3	9,967
43	Half Moon Bay	292	12.1	41,073
44	Point Sur_deep	24	5.6	10,173
45	Monterey Bay and Canyons	913	156.7	191,468
46	Biogenic area_13	35	7.8	11,282
47	Big Sur Bank	2	1.5	1,694
48	Morro Ridge	52	22.6	30,125
49	Channel Islands	265	1.8	11,016
50	Cowcod conservation area_west	0	0.0	0
51	Santa Catalina	142	0.5	2,315
52	Cowcod conservation area_east	0	0.0	0
53	Thompson Seamount	0	0.0	0
54	President Jackson Seamount	0	0.0	0
55	Taney Seamount	0	0.0	0
56	Gumdrop Seamount	0	0.0	0
57	Pioneer Seamount	0	0.0	0
58	Guide Seamount	0	0.0	0
69	Davidson Seamount	0	0.0	0
60	San Juan Seamount	0	0.0	0
61	Rodriguez Seamount	0	0.0	0
	Grand Total	17,653	3,114.4 mt	$3,408,709

Overall, the spatial management components of Revised Alternative C.12 represents an estimated displacement of $3,408,709 in annual trawl revenue, protects areas containing 1,624 records of habitat-forming invertebrates (corals, sponges, sea whips, and sea pens). Of the approximately 82,000 km^2 bottom trawl footprint identified using the best available logbook data, 12,000 km^2 (under 15%) is closed to bottom trawling in this alternative leaving a total open area to bottom trawling of 70,000 km^2.

Other management measures

Trawl effort reduction

Dinmore et al. (2003) found that without commensurate reductions in fishing effort, closing off a heavily trawled area may result in significant displacement of trawled effort into remaining open areas, including previously untrawled areas. For this reason, the NRC (2002) report on the

effects of bottom trawling notes that effort reduction is the "cornerstone of habitat protection". While there may be several ways to reduce bottom trawl effort, the crucial factor is that the total area swept by bottom trawl gear is reduced. Alternative C.12 specifically attempts to avoid closing heavily trawled areas in order to minimize displacement of trawl effort in to new areas. Also, recent measures enacted by the PFMC have reduced trawl effort to rebuild overfished species. Recent buyouts have also reduced the total annual trawl effort on the U.S. west coast. However, as stated in the NRC (2002) recommendations, trawl effort may still need to be reduced to ensure the adequacy of any measures to fully mitigate the adverse impacts of trawl gear. Revised Alternative C.12, therefore, recommends Council-developed bottom trawl effort reductions.

Gear restrictions

In 2000, the Pacific Fishery Management Council adopted regulations designating where different size bottom trawl gear may be fished. Only bottom trawls with footrope diameter 8 inches or smaller (including rollers, bobbins, or other material along the length of the footrope) may be used shoreward of the Rockfish Conservation Areas (RCA). Footrope restrictions are linked to fish trip limits as a means of management by the PFMC. The Bellman and Heppel study (Appendix A-19) provides evidence that an 8 inch roller maximum roller size gear restriction can be an effectively reduce trawl effort over rocky substrate. This study suggests that adverse impacts in some specific areas have been reduced as an indirect effect of roller size restrictions. It is crucial that this gear restriction remain permanent to ensure continued protection to Essential Fish Habitat, and be expanded to encourage further mitigation of adverse impacts.

A loophole exists in that while fishing for species without trip limits, the footrope restrictions do not apply. Also, the existing footrope restrictions area not permanent, and be reinstated annually by the PFMC. Seaward of the RCA, there are no restrictions on trawl gear. A four seam Aberdeen trawl is commonly used for the deepwater fleet with rollers or rockhoppers up to 14 inches in diameter (Recht, 2003). These vessels target dover sole, sablefish, and thornyheads.

The Revised Comprehensive Alternative includes an 8 inch roller size restriction for all bottom trawl gear deployed in the U.S. West Coast EEZ. Limitations on the roller size of bottom trawl gear provide an effective management measure to reduce bottom trawl effort on rocky substrates with substantial structural complexity. Bellman and Heppell (in press) found that the 8 inch roller size restriction implemented by the Pacific Fishery Management Council in 2000 effectively reduced bottom trawl effort at five sites with hard, rocky substrate on the U.S. West Coast by 86%. This gear restriction, however, was only implemented in specific depth ranges and therefore does not protect rocky substrate types in areas where it was not implemented. Therefore, expanding this existing gear restriction throughout the entire U.S. west coast EEZ is an effective way to prevent trawl damage to complex rocky substrates in areas that remain open in this alternative.

The Comprehensive Alternative includes the following footrope restrictions:

- Bottom trawling within the open bottom trawl area may only use footropes 8 inches or smaller in diameter;

- The footrope restriction must be applied for all bottom trawling, regardless if the target species has trip limits; and
- Footrope restrictions are made permanent instead of re-authorized on an annual basis.

While gear modifications must be an integral component of a comprehensive strategy to mitigate the adverse effects of trawling on Essential Fish Habitat, they are not a substitute for bottom trawl closures. The International Council for the Exploration of the Seas (ICES) released a statement that "the only proven method of preventing damage to deep-water biogenic reefs from fishing activities is through spatial closures to towed gear that potentially impact the bottom" (cited in Christiansen and Lutter 2003).

Comprehensive research and benthic mapping

Basic biology and life history information is lacking for many deep sea coral and sponge species. Understanding growth rates, reproduction, dispersal, and ages of deep sea corals and sponges and other habitat-forming invertebrates will provide estimates of recovery time for different habitat types. EFH identification research should explore the community ecology of coral and sponge habitats, including the production functions between the biogenic habitat features and commercial fish species, and prey species for commercial fish species, among other functions. Basic biology and life history information is lacking for many deep sea coral and sponge species. Understanding growth rates, reproduction, dispersal, and ages of deep sea corals and sponges will provide estimates of recovery time for different habitat types.

The distribution of sensitive habitat types off the Pacific Coast can be determined through a combination of seafloor mapping projects and developing Habitat Suitability Indices for biogenic substrates. Leverette (2003) developed a methodology for predicting likely areas of deep sea coral concentrations off Atlantic Canada by identifying key ecological determinants of the known distribution of these habitat types. Using sidescan sonar and multibeam scanning techniques, these habitat suitability models can be ground-truthed to determine their precision and accuracy. While the habitat suitability modeling approach is being used for fish species in the current EFH EIS, the Comprehensive Alternative explicitly includes this type of modeling and groundtruthing for living habitat features that are vulnerable to trawling.

Research and benthic mapping should be also designed to provide opportunity for reevaluating the open and closed areas to bottom trawling to protect EFH. Criteria for opening areas would include that they have been mapped or thoroughly observed in situ, do not contain sensitive habitats, and it can be demonstrated that bottom trawling may occur in the area without adversely impacting habitat. In addition, new areas of sensitive habitat may be discovered within the open-bottom trawl areas and become candidates for new closed areas.

The components of Revised Alternative C.12 described in this section emphasize the need for adequate funding dedicated specifically to EFH research, mapping, and observer coverage. While this research will require a substantial allocation of agency resources, the rationale for this expenditure is that more spatially explicit information will allow more cost effective management in the future. This is because higher spatial resolution can be used to develop fine scale management measures that allow fishermen to adequately obtain their catch without

damaging the habitat, its ecological functions, or the underlying productivity of the fish they are harvesting.

Monitoring the habitat impacts of the bottom trawl fleet

NMFS and the PFMC must include in any mitigation alternative a framework to measure and monitor habitat impacts. A direct approach for measuring habitat impacts of fishing is to examine bycatch, or incidental catch, of habitat-forming invertebrates. Bycatch can be monitored by onboard observers. While it may be difficult to estimate the total reduction in habitat quality caused by each per unit reduction in these habitat indicators, this approach allows a comparison of habitat damage over different areas and using different gear types.

The Revised Comprehensive Alternative includes the following monitoring and enforcement components:

1. Increase onboard observer coverage on bottom trawl vessels to a level determined to be necessary by NOAA to estimate annual bycatch of habitat-forming invertebrates and quantify habitat interactions with fishing gear;
2. Require vessel Monitoring Systems (VMS) on all vessels using bottom trawl gear to catch groundfish in the U.S. West Coast EEZ with positions recorded at a time stamp of every 5 minutes (time);
3. Improve electronic logbooks to provide better fishing effort information to NOAA and state authorities;
4. Annual publication of a NMFS *West Coast Groundfish Habitat Status Report* to make habitat impact and bycatch data available to the Council, the public and the fleet at as high a spatial and temporal resolution as possible; and
5. Establish baseline data and a process for setting and implementing bycatch limits on structure-forming invertebrates and/or other habitat performance standards.

Monitoring habitat impacts of individual vessels allows fishery managers to evaluate the effectiveness of management measures, reveal vessels or areas of concern, and provide future management options that utilize performance standards and incentive-based regulations. Fishermen control many factors that determine the degree to which their activities impact the seafloor. The placement (physical location) of their nets and the specific type of gear they use are largely at the discretion of individual vessel captains. The various factors that play into this decision are the likelihood of catching valuable target species and the likelihood that they will damage the gear they are using. By using state-of-the-art sounders and fish-finders, fishermen are able to identify schools of particular species of fish and obtain information about bottom type before setting their gear. While some seafloor types cause major damage to trawl nets, such as large, sharp boulders, there is little evidence that vulnerable habitat types such as living substrates damage trawl gear. Therefore, there exists no immediate incentive to avoid such habitats in the pursuit of fish, particularly if there are higher abundances of fish in these areas.

A direct approach for measuring habitat impacts of fishing is to examine bycatch, or incidental catch, of habitat features. Since each habitat feature may vary in its catchability, indicators that are caught by fishing gear should be used. Bycatch can be monitored by onboard observers. In Alaska, for example, observers routinely report bycatch of corals and sponges. While it may be difficult to estimate the total reduction in habitat quality caused by each per unit reduction in

these habitat indicators, this approach allows a comparison of habitat damage over different areas and using different gear types.

Bycatch data availability

There is no question that observer bycatch data should be used to the fullest extent in groundfish management. Habitat-related observer bycatch data are important tools for protecting sensitive habitats and the long-term productivity and sustainability of the groundfish fisheries. Such data should be made available on a regular basis to the Council, the fleet and the public in as spatially and temporally explicit a format as possible. We recommend this information be released annually by NMFS in a *West Coast Groundfish Habitat Status Report.*

Monitoring habitat impacts with VMS

The Comprehensive Alternative includes a vessel monitoring system (VMS) requirement with positions recorded at a time stamp of every 5 minutes for all vessels fishing for groundfish using bottom trawl gear. Vessel monitoring systems (VMS) track the location and speed of vessels in real time, allowing managers to assess more accurately where trawling actually occurs. This data can be used to enforce bottom trawl closed areas and can be combined with other data to provide detailed spatial information on individual vessel catch, bycatch, and habitat impacts.

Conclusion

Revised Alternative C.12 considers the interrelatedness and spatial arrangement of complex sensitive habitat criteria in relation to areas prosecuted by bottom trawl fisheries to develop an approach to manage the effects of bottom trawling on habitat. Revised Alternative C.12 is a comprehensive approach to protect Essential Fish Habitat, as required by law, while maintaining vibrant commercial fisheries for the Pacific Coast.

Descriptions of specific closed areas
Detailed maps of the respective areas for Revised Alternative C.12 reflect the modifications to boundaries for each area.

1. Olympic_1
Original Alternative C.12 estimated displaced revenue= $1,286,058
Revised Alternative C.12 estimated displaced revenue= $431,115 (likely overestimated, trawl tracks fall outside of area, see Figure below)

According to 2003 bottom trawl logbook data, several heavily fished areas were located within the proposed closed area of *Olympic_1* (Figure A) in Original Alternative C.12. Boundaries to *Olympic_1* were adjusted in Revised Alternative C.12 to avoid heavily trawled areas in the northeast and southern end of the original proposed closed area (Figure 8). The closed area in Revised Alternative C.12 also expands eastward to encompass deeper, lightly fished areas.

Revised Alternative C.12 contains 330 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the “untrawlable” polygons determined by Zimmerman (2003).

As indicated by databases supplied by NOAA, every trawl survey haul performed within the proposed area has recorded habitat-forming invertebrates. A total of 54 records of habitat-forming invertebrates have been recorded in the area since 1979. These include *Calcigorgia sp.* and *Swiftia sp.* gorgonian corals, black corals, sea pens, sea whips, and Hexactinellid sponges.

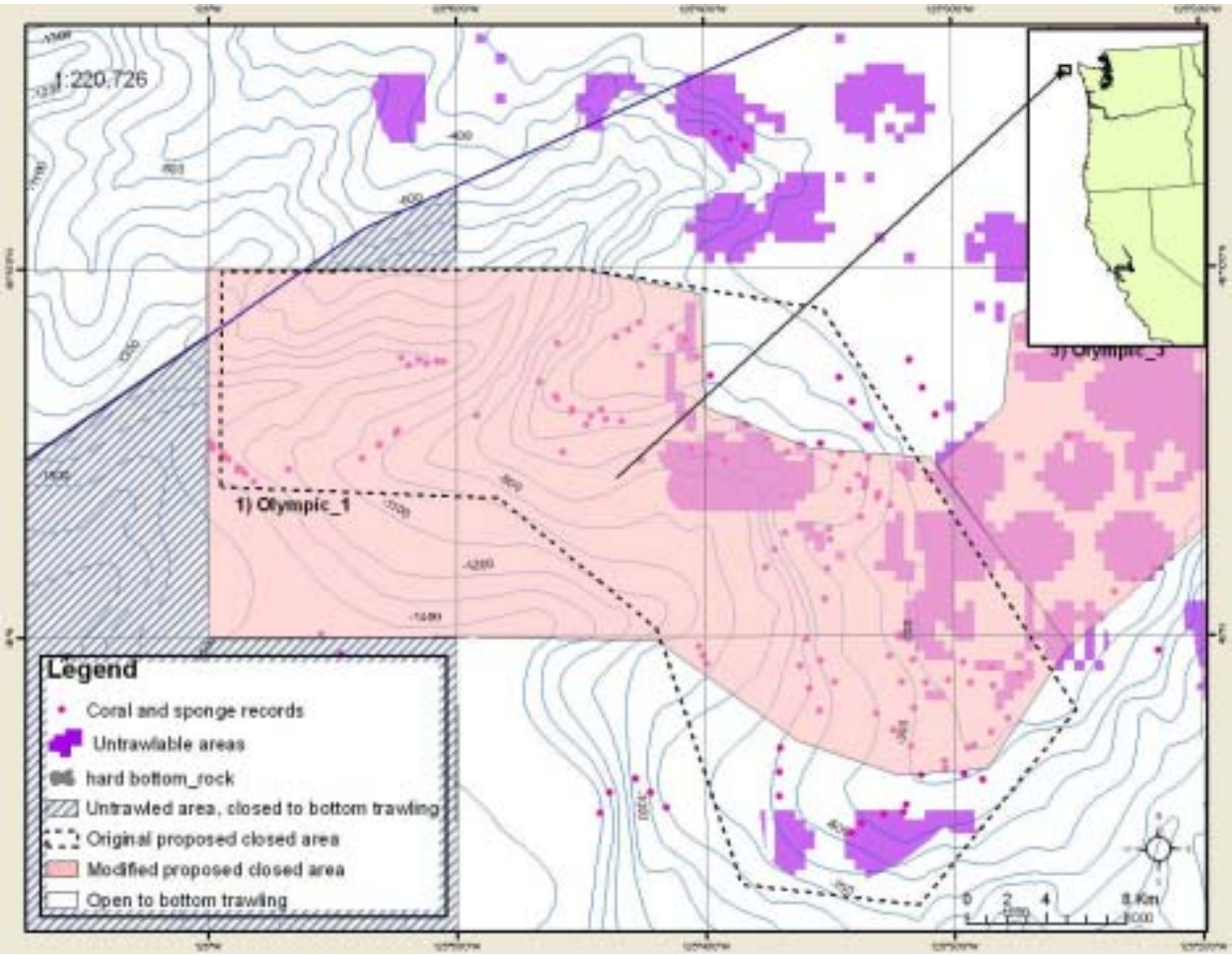


Figure 8: Olympic_ 1

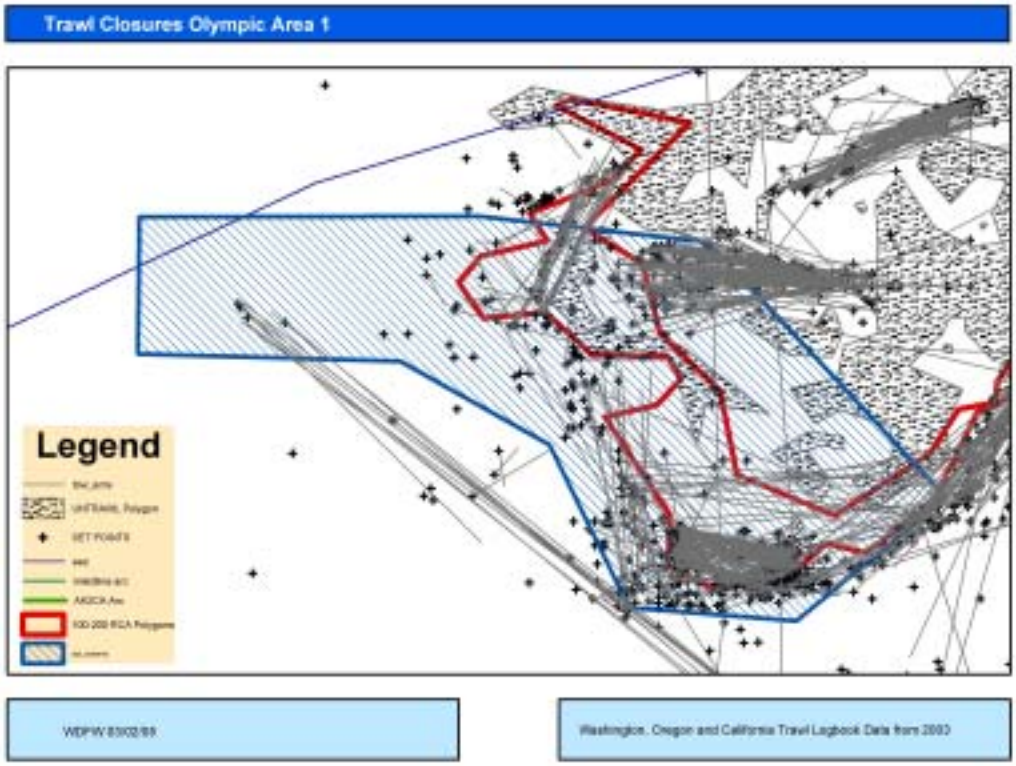


Figure A: 2003 bottom trawl logbook set points (courtesy WDF&W).

2. Olympic_2

Original Alternative C.12 estimated displaced revenue= $326,284
Revised Alternative C.12 estimated displaced revenue= $280,685 (likely overestimated, trawl tracks fall outside of area, see Figure below)

Trawl logbook data from 2003 indicated some fishing in the northern and southern portion of the Original Alternative C.12 closed area (Figure B). The boundary for the proposed closed area in Revised Alternative C.12 was adjusted to avoid those fishing areas (Figure 9).

The proposed closed area contains the only known location in the Northwest Pacific of *Lophelia pertusa*, a reef-forming deep-sea coral. Observation of the reef in 2004 indicated a large proportion of the reef was broken, and both trawl tracks and derelict fishing gear were observed nearby (Hyland et al. 2004). Research in the Atlantic shows that reefs of *Lophelia* are extremely susceptible to damage by bottom trawl gear (Fossa et al. 1999).

A total of 18 records of habitat-forming invertebrates have been recorded in the Revised Alternative C.12 closed area by NOAA trawl surveys. These include *Alcyonacea* soft corals, other gorgonian corals, scleractinian corals, and Hexactinellid sponges. A larger number of records and greater sample weights occurred in the 1980's than more recent surveys, which may indicate evidence of habitat destruction.

The proposed closed area contains 523 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003).

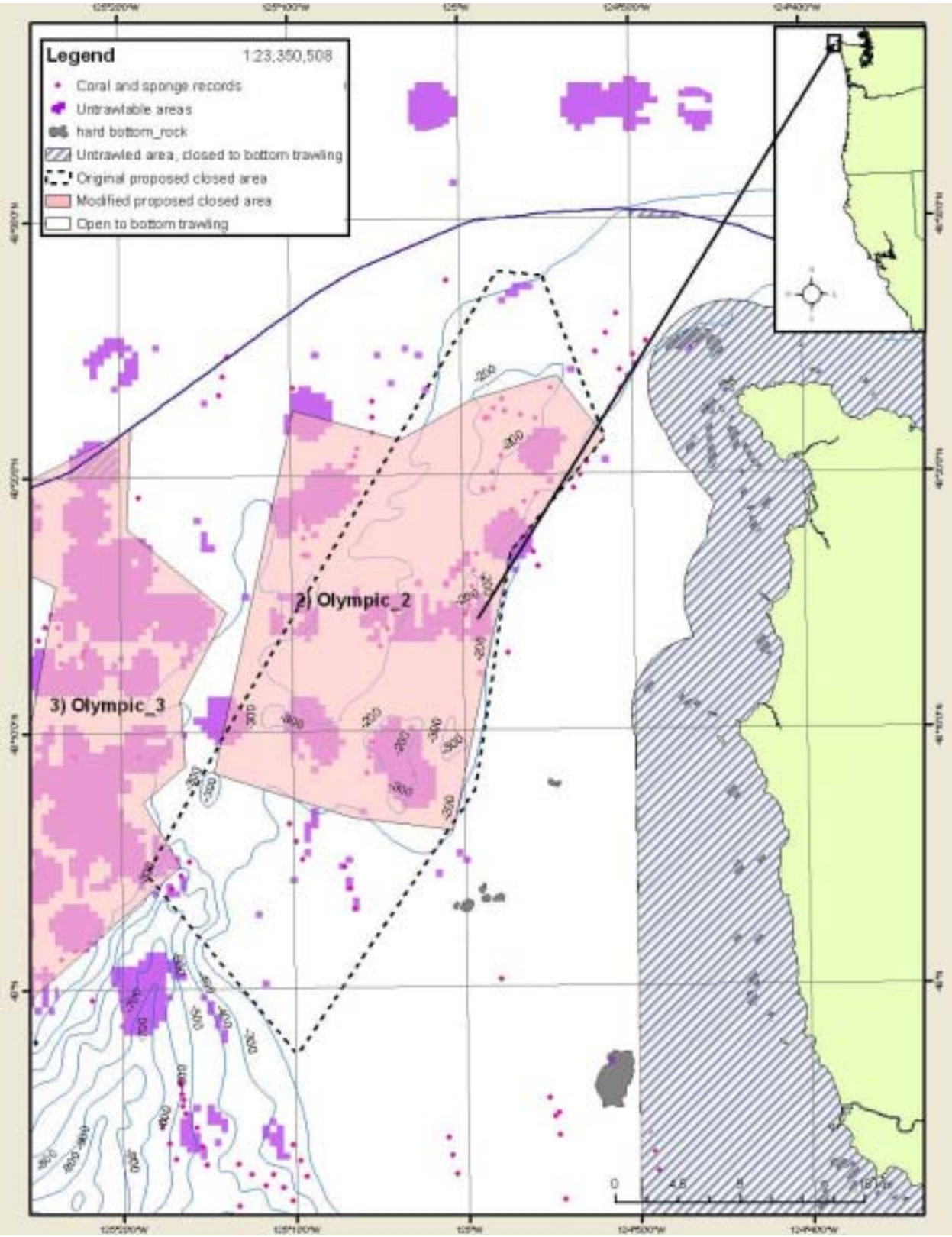


Figure 9: Olympic_2

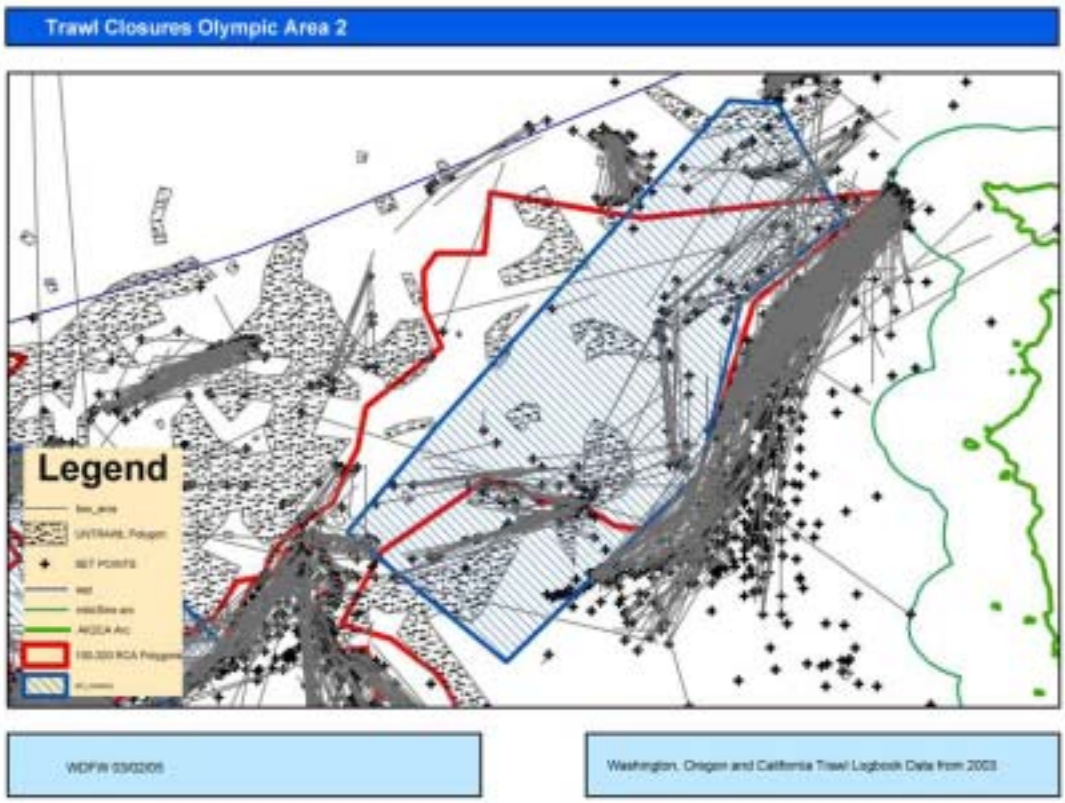


Figure B: 2003 bottom trawl logbook set points (courtesy WDF&W).

3. Olympic_3_untrawlable

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $395,676 (likely overestimated, trawl tracks fall outside of area, see Figure C below)

This portion of the Olympic Marine Sanctuary is located between proposed areas *Olympic_1* and *Olympic_2* (Figure 10). This area had not been previously identified as a closed area.

Localized multibeam mapping indicates the area contains pinnacles and high relief, rocky habitat (Steve Intelmann, GIS analyst, Olympic Marine Sanctuary, pers. comm.). Zimmerman (2003) indicates that much of this area is untrawlable, as very few NOAA trawl surveys have successfully been deployed in this area. Trawl logbook data from 2003 shows that the area appears to be avoided by the bottom trawl fleet (Figure C). This is corroborated by the Zimmerman (2003) "untrawlable areas" database, which shows the area to contain 1,098 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up. Although the area is not well surveyed, a total of nine records of habitat-forming invertebrates have been recorded in the area by NOAA trawl surveys. These include scleractinian corals, sea pens, and Hexactinellid sponges. A larger number of records and greater sample weights occurred in the 1980's than more recent surveys, which may indicate evidence of habitat destruction.

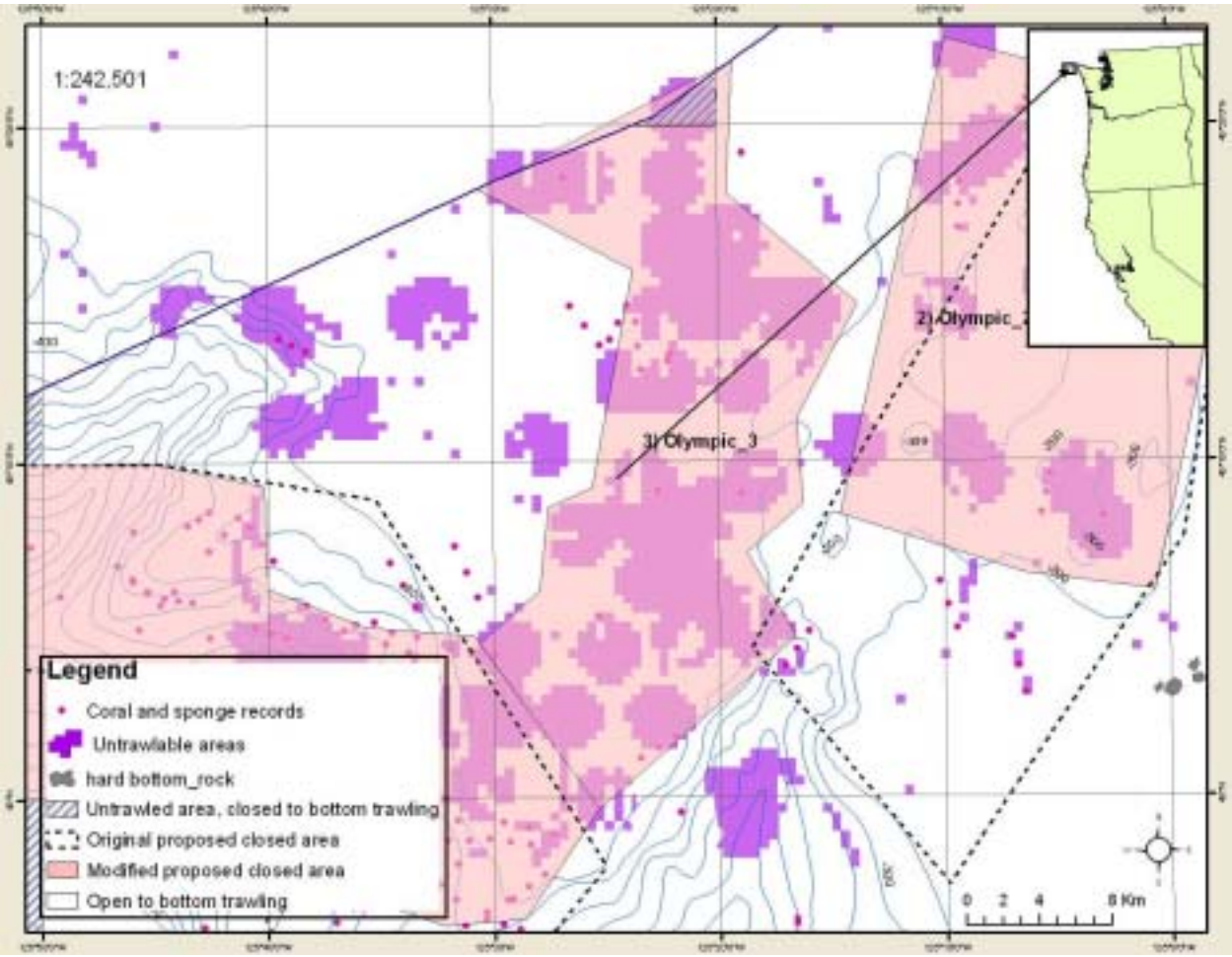


Figure 10: Olympic_3

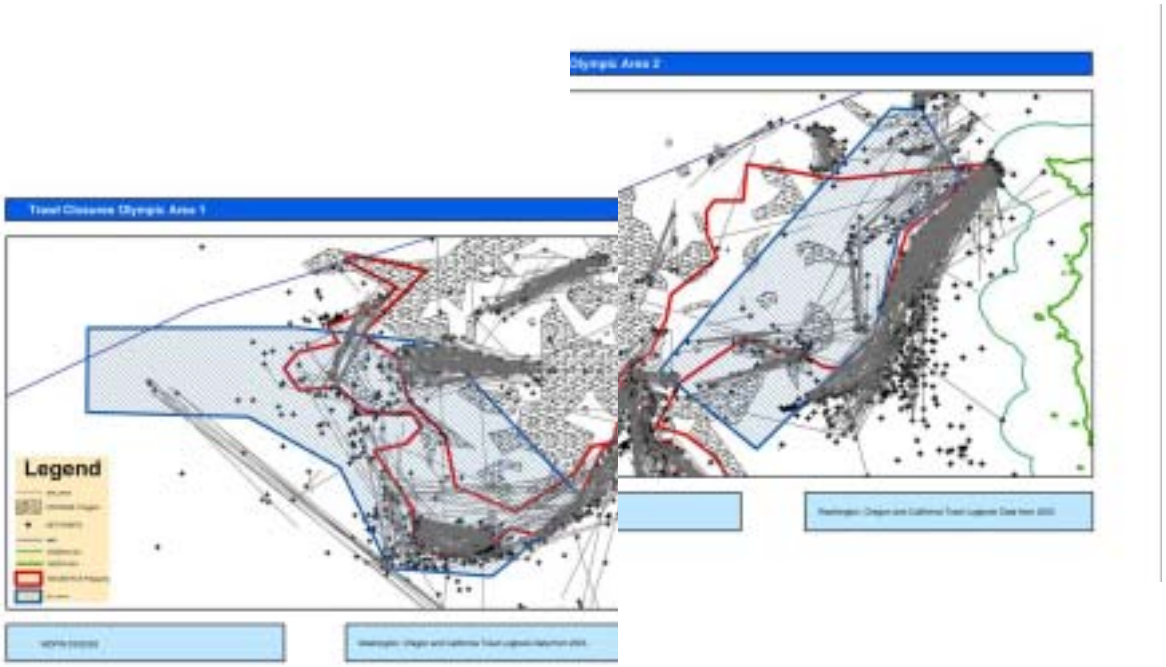


Figure C: 2003 bottom trawl logbook set points (courtesy WDF&W).

4. Biogenic_1

Original Alternative C.12 estimated displaced revenue= $172,849
Revised Alternative C.12 estimated displaced revenue= $36,486 (likely overestimated, trawl tracks fall outside of area, see Figure below)

Bottom trawl logbook data from 2003 indicates that bottom trawling mainly occurred in the eastern portion of the previously proposed closed area (Figure D). The boundary for the proposed closed area in Revised Alternative C.12 excludes this fished area (Figure 11). It is likely that the displaced revenue previously attributed to the closed area is mitigated by excluding that eastern portion. The new boundary also expands northward and deeper to include lightly fished and unfished areas, and include more records of habitat-forming invertebrates.

Every NOAA trawl survey haul performed in the proposed area has recorded the presence of habitat-forming invertebrates. NOAA slope surveys from 1992 onwards have documented 141 records of habitat-forming invertebrates in the proposed area including black corals, scleractinian corals, Hexactinellid sponges, bamboo corals, and sea whips. Records were more numerous and sample weights of sponges were larger in earlier surveys than more recent ones, which may indicate that habitat has been impacted.

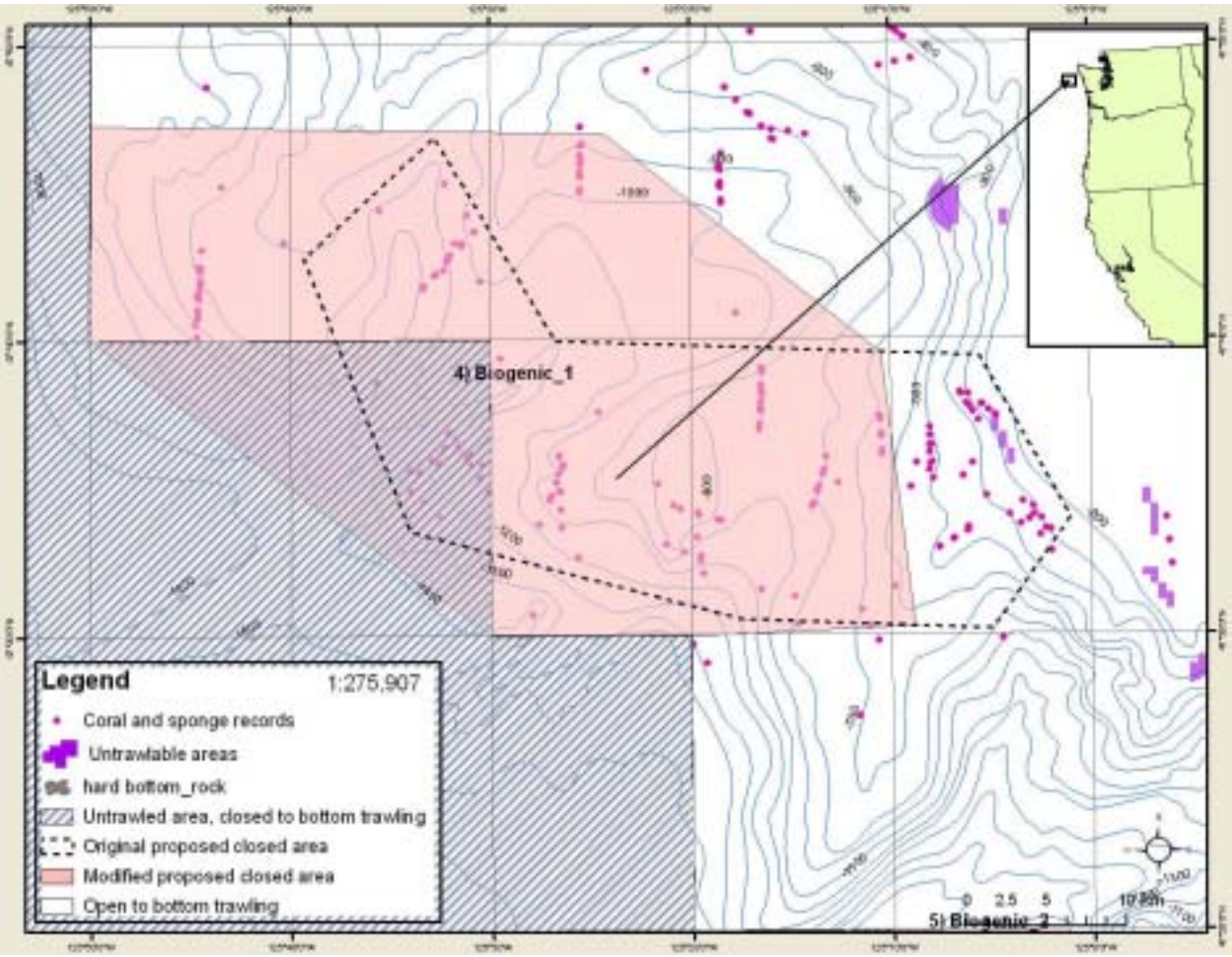


Figure 11: Biogenic_1

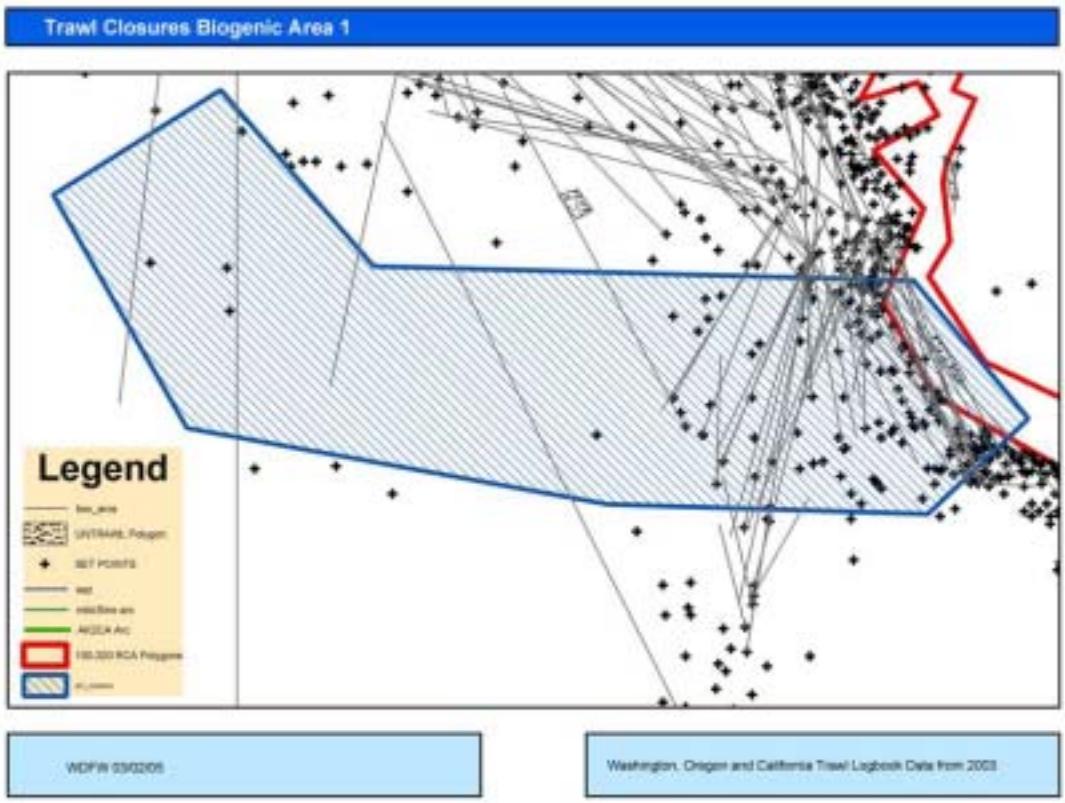


Figure D: 2003 bottom trawl logbook set points (courtesy WDF&W)

5. Biogenic_2

Original Alternative C.12 estimated displaced revenue= $31,982
Revised Alternative C.12 estimated displaced revenue= $15,483 (likely overestimated, trawl tracks fall outside of area, see Figure below)

Bottom trawl logbook data from 2003 indicates that bottom trawling occurred across a small eastern portion of the previously proposed closed area (Figure E). The Revised Alternative C.12 boundary for the proposed closed area excludes this fished area (Figure 12). The new boundary also extends north and south into unfished and lightly fished areas, as well as deeper to provide continuity with the area closed by freezing the trawl footprint.

Every NOAA trawl survey haul performed in the proposed area has documented the presence of habitat-forming invertebrates. NOAA trawl surveys have documented 64 records of habitat-forming invertebrates in the proposed closed area, including black corals, gorgonians, Hexactinellid sponges, and sea pens.

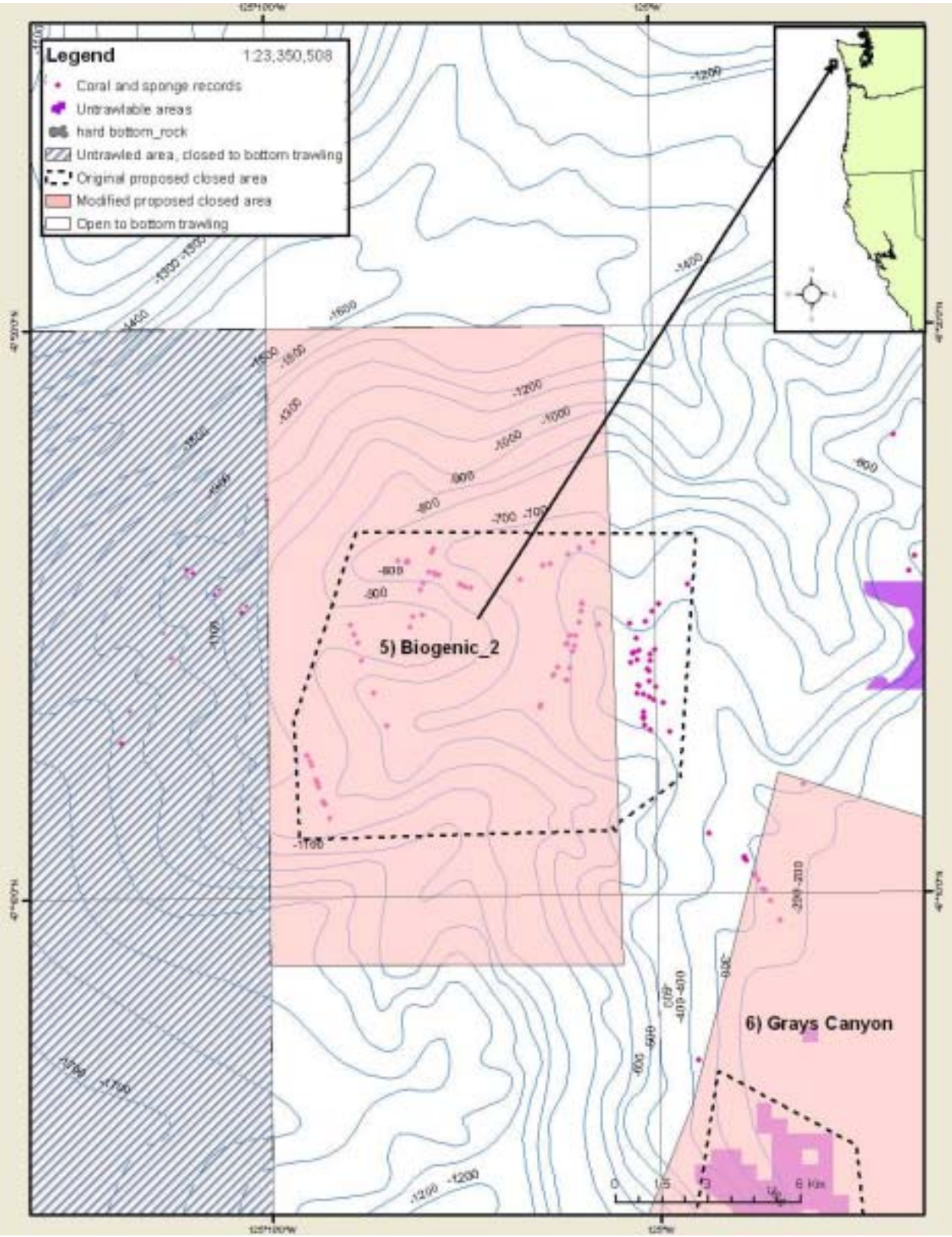


Figure 12: Biogenic_2

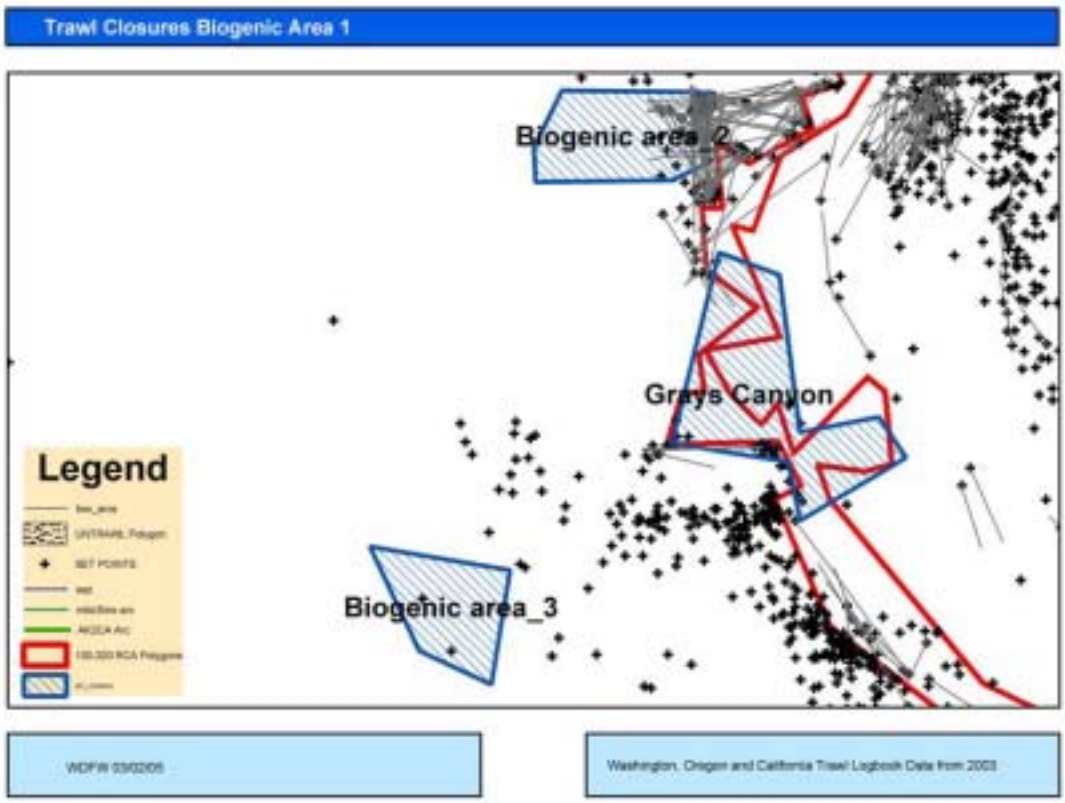


Figure E: 2003 bottom trawl logbook set points (courtesy WDF&W)

6. Grays Canyon

Original Alternative C.12 estimated displaced revenue= $5,917
Revised Alternative C.12 estimated displaced revenue= $34,512 (likely overestimated, trawl tracks fall outside of area, see Figure below)

This canyon was selected based on its high abundance of hard substrate and "untrawlable areas." This site is known to have high upwelling and to be one of the most productive offshore sites off the Washington coast. It is also the site of major ecotourism and birdwatching operations.

Bottom trawl logbook data from 2003 indicates little bottom trawling occurred in the region of the proposed closed area (Figure E). The boundary for the Revised Alternative C.12 proposed closed area follows bathymetric contours and encompasses more of the canyon area (Figure 13).

Most NOAA trawl survey hauls in the proposed closed area documented habitat-forming invertebrates. There have been 48 records of black corals, gorgonian corals, scleractinian corals, and Hexactinellid sponges. In some cases, individual survey hauls recorded large densities of sponges, up to 907 kg per haul in 1985 and 505 kg per haul in 1983. There have been fewer records and lower sample weights of sponges in the more recent surveys, which may be an indication of adverse impacts of fishing on this habitat.

The proposed area contains 344 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003).

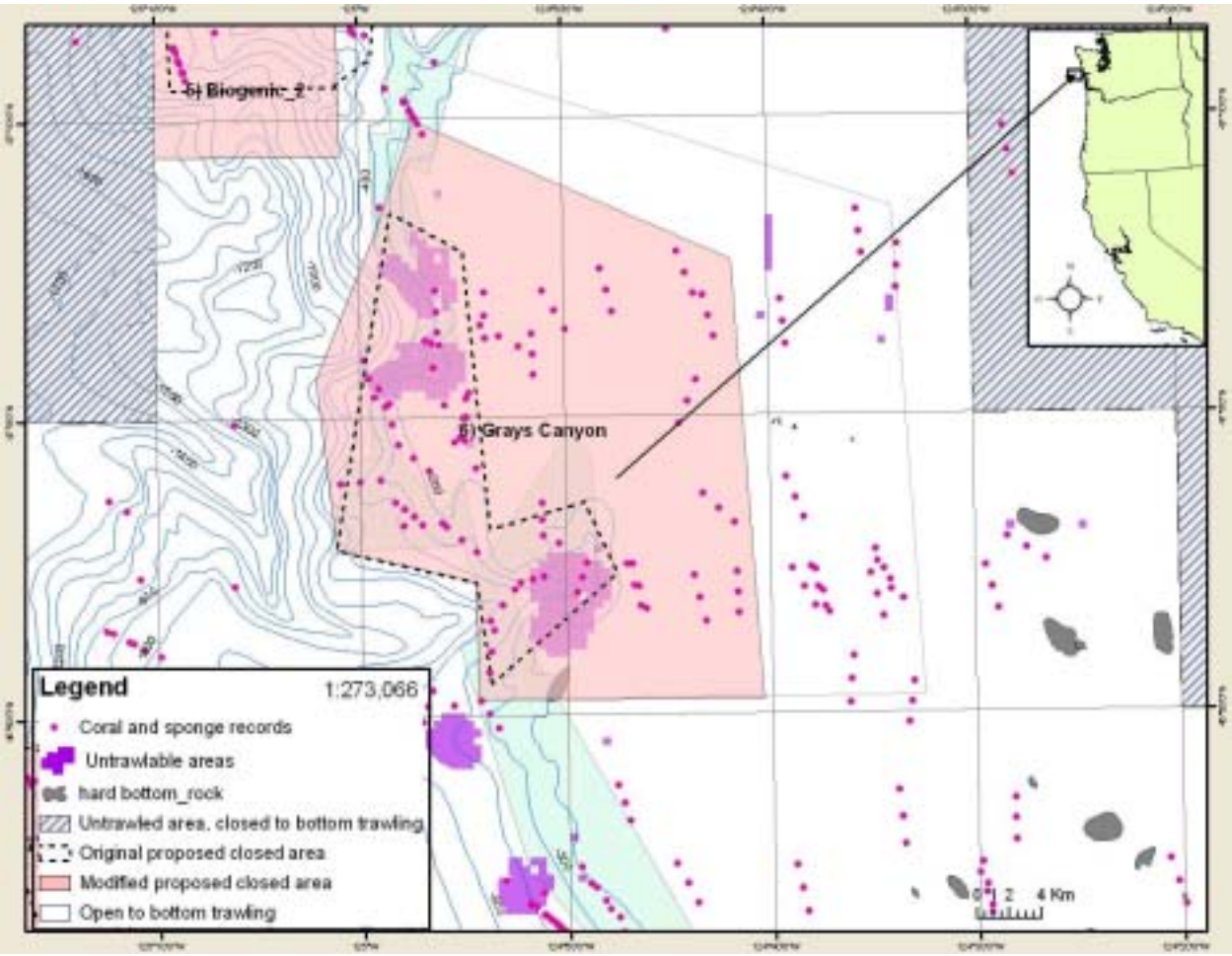


Figure 13: Grays Canyon

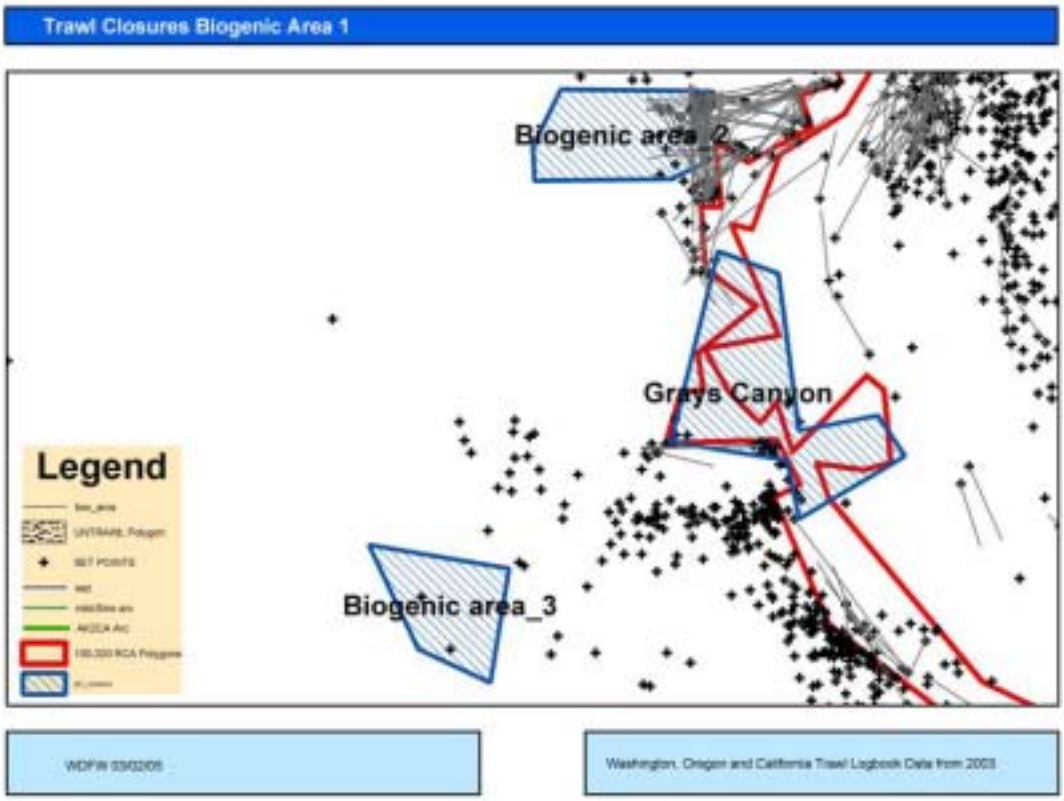


Figure E: 2003 bottom trawl logbook set points (courtesy WDF&W)

7. Biogenic_3

Original Alternative C.12 estimated displaced revenue= $2,351
Revised Alternative C.12 estimated displaced revenue= $4,554

According to trawl logbook data, little bottom trawling occurred in 2003 in the proposed closed area (Figure E). The boundary of the proposed area was expanded to provide continuity with areas closed by freezing the trawl footprint (Figure 14). The proposed closure spans an area of the slope from 900 to 1600 meters depth.

Every NOAA trawl survey haul performed within the proposed area has documented habitat-forming invertebrates. NOAA trawl surveys have documented 46 records of habitat-forming invertebrates within the proposed area, including black corals, gorgonian corals, sea whips, and sponges.

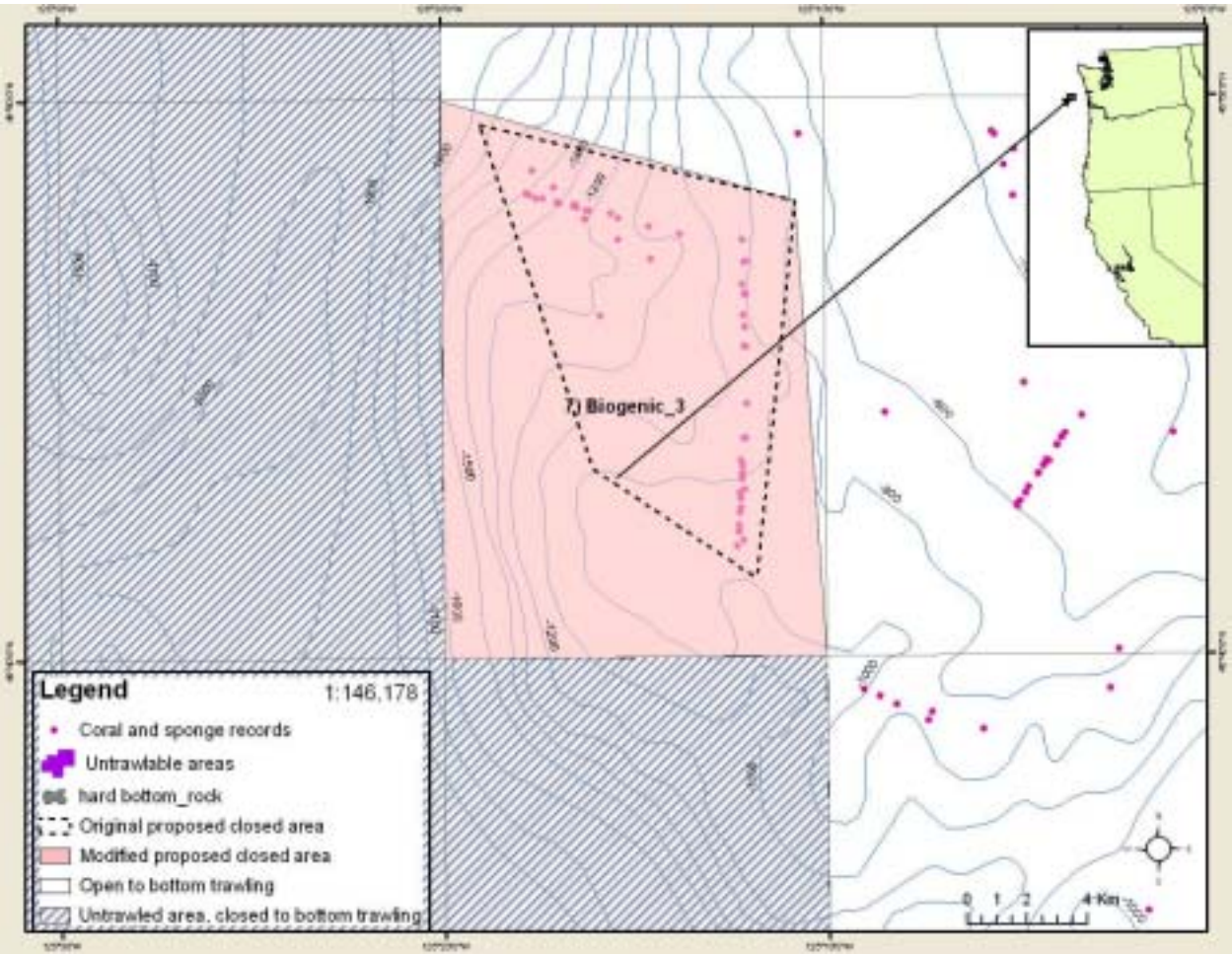


Figure 14: Biogenic_3

8. & 9. Astoria Canyon Region

Original Alternative C.12 estimated displaced revenue= $509,857
Revised Alternative C.12 estimated displaced revenue= $108,154 (likely overestimated, trawl tracks fall outside of area, see Figure below)

The largest submarine canyon in the Pacific Northwest is Astoria Canyon, off the mouth of the Columbia River. This canyon contains a range of habitat types from sand and mud bottom to hard rock canyon walls. There are several records of biogenic habitats in this canyon from the NMFS dataset (Clarke 2004). This canyon has been studied using ROPOS submersibles.

According to analysis of trawl logbook data by the WDF&W, a significant amount of bottom trawl catches were made 2003 in the previously proposed closed area encompassing Astoria Canyon (Figure F). We attempted to mitigate displaced catches by splitting the previously closed area of Astoria Canyon into two areas while avoiding fishing areas identified by WDF&W's logbook analyses (Figure 15).

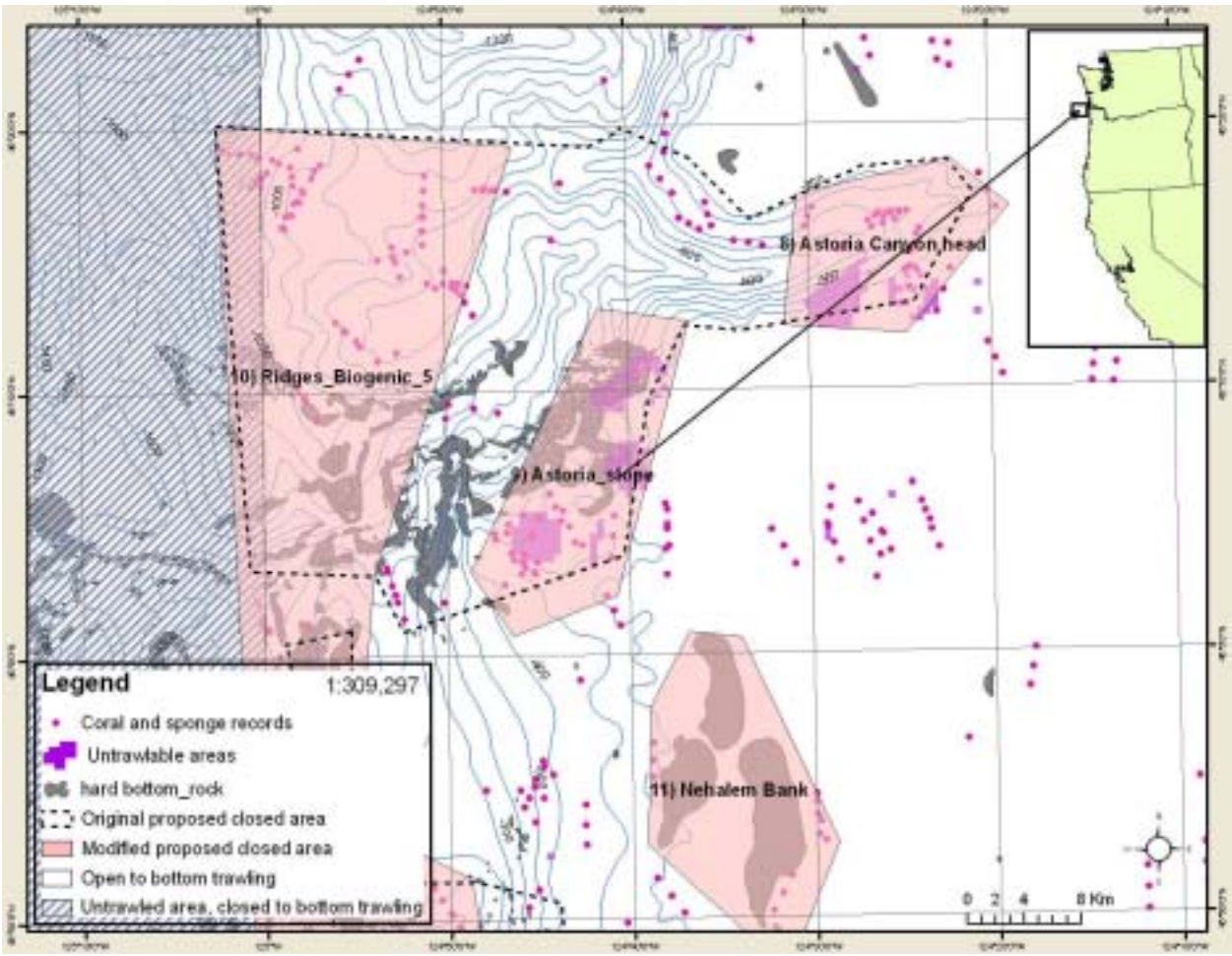


Figure 15: Astoria Canyon_head and Astoria_slope

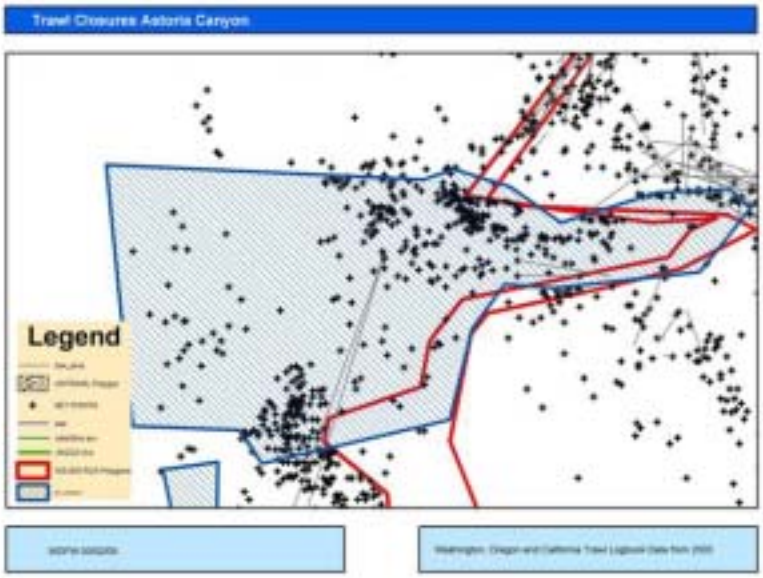


Figure F: 2003 bottom trawl logbook set points (courtesy WDF&W)

8. Astoria Canyon head

This area encompasses the head of the deepwater Astoria Canyon. Areas of untrawlable habitat (17.5 km^2) and habitat-forming invertebrates are located within the Revised Alternative C.12 proposed closed area (Figure 15). The proposed area contains 108 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). Habitat-forming invertebrates were documented in 10 of 33 NOAA trawl survey hauls in the proposed closed area of the Astoria Canyon head. The largest sample weights of sponges and scleractinian corals occurred in the 1980's. The area spans canyon habitat from 200 to 500 meters depth.

9. Astoria Canyon slope

Areas of untrawlable habitat (31.8 km^2) and habitat-forming invertebrates are located within the Revised Alternative C.12 proposed closed area (Figure 15). Habitat-forming invertebrates were documented in 14 of 21 NOAA trawl survey hauls in the proposed closed area, and include records of sea pens, sea whips, and Hexactinellid sponges. The proposed area contains 170 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). The area spans habitats from 200 to 800 meters depth.

10. Ridges_biogenic_5

Original Alternative C.12 estimated displaced revenue= $189,585
Revised Alternative C.12 estimated displaced revenue= $136,537 (likely overestimated, trawl tracks fall outside of area, see Figure below)

Trawl logbook data indicates bottom trawl activity in the eastern portion of the previously proposed closed area (Figure G). The boundary in Revised Alternative C.12 excludes this area

of fishing and expands over lightly fished area to be continuous with the area closed by the trawl footprint and the Astoria canyon closure above (Figure 16).

The proposed closed area contains habitat-forming invertebrates. NOAA trawl survey hauls have documented 118 records of habitat-forming invertebrates in the proposed closed area, and up to 249 kg of sponges per survey haul. Black corals, sea pens, sea whips, and sponges have been documented here.

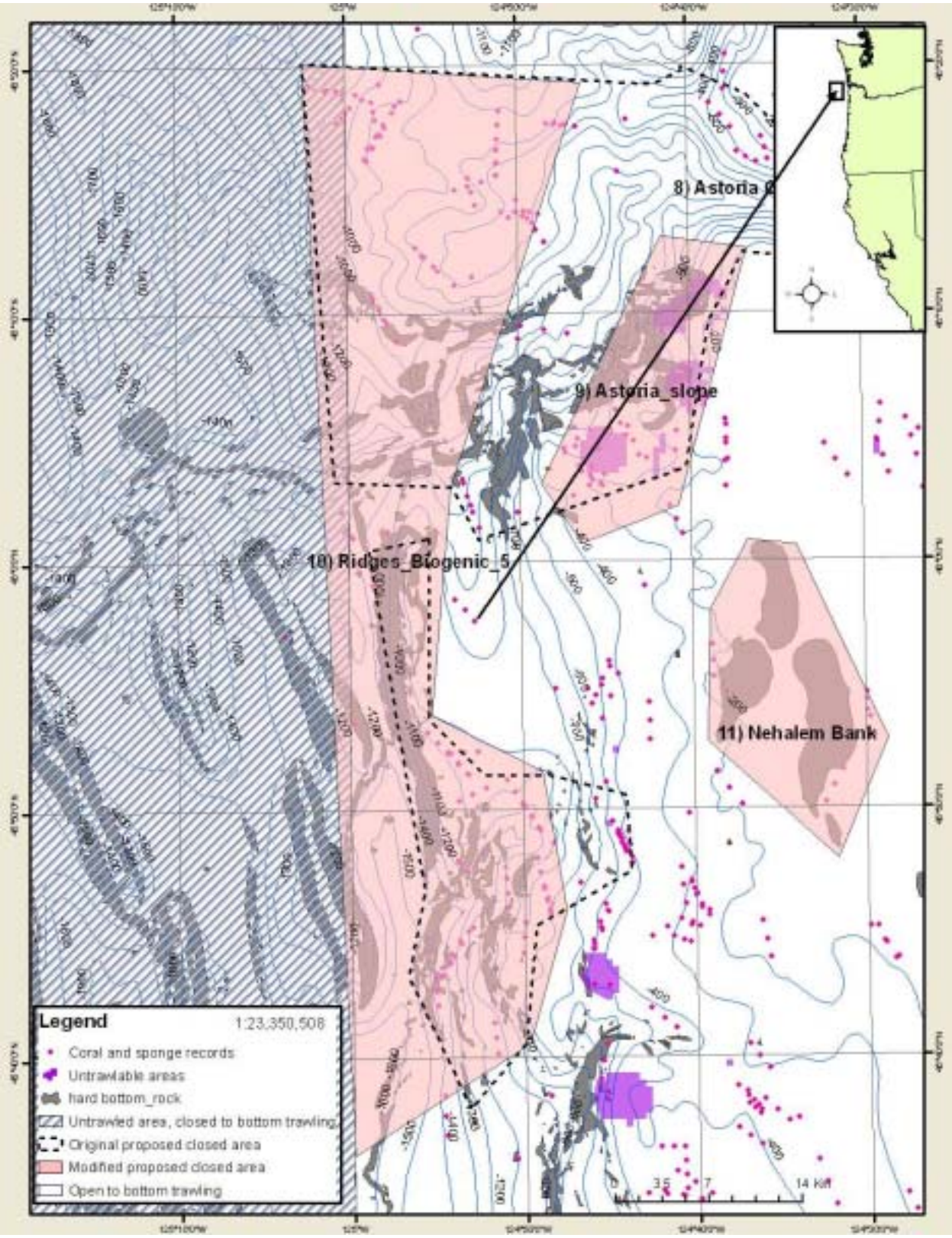


Figure 16: Ridges_biogenic_5

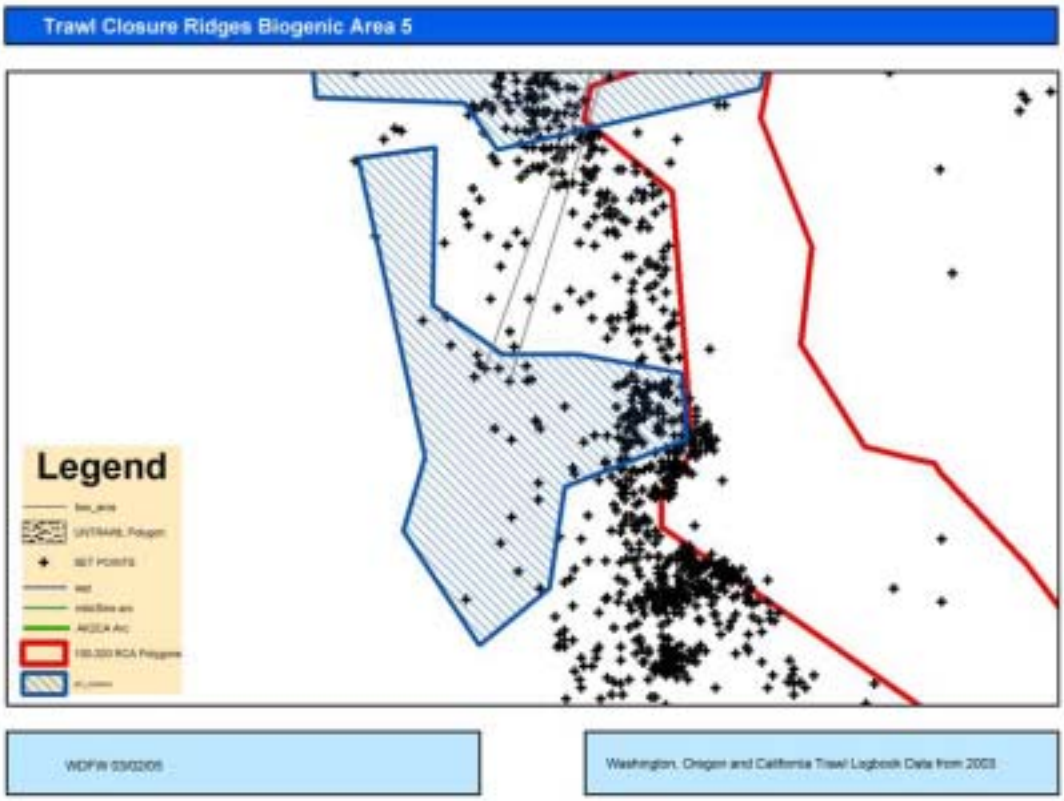


Figure G: 2003 bottom trawl logbook set points (courtesy WDF&W)

11. Nehalem Bank

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $8,824 (likely overestimated, trawl tracks fall outside of area, see Figure below)

These rocky banks are 23 offshore of the Oregon coast (Figure 17). Marine nautical charts designate the features as rocky shale. The area has not been well sampled by NOAA trawl surveys, but 4 records of habitat-forming invertebrates (sponges and sea pens) have been recorded in the area. In the past, these banks were trawled upon by commercial fishing boats. Since trawl footrope restrictions were enacted in 2000, much less trawl effort has focused on the banks (Figure H) (Bellman and Hepel 2004). However, logbook information indicates that the occasional trawl was set on the bank even while footrope restrictions were in place (Figure H). Closing these banks to trawling would allow for recovery of previously impacted habitat, and prevent the occasional trawl set from compromising habitat recovery. Little current bottom trawl effort would be displaced by this proposed closure.

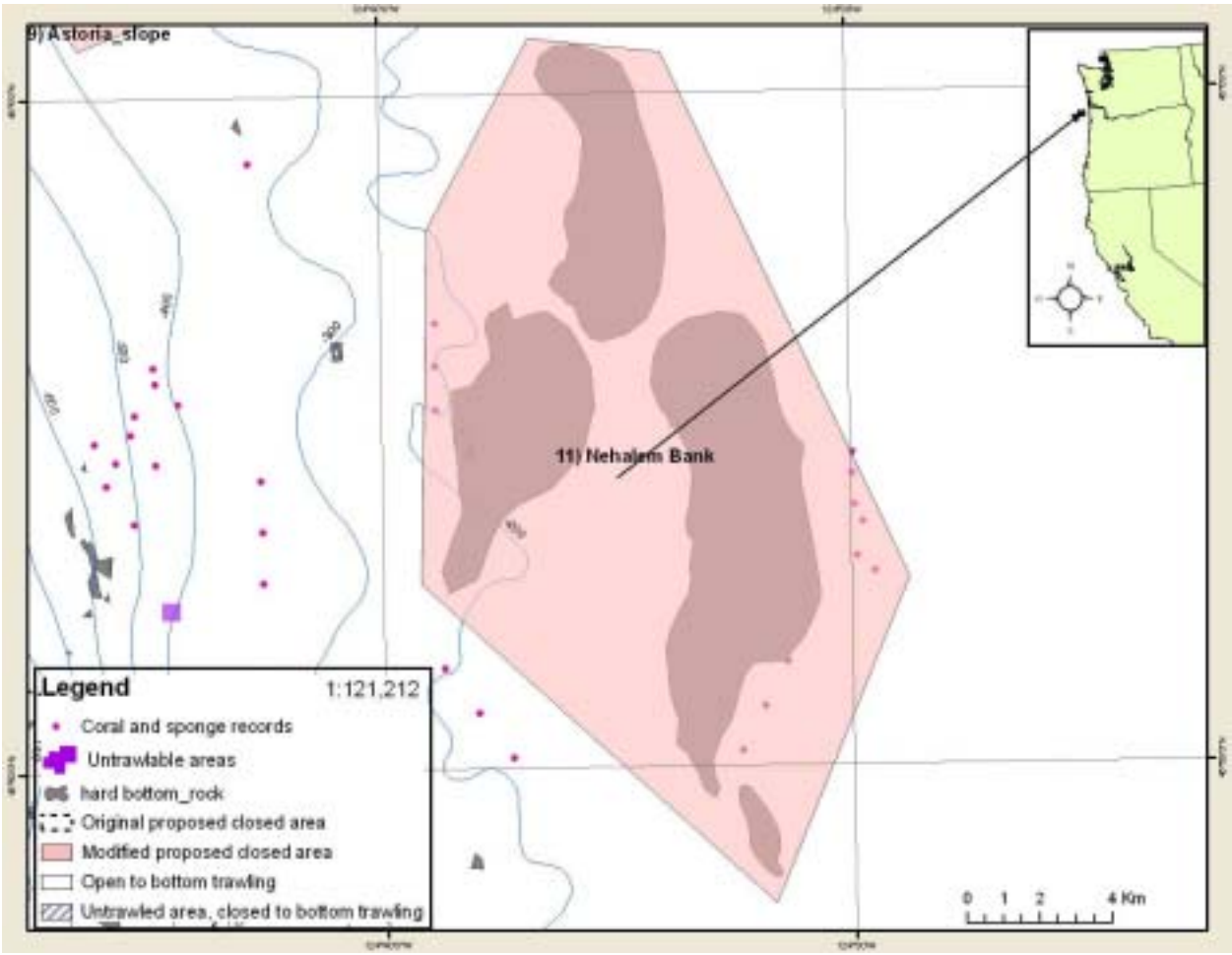


Figure 17: Nehalem Bank

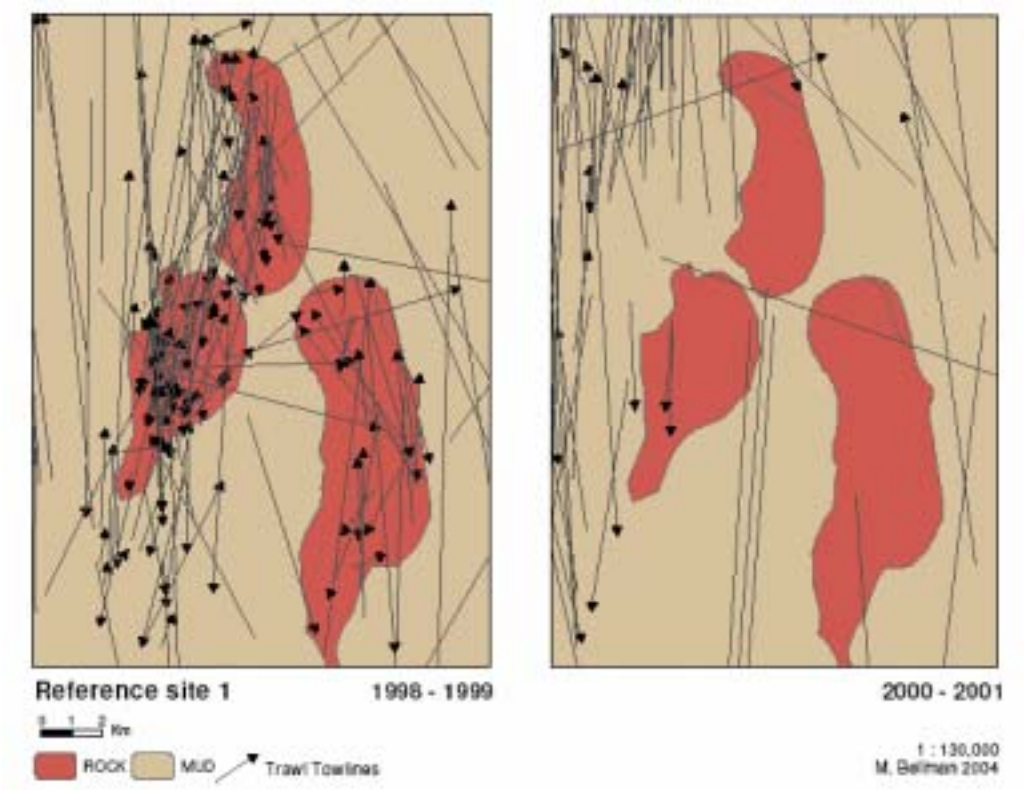


Figure H: Nehalem Bank reference site showing trawl logbook set and haul points prior to and following footrope restrictions (Bellman and Heppel 2004).

12. Biogenic_new_1
Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $69,960

This area contains spans habitat from 400 to 600 meters depth and contains records of habitat-forming invertebrates (Figure 18). NOAA trawl surveys have documented 77 records of habitat-forming invertebrates in the proposed closed area, including sponges, sea whips, sea pens, and gorgonian corals. Every trawl survey haul performed in the area has documented habitat-forming invertebrates. Trawling that has occurred in the area has impacted habitat. Data from the West Coast Observer Program in the area noted a mean of 105 pounds of corals and sponges per haul in commercial bottom trawl hauls where corals or sponges were observed as bycatch.

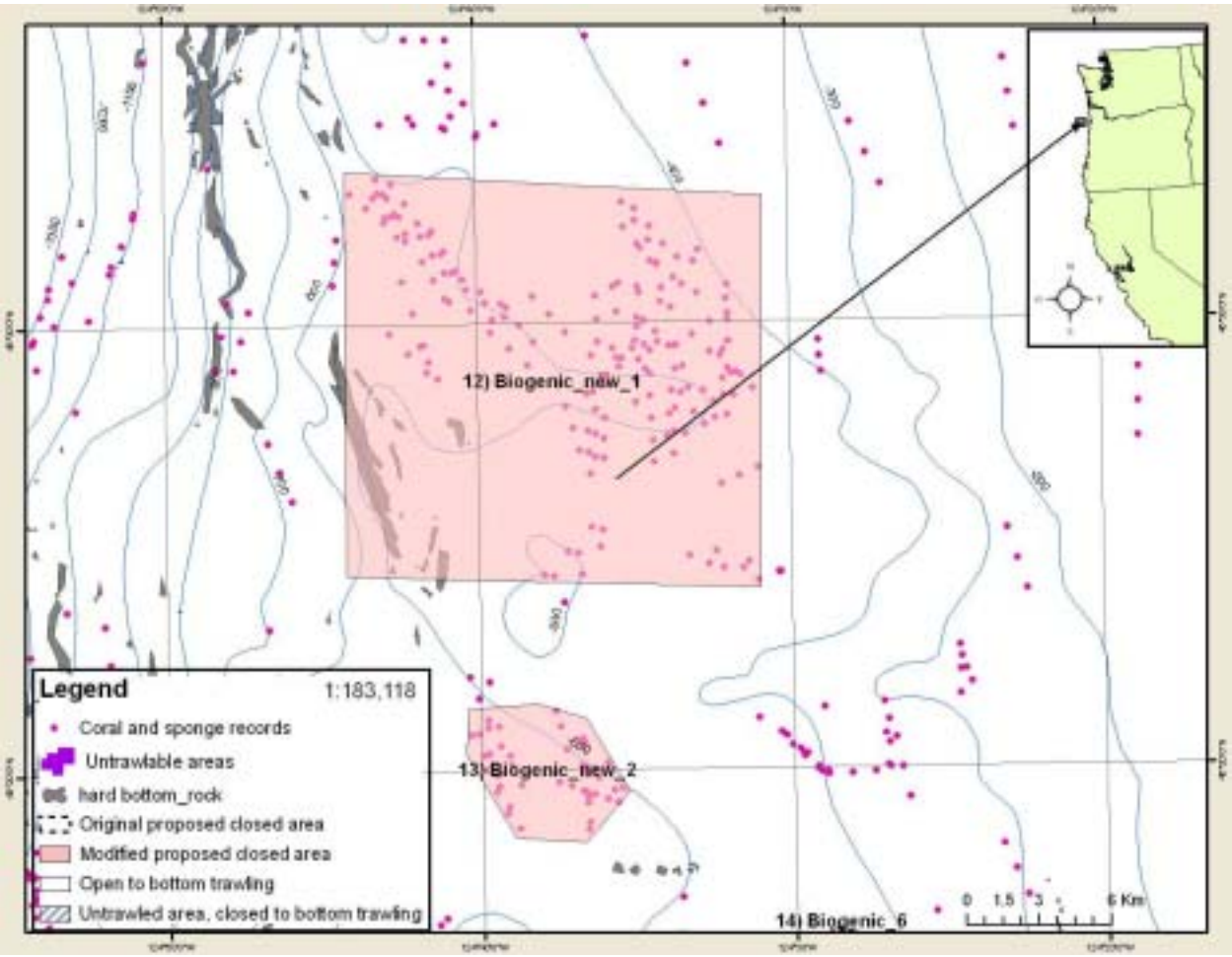


Figure 18: Biogenic_new_1 and Biogenic_new_2

13. Biogenic_new_2
Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $5,969

This area is located at 500 meters depth and contains records of habitat-forming invertebrates (Figure 18). Every NOAA trawl survey haul in the proposed area has recorded habitat-forming invertebrates. NOAA trawl surveys have documented 26 records of habitat-forming invertebrates in the proposed area, and up to 118 kg (260 lbs) of sponges per survey haul.

14. Biogenic area_6

Original Alternative C.12 estimated displaced revenue= $3,585
Revised Alternative C.12 estimated displaced revenue= $29,402 (likely overestimated, trawl tracks fall outside of area, see Figure below)

Analysis of trawl logbook data from 2003 indicated that little bottom trawling activity occurred in the vicinity of the proposed area (Figure I). As such, the boundaries of the proposed area were expanded in Revised Alternative C.12 to include more records of habitat-forming invertebrates (Figure 19).

This area contains habitat conducive to the growth of Hexactinellid sponges. NOAA trawl surveys have documented 25 records of habitat-forming invertebrates in the proposed area, and particularly dense records of sponges. Survey hauls have documented up to 312 kg (686 lbs) of sponges per haul in 1988, 281 kg (618 lbs) per haul in 1984, and 226 kg (497 lbs) per haul in 1977. Survey hauls in 2001, however, recorded a maximum of 22 kg (48 lbs) of sponges per haul, which may indicate habitat degradation in recent years that needs to be mitigated. Data from the West Coast Observer program in the proposed area noted a mean of 103 pounds of corals and sponges per haul in commercial bottom trawl hauls where corals or sponges were observed as bycatch (NWFSC, unpublished data).

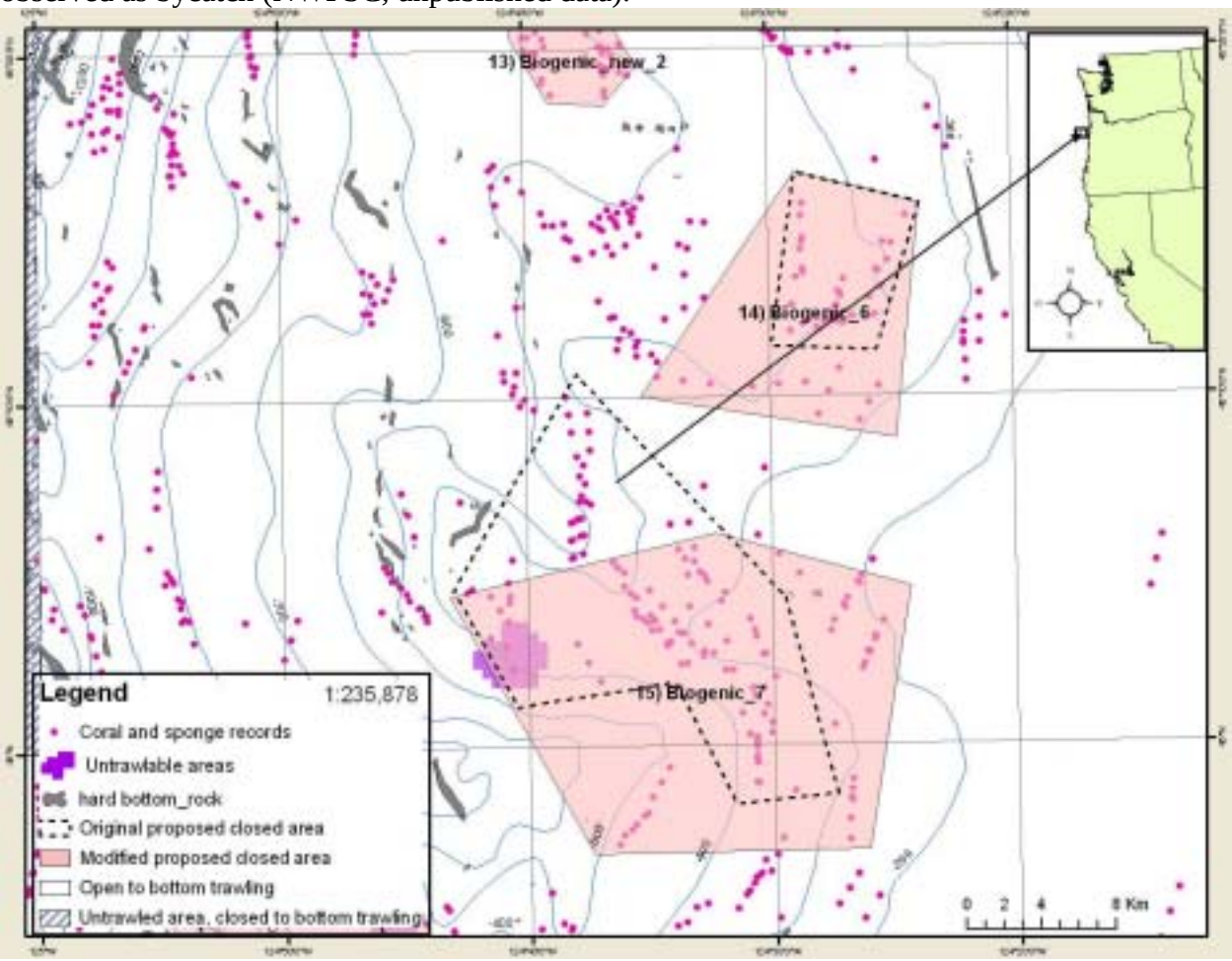


Figure 19: Biogenic area_6 and Biogenic area_7

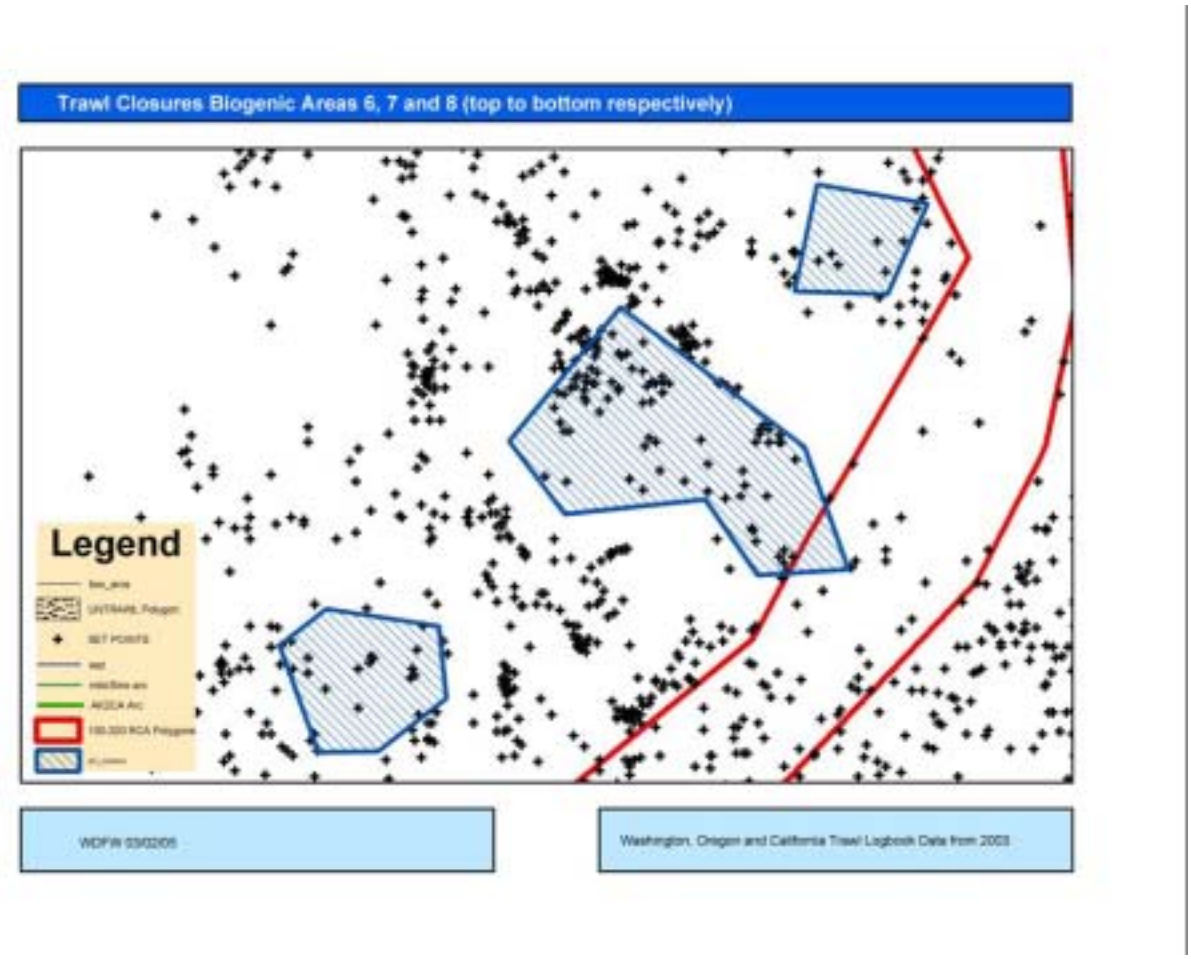


Figure I: 2003 bottom trawl logbook set points (courtesy WDF&W)

15. Biogenic area_7

Original Alternative C.12 estimated displaced revenue= $76,470
Revised Alternative C.12 estimated displaced revenue= $91,908 (likely overestimated, trawl tracks fall outside of area, see Figure I above)

Analysis of trawl logbook data from 2003 indicates some bottom trawl effort occurred in the northern portion of the proposed area and little activity south and east of the area (Figure I). The boundaries of Revised Alternative C.12 exclude the fishing area in the northern portion, and expand south and east to include more records of habitat-forming invertebrates in the less trawled area (Figure 19).

NOAA trawl surveys have documented 73 records of habitat-forming invertebrates in the proposed area, including dense records of sponges. Survey hauls documented up to 1,274 kg (2,803 lbs) of sponges per haul in 1988 and 334 kg (735 lbs) of sponges per haul in 1996. Survey hauls in 2001 recorded a maximum of 61 kg (134 lbs) of sponges per haul, which may indicate habitat degradation in recent years. Data from the West Coast Observer Program in the proposed area noted a mean of 304 pounds per haul in commercial bottom trawl hauls where corals or sponges were observed as bycatch (NWFSC, unpublished data).

The proposed area contains 40 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the “untrawlable” polygons determined by Zimmerman (2003).

16. Biogenic area_8

Original Alternative C.12 estimated displaced revenue= $36,172
Revised Alternative C.12 estimated displaced revenue= $41,852 (likely overestimated, trawl tracks fall outside of area, see Figure I above)

The boundaries of the proposed closed area in Revised Alternative C.12 expand northward to include more records of habitat forming invertebrates (Figure 20). Trawl logbook information indicated little activity in the area (Figure I). Every NOAA trawl survey haul in the proposed area has documented habitat-forming invertebrates, including gorgonian corals, sea pens, and Hexactinellid sponges. A total of 51 records of habitat-forming invertebrates have been documented in the proposed area, with up to 160 kg (352 lbs) of sponges per haul.

The proposed area contains 40 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003).

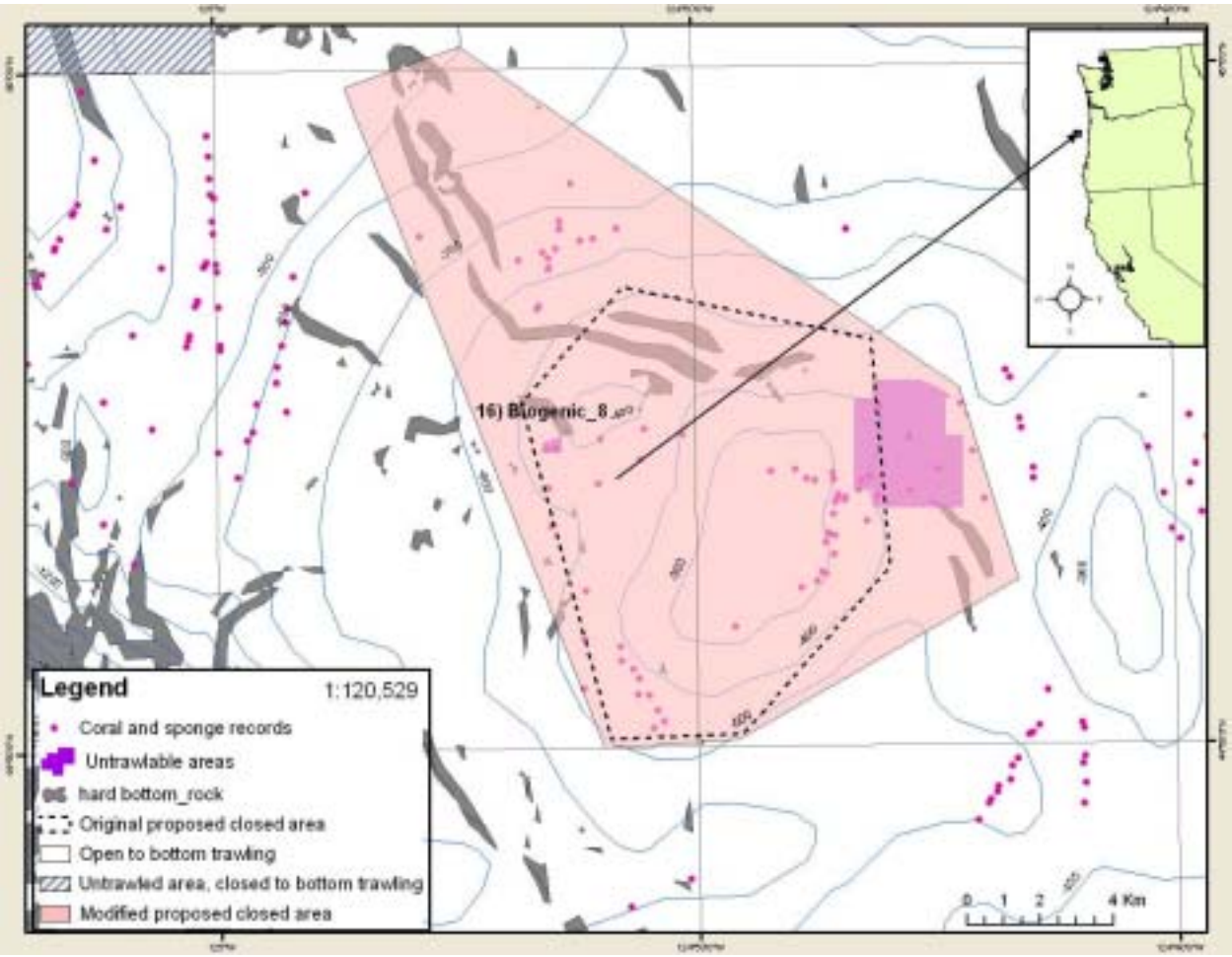


Figure 20: Biogenic area_8

17. Siletz Reef

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $132

Siletz Reef is a rocky reef located within the 3 nm Oregon state waters boundary (Figure 21). While it is unlikely that this reef is targeted by bottom trawl fishermen, the 2000-2003 bottom trawl logbook data indicated that the northern portion of the reef fell within the bottom trawl footprint. Part of the reef is known locally as "Tacklebuster Reef" as massive rock structures easily snag fishing gear. Depths range from 10-45 meters with vertical relief at the northern end punctuated by dramatic, massive structures up to 20m high and tens of meters across.

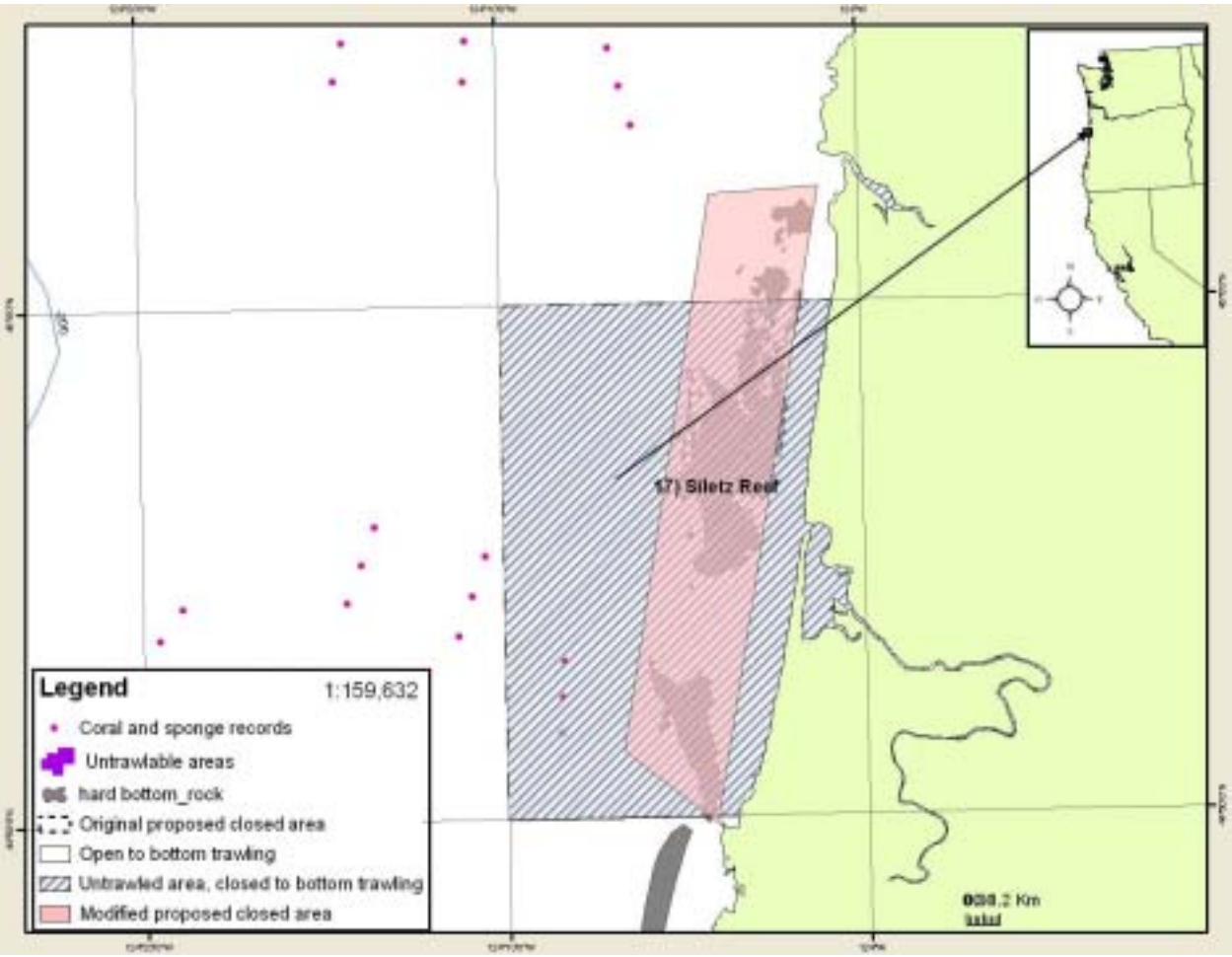


Figure 21: Siletz Reef

18. Daisy Bank

Original Alternative C.12 estimated displaced revenue= $0
Revised Alternative C.12 estimated displaced revenue= $11,768 (likely overestimated, trawl tracks fall outside of area, see Figure J below)

Daisy Bank, a 100 km^2 area north of Heceta Bank, has been less heavily fished and is also comprised largely of hard bottom habitat (Figure 22). Hixon (1991) documented large sponge beds on this bank. Since it is less heavily fished than Heceta Bank, a larger portion of Daisy Bank can be protected from bottom trawling with fewer negative impacts.

NOAA trawl surveys have documented 7 records of habitat forming invertebrates on the bank, including sponges, black coral, and scleractinian coral. However, the bank is not easily sampled with trawl gear. The proposed area contains 15 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). The bank has been explored with submersible and video; Hixon et al. (1990) observed sponges to be prevalent on Daisy Bank, with some over a meter tall. Daisy bank is currently located within the fishery closures associated with the Rockfish Conservation Area, yet some trawl setpoints in 2003 did approach the bank (Figure J).

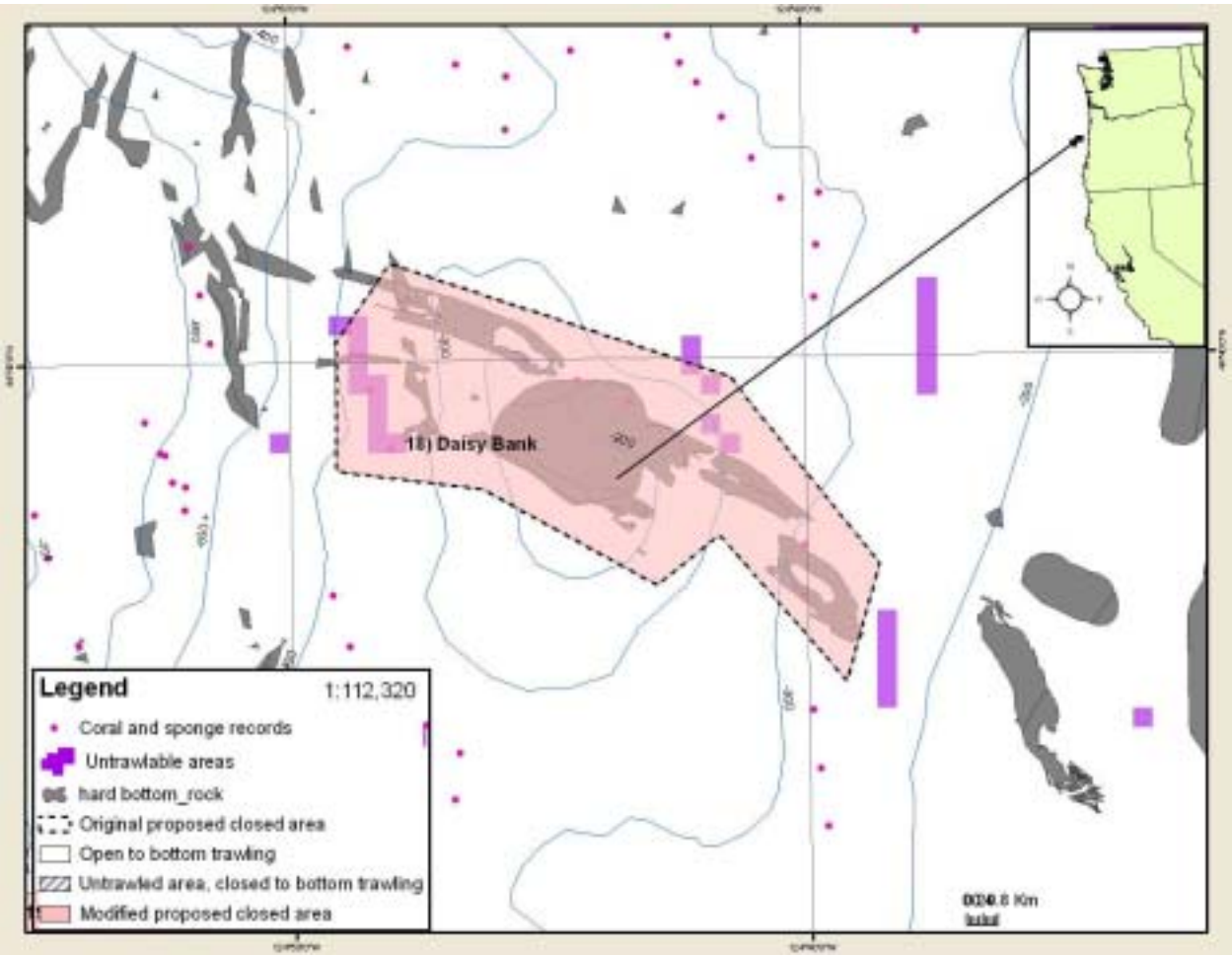


Figure 22: Daisy Bank

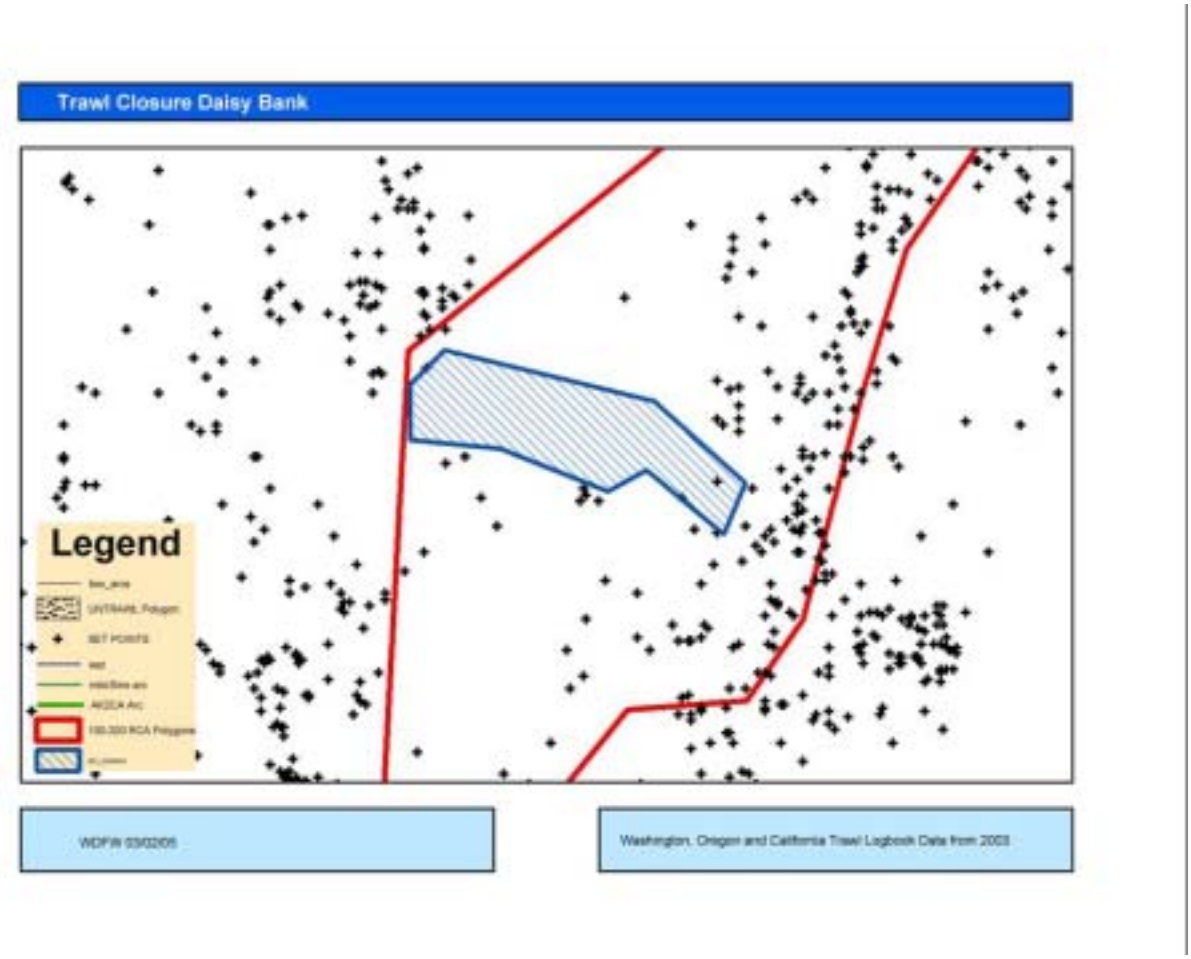


Figure J: 2003 bottom trawl set points from logbook data compiled by WDF&G

19. Biogenic_new 3

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $70,573

This area contains records of biogenic habitat (Figure 23). NOAA trawl surveys have documented 39 records of habitat-forming invertebrates in the proposed closed area, including black corals, gorgonian corals, sea whips, sea pens, and sponges. Sampling by the West Coast Observer program indicates that the area contains records where up to 211 pounds of corals or 55 pounds of sponges were recorded as bycatch per haul.

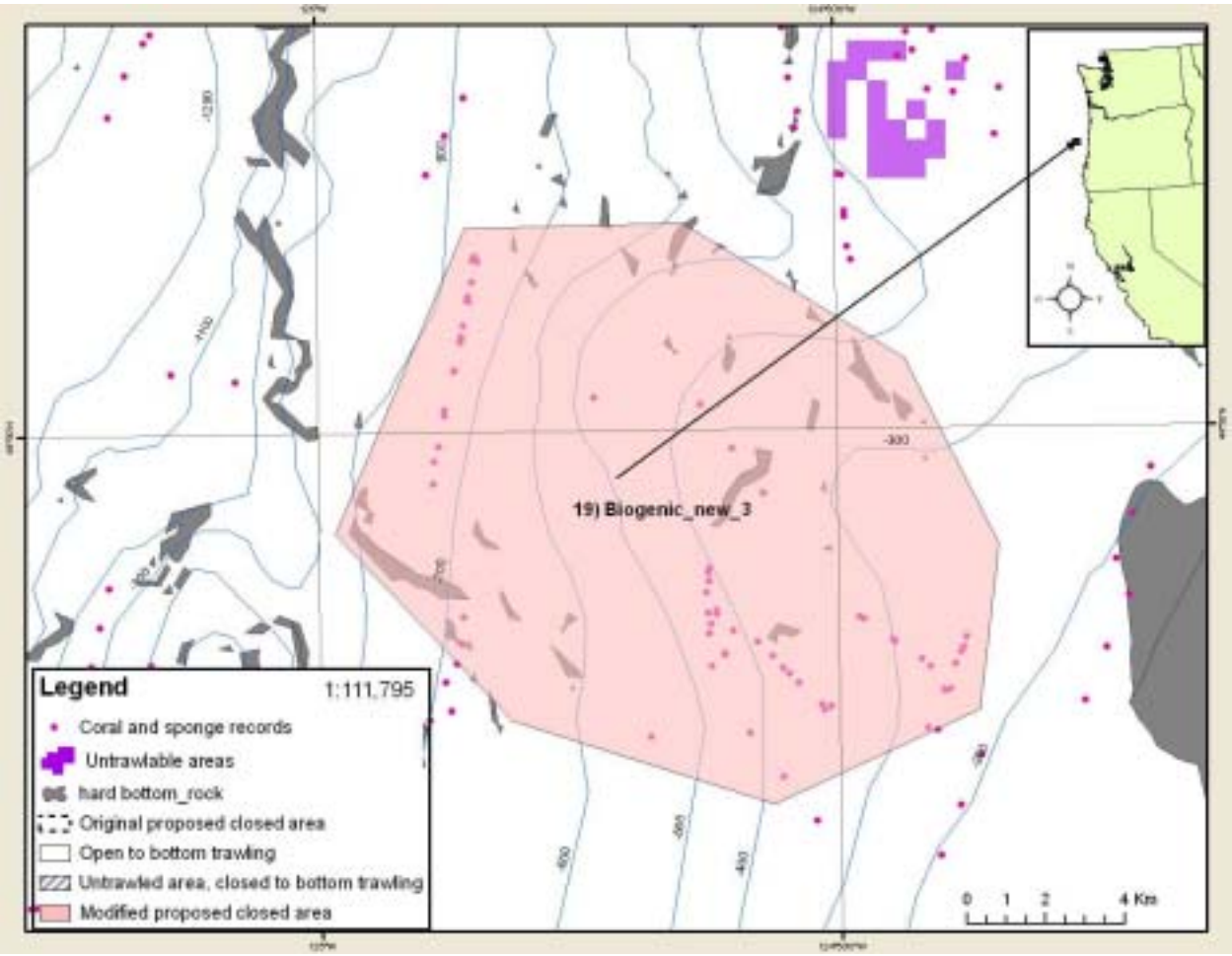


Figure 23: Biogenic_new_3

20. Stonewall Bank

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $7,252

Stonewall Bank is designated as a Rockfish Conservation Area to protect yelloweye and canary rockfish (Figure 24). Little bottom trawl activity occurs on the bank, and closing the bank to trawling would result in minimal displaced revenue.

The proposed area contains 116 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). As it is difficult to trawl here, the bank has not been well sampled by NOAA trawl surveys. However, 2 records of sponges were documented here.

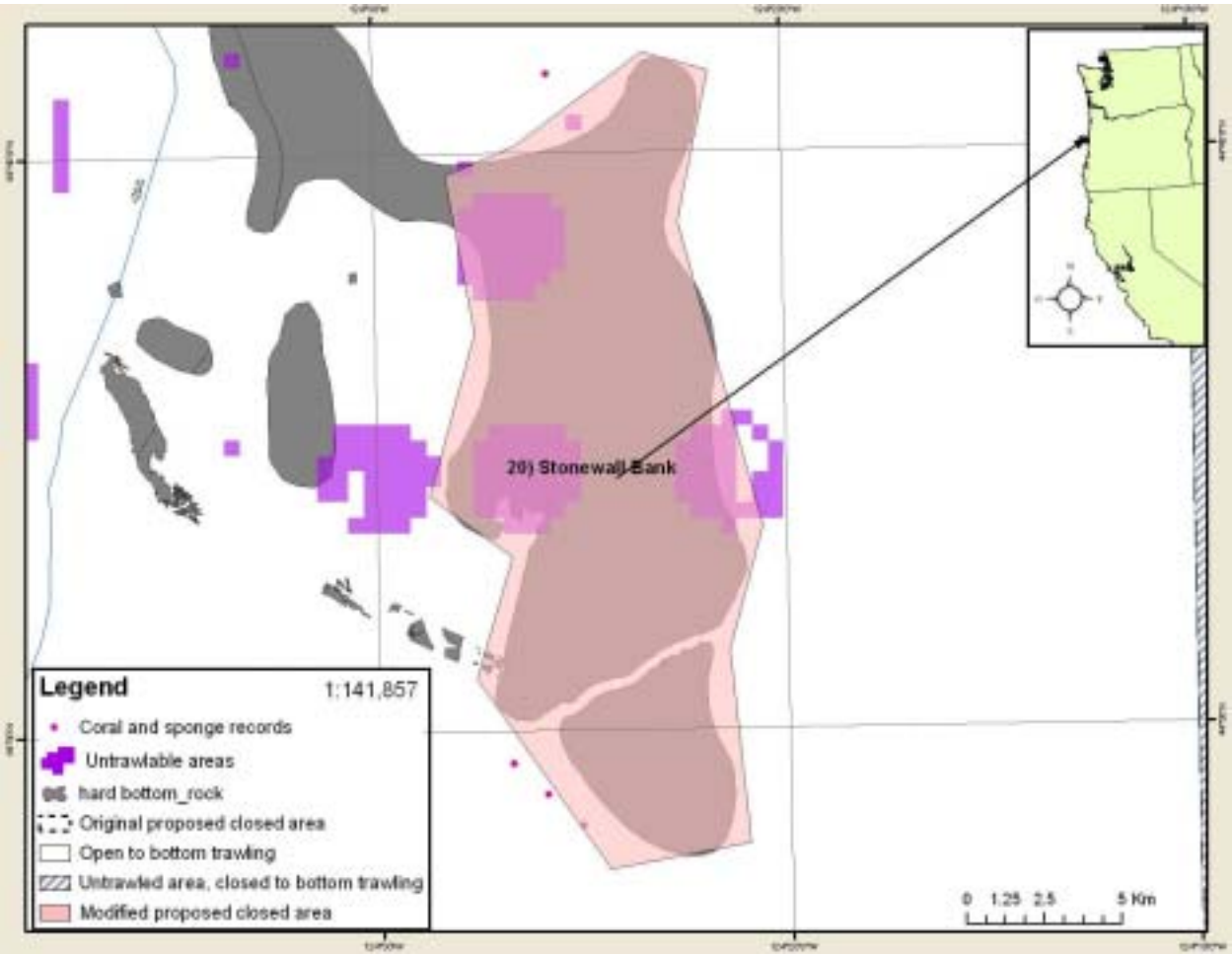


Figure 24: Stonewall Bank

21. Cape Perpetua Reef

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $125

Cape Perpetua Reef is a rocky reef off the Oregon coast (Figure 25). Oregon State's Nearshore Rocky Reef Project mentions the Cape Perpetua Reef as the most undisturbed and pristine reef off the Oregon coast Little trawl activity occurs near the bank and closing the bank to bottom trawling would result in minimal displaced revenue. As it is likely difficult to trawl here, the bank has not been sampled by NOAA trawl surveys.

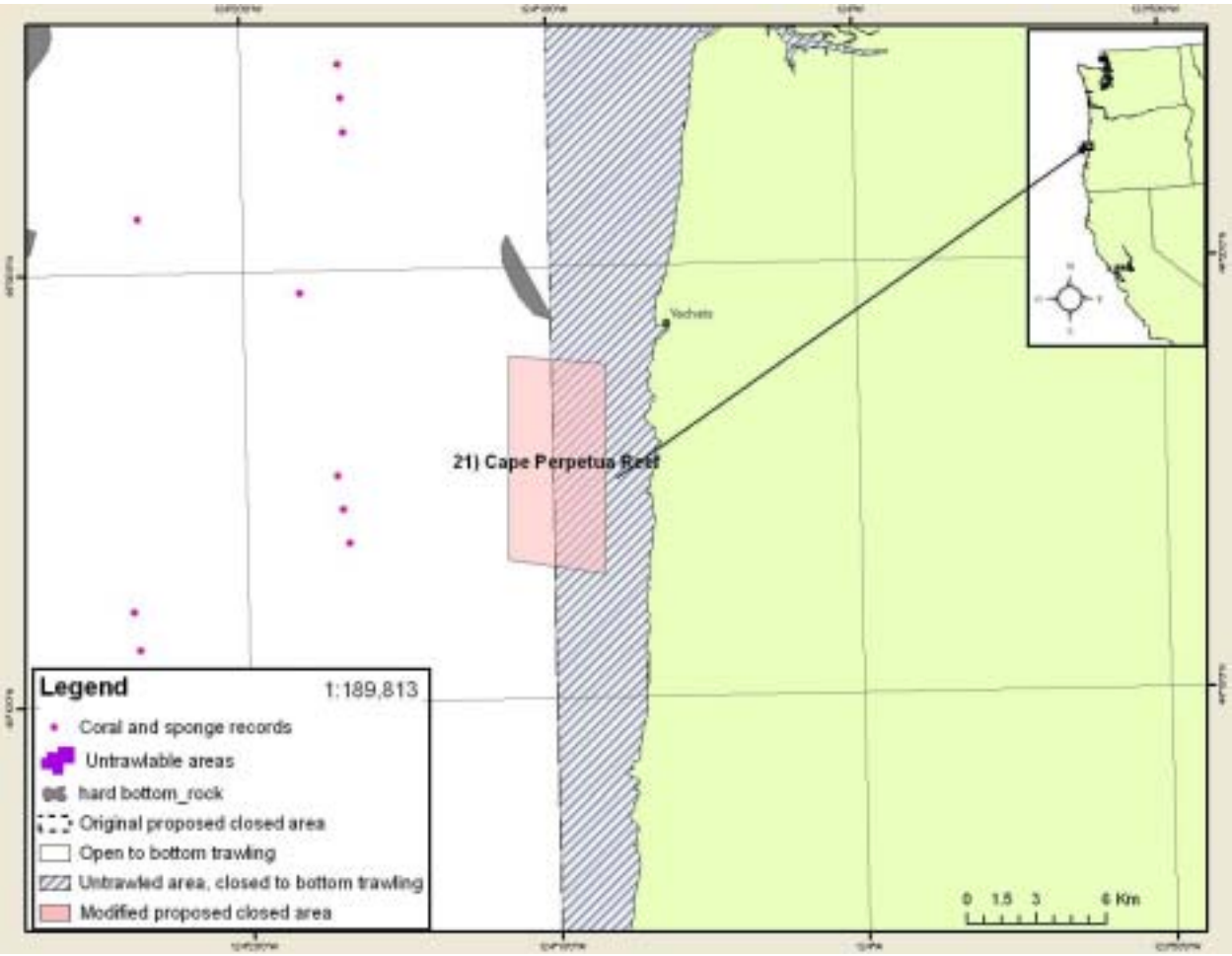


Figure 25: Cape Perpetua Reef

22. & 23. Heceta Bank area

Original Alternative C.12 estimated displaced revenue= $379,291
Revised Alternative C.12 estimated displaced revenue= $229,475 (likely overestimated, trawl tracks fall outside of area, see Figure K below)

Trawl logbook data indicated trawl activity within the previously proposed boundaries of the Heceta bank closed area. Trawl effort appeared concentrated on the slope off Heceta Bank and south (Figure K). The proposed area was split into the 2 areas below, which avoids much of the trawl effort and likely results in less displaced effort from the closure (Figure 26).

22. Heceta Bank

Revised Alternative C.12 estimated displaced revenue= $200,810 (likely overestimated, trawl tracks fall outside of area, see Figure K below)

Heceta Bank is the largest rocky reef off the U.S. Pacific Coast. It is composed largely of hard bottom substrate. The proposed area contains 591 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). NOAA trawl surveys have documented 16 records of sponges on the bank, but the bank has not been well-sampled with trawl survey gear. Recent explorations have documented key areas of sponges and crinoids. Video from submersible dives

have noted some dense areas of habitat forming invertebrates on the bank (Hixon et al. 1990, Waldo Wakefield unpublished data).

23. Heceta Escarpment

Revised Alternative C.12 estimated displaced revenue= $28,665

NOAA trawl surveys have documented 50 records of habitat-forming invertebrates in the proposed closed area, including black corals, gorgonian corals, sea whips, sea pens, and sponges.

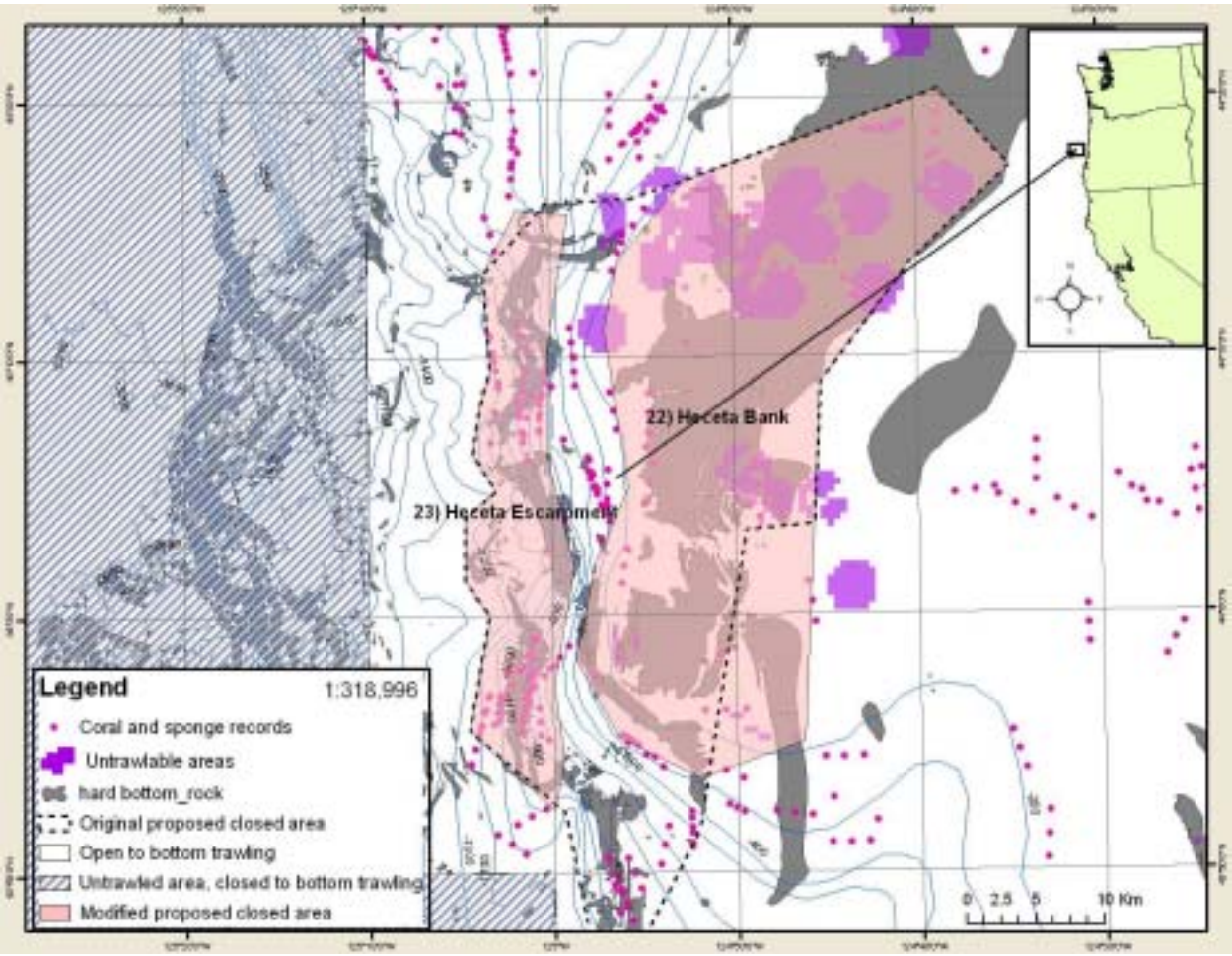


Figure 26: Heceta Bank and Heceta Escarpment

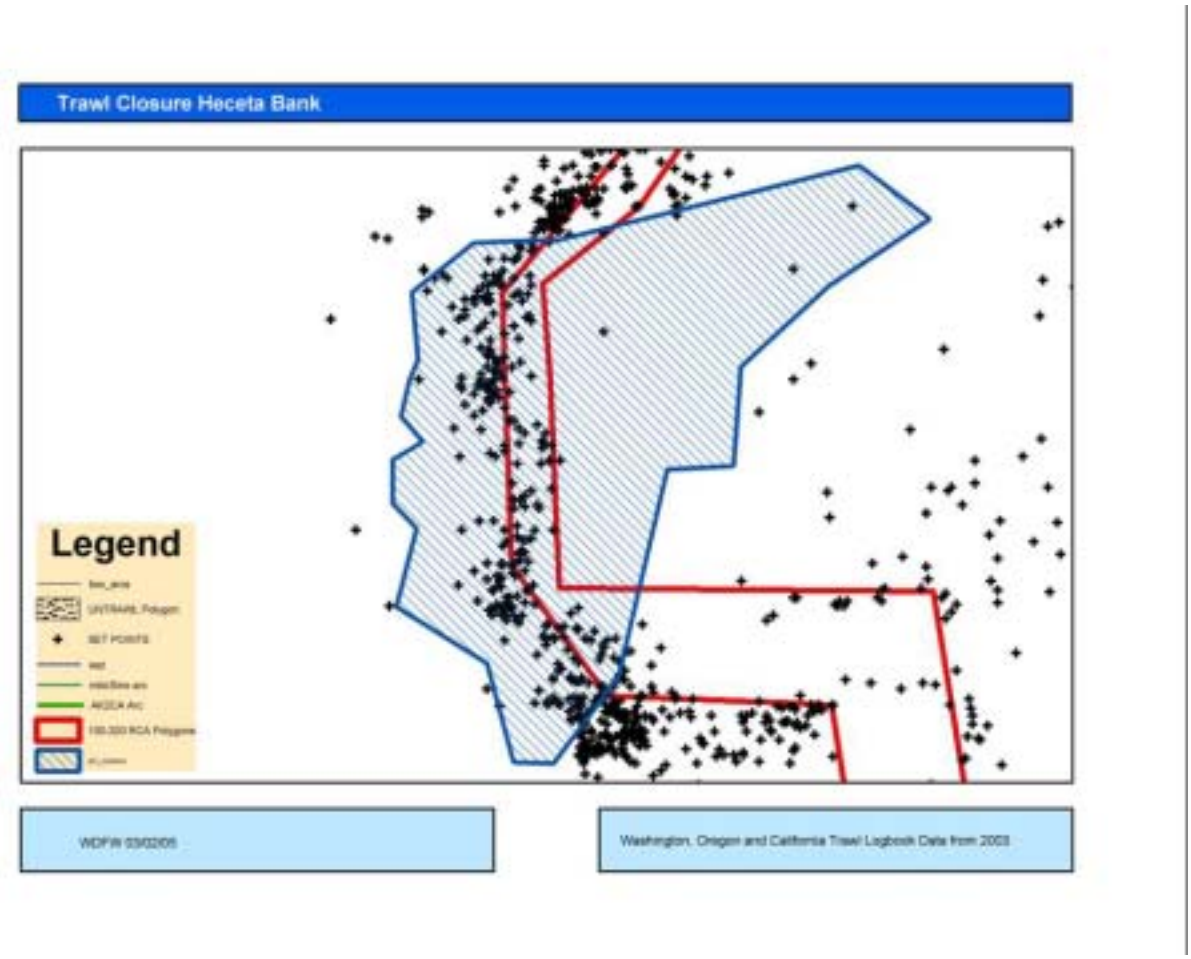


Figure K: 2003 bottom trawl logbook set points (courtesy WDF&W)

24. Ridges_biogenic_10

Original Alternative C.12 estimated displaced revenue= $7,114
Revised Alternative C.12 estimated displaced revenue= $94,628 (likely overestimated, trawl tracks fall outside of area, see Figure L below)

The two previously proposed closed areas were combined into one area and boundaries extended to encompass more records of habitat-forming invertebrates (Figure 27). Trawl logbook data from 2003 indicated little overlap of bottom trawl activity within the proposed area (Figure L). The proposed closed area encompasses habitat from 700 to 1500 meters depth. NOAA trawl surveys have documented 103 records of habitat-forming invertebrates within the proposed closed area. Hexactinellid sponges, black corals, sea whips, and bubblegum corals have been documented in the proposed area.

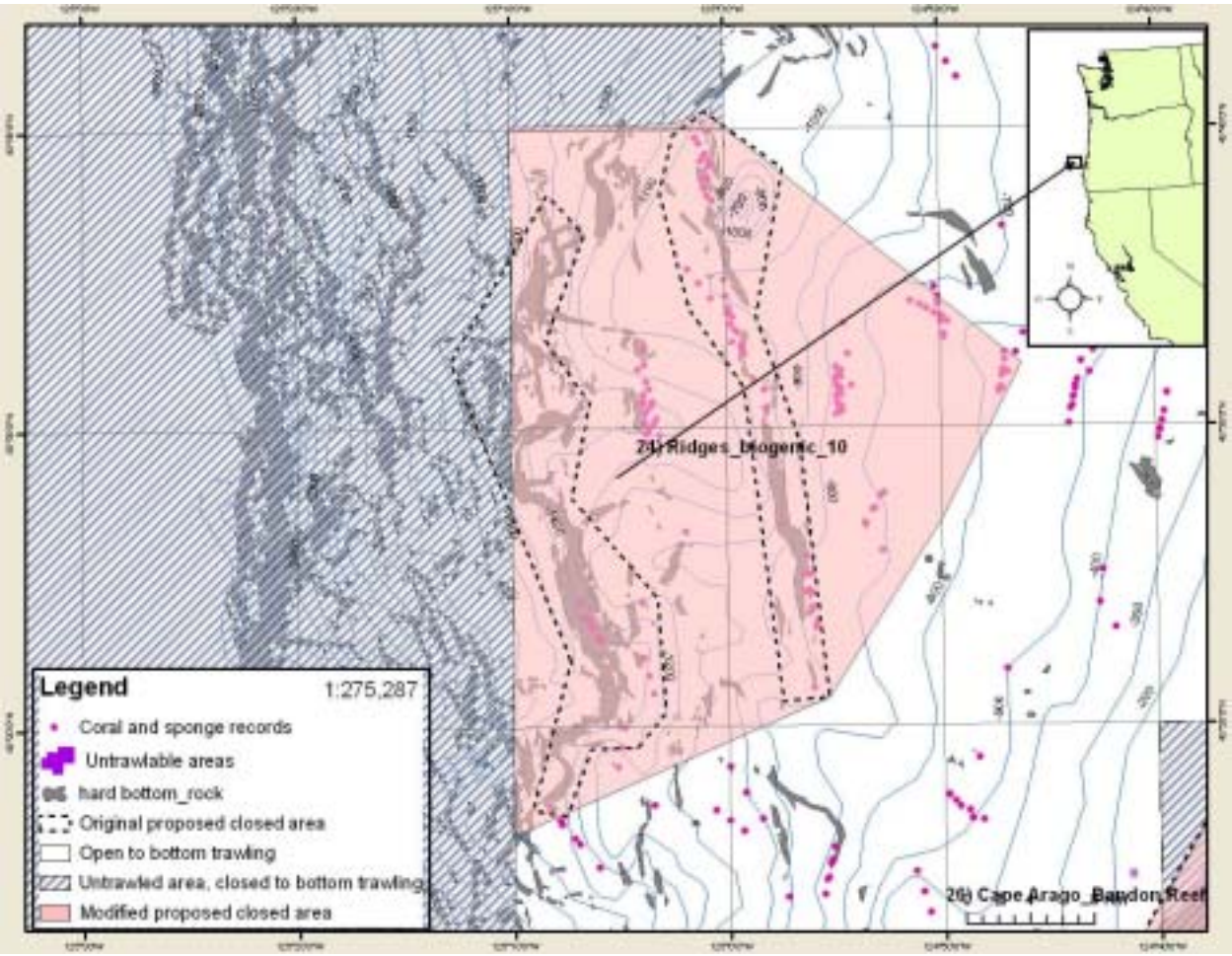


Figure 27: Ridges_biogenic_10

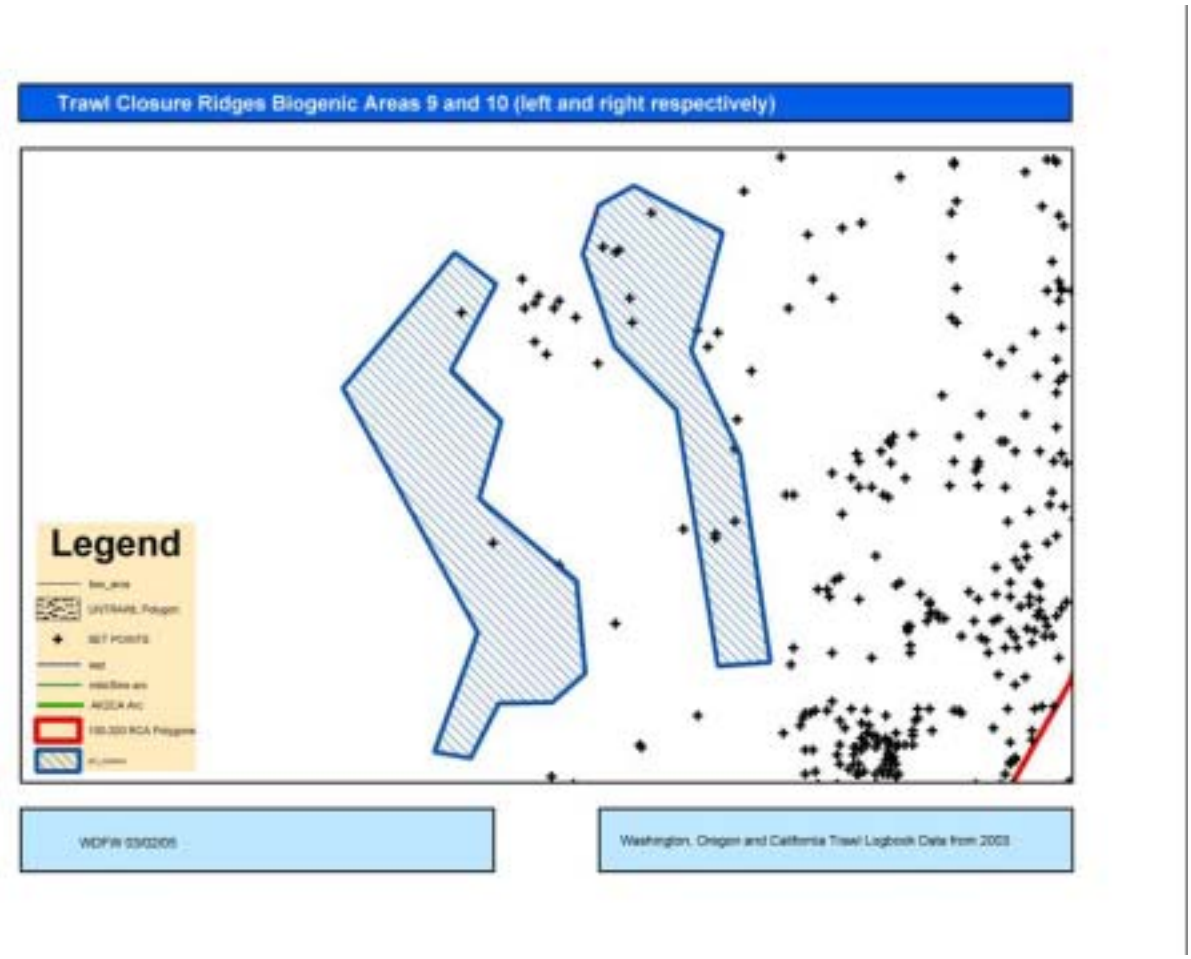


Figure L: 2003 bottom trawl logbook set points (courtesy WDF&W)

25. Siltcoos Reef

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $383

Siltcoos Reef is a rocky reef off the Oregon Coast (Figure 28). The proposed area contains 30 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). As it is difficult to trawl here, the area has not been well surveyed by NOAA trawl surveys. It is also likely that little bottom trawling occurs on the reef, and closing the area would result in minimal displaced effort.

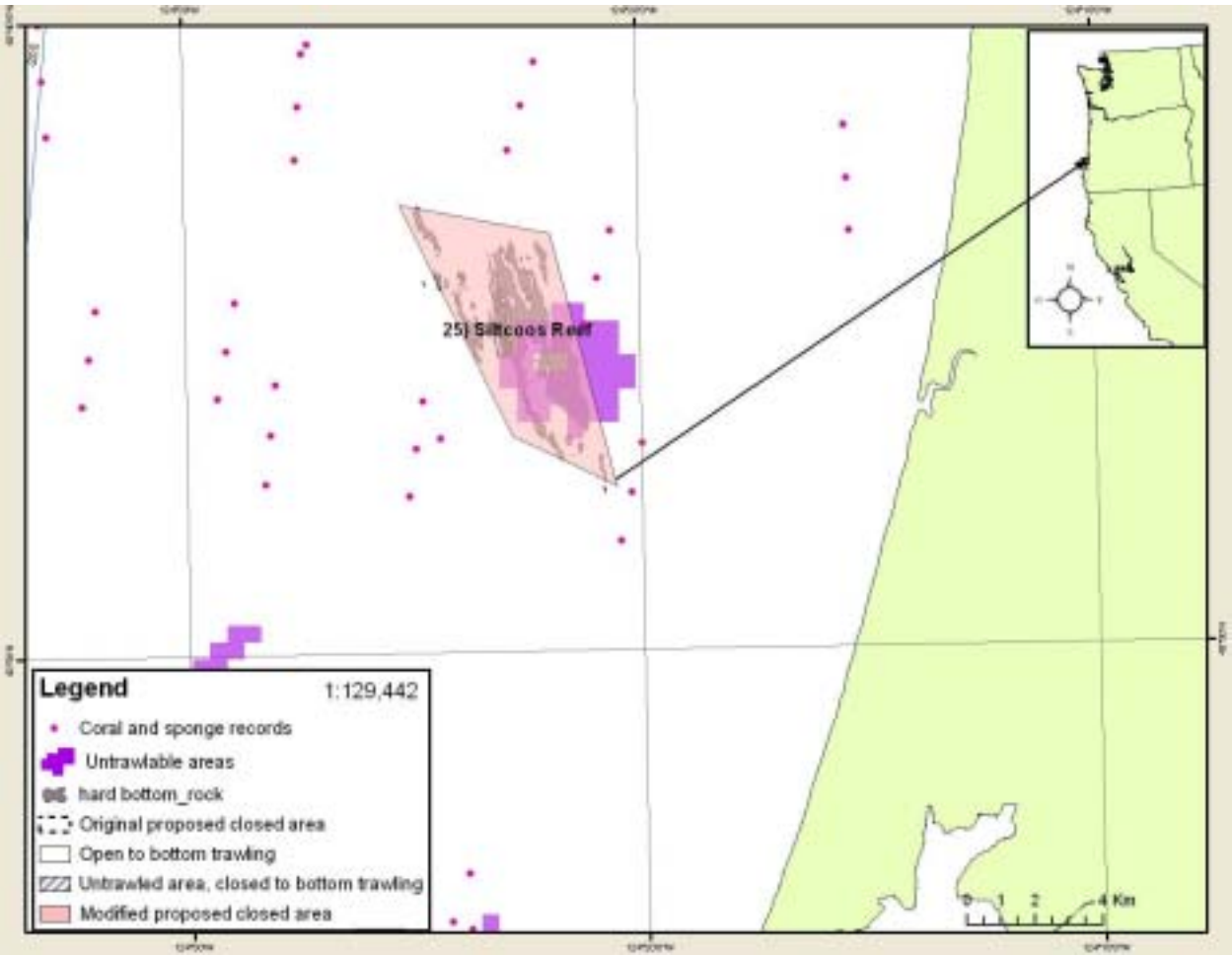


Figure 28: Siltcoos Reef

26. Cape Arago_Bandon Reef

Original Alternative C.12 estimated displaced revenue= $2,016
Revised Alternative C.12 estimated displaced revenue= $12,018

This area was previously identified as "hard-bottom feature_1". The proposed area contains a large proportion of rocky and hard bottom habitat and pinnacles (Figure 29). The proposed closed area in Revised Alternative C.12 contains 253 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). As it is difficult to trawl here, the area has not been well surveyed by NOAA trawl surveys, but 2 records of sponges were documented in 1980.

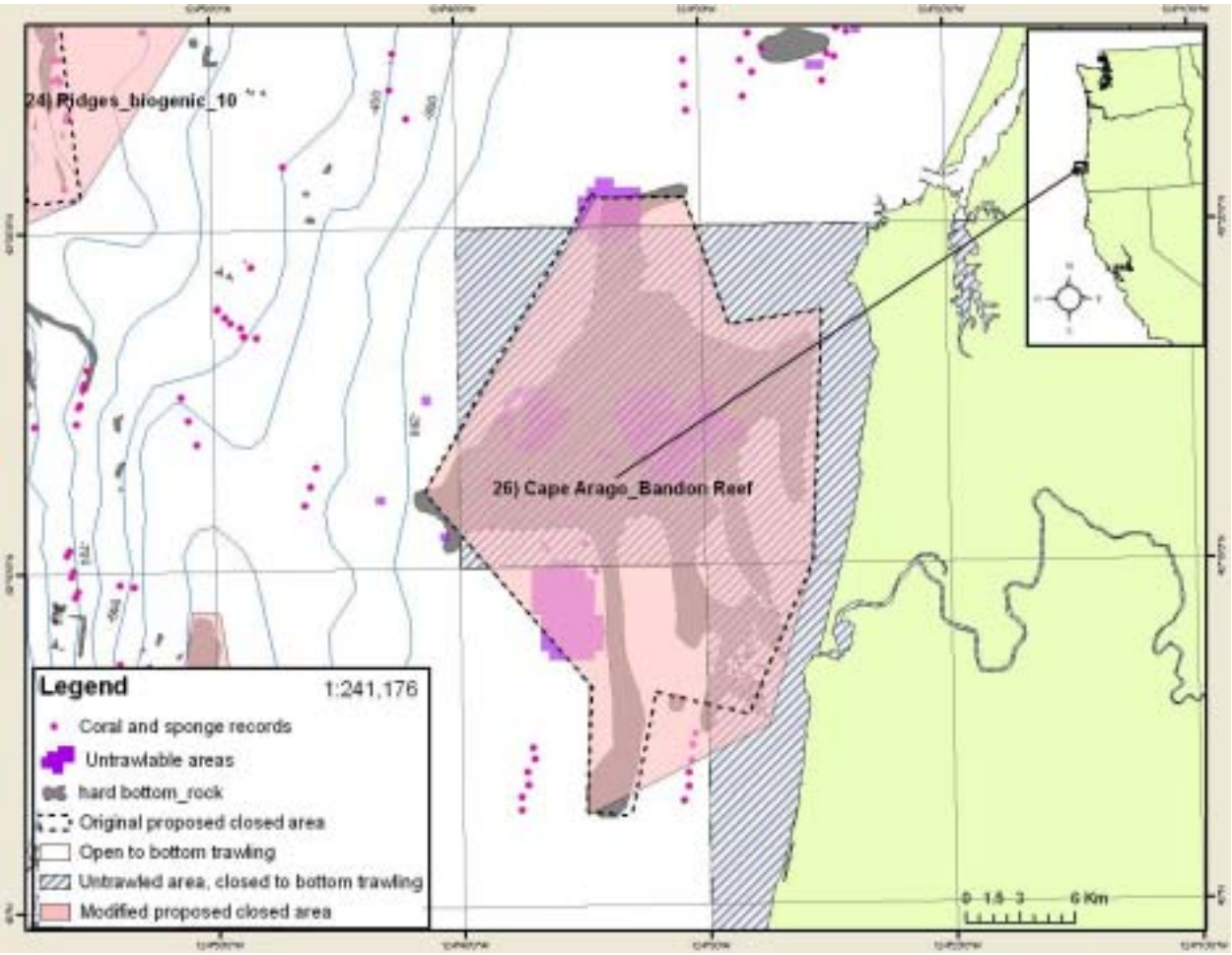


Figure 29: Cape Arago_Bandon Reef

27. Orford and McKenzies Reef

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $3,929

The area around Orford Reef contains extensive bull kelp beds and rockfish habitat. Orford Reef is also an important rookery for the endangered Steller sea lions and is the second largest rookery south of Alaska. This area is located within the 3nm limit of Oregon state waters. Trawl logbooks from 1997-2002 did not document any trawling activity on the reef (Bellman and Heppel 2004). It is likely that it is difficult to trawl on the reef complex. The proposed area contains 108 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). Few successful NOAA trawl survey hauls have occurred on the bank, but one record of sea pens was noted.

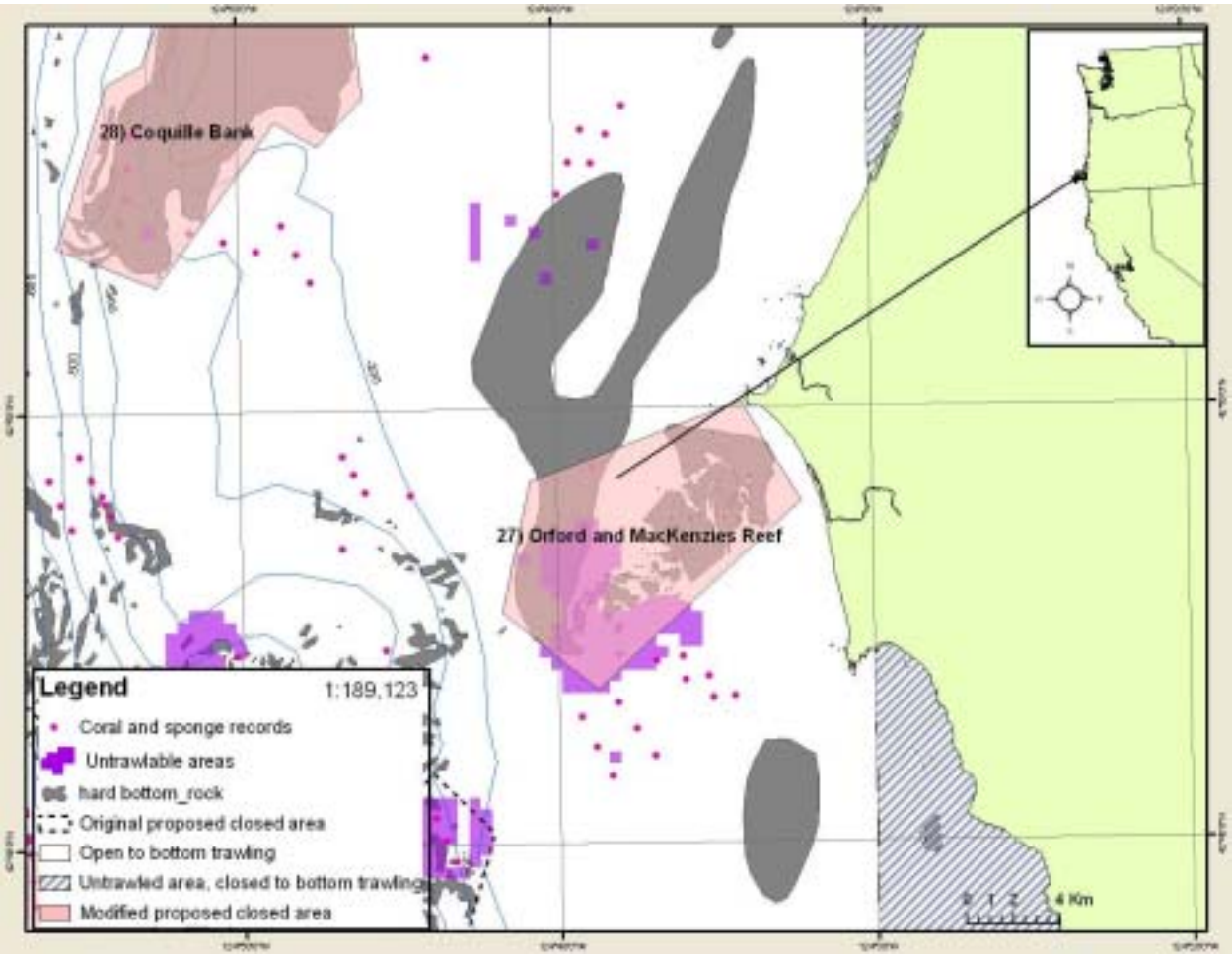


Figure 30: Orford and McKenzies Reef

28. Coquille Bank

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $75,004

The proposed area contains 3 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). Six records of sponges were documented on the bank by NOAA trawl surveys, and four of the six records occurred in the 1980's.

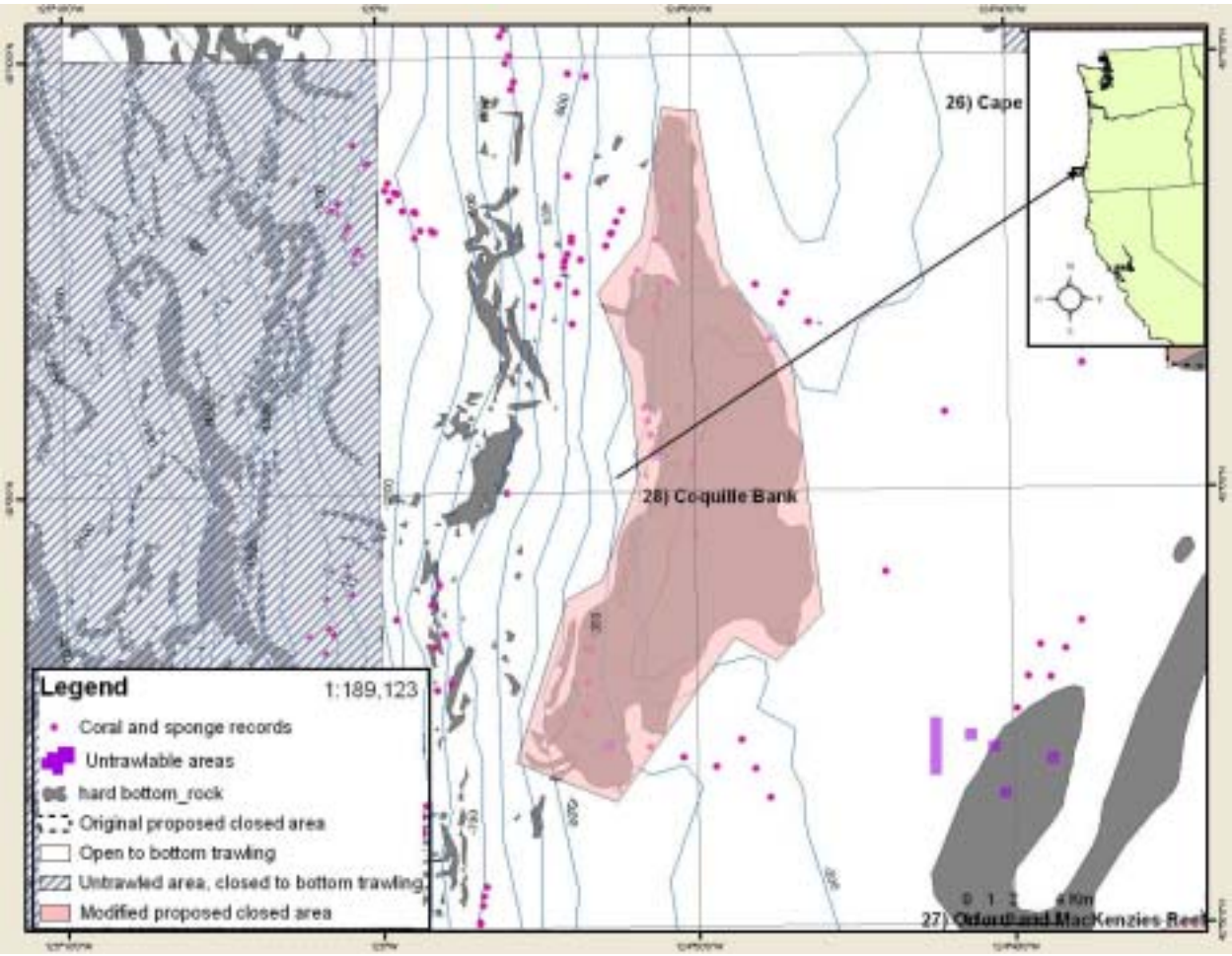


Figure 31: Coquille Bank

29. & 30. Rogue Canyon area

Original Alternative C.12 estimated displaced revenue= $491,706
Revised Alternative C.12 estimated displaced revenue= $145,172 (likely overestimated, trawl tracks fall outside of area, see Figure M below)

Trawl logbook data indicated trawl activity within the previously proposed boundaries of the Rogue Canyon closed area (Figure M). Bottom trawl fishermen indicated a preferred tow area within the proposed closed area, and suggested some areas for change. The proposed closed area was split into the two areas below for Revised Alternative C.12, which avoids much of the trawl effort and likely results in less displaced effort from the closure (Figure 32).

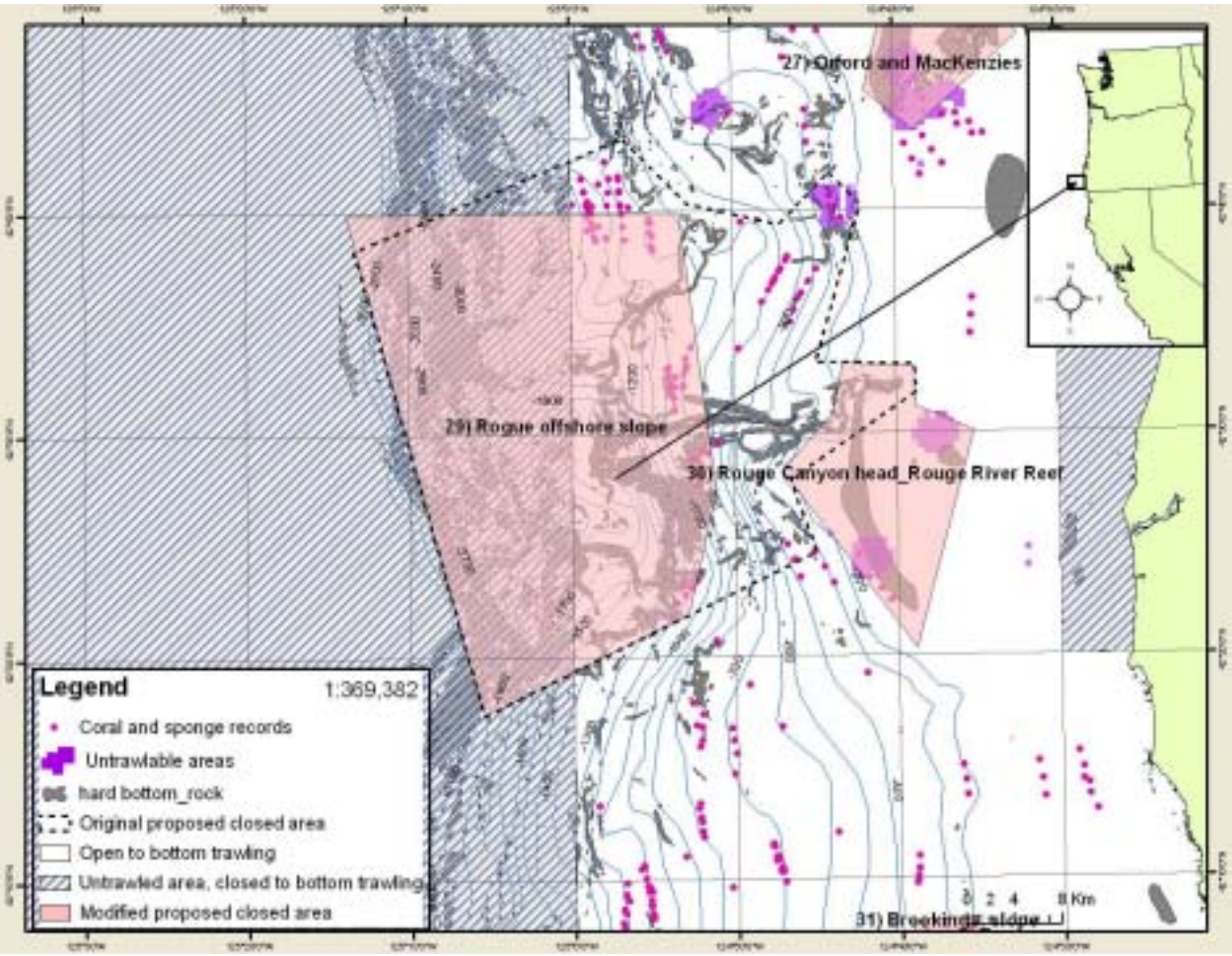


Figure 32: Rouge offshore slope and Rogue canyon head

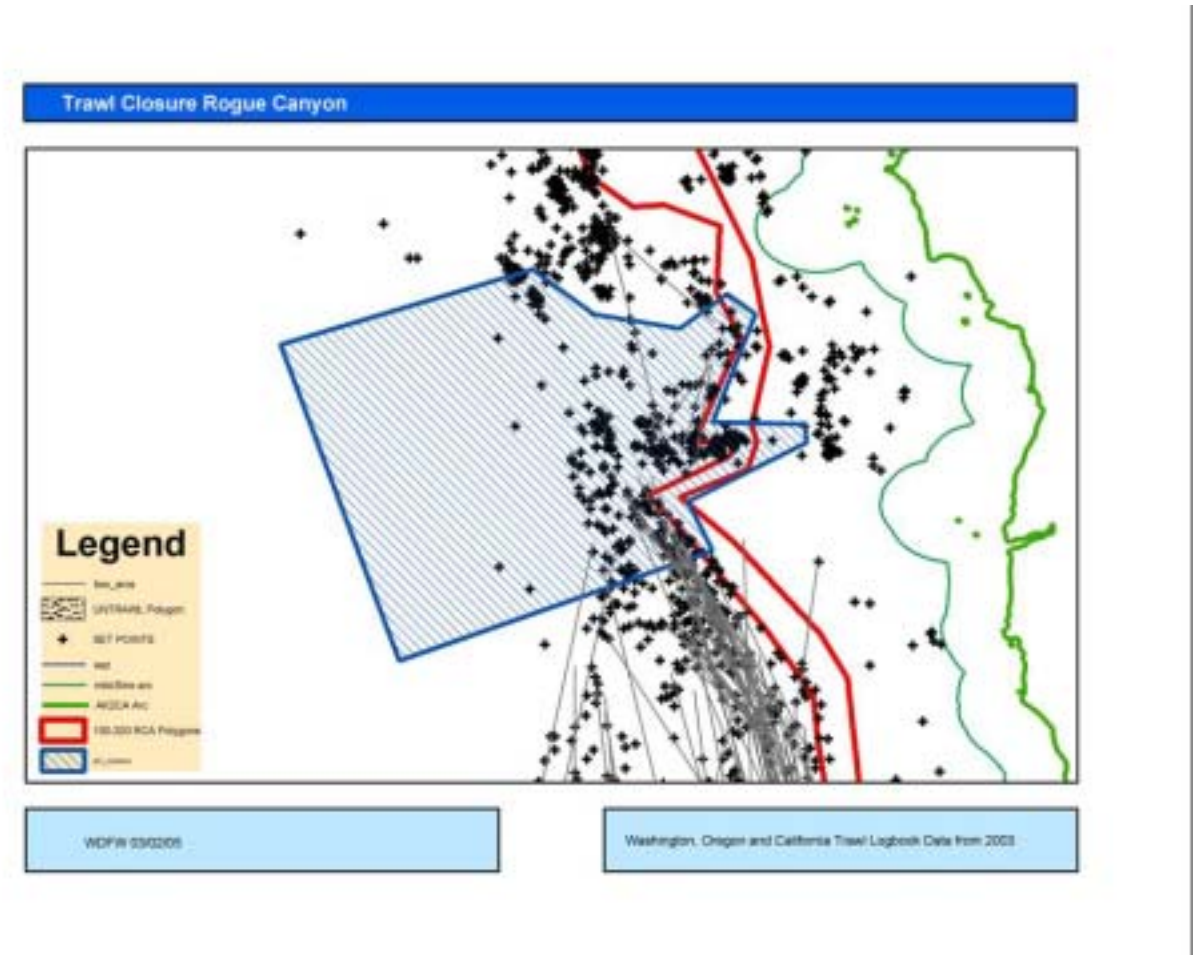


Figure M: 2003 bottom trawl logbook set points (courtesy WDF&W)

29. Rogue offshore slope
Revised Alternative C.12 estimated displaced revenue= $81,296

NOAA trawl surveys have documented 26 records of habitat-forming invertebrates within the proposed closed area. Hexactinellid sponges, black corals, sea whips, and gorgonian corals have been documented in the proposed area.

30. Rogue Canyon head_ Rogue River Reef
Revised Alternative C.12 estimated displaced revenue= $63,876

The proposed area contains 86 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). NOAA trawl surveys have not sampled the area well, as the area is likely difficult to trawl. However, two records of sponges have been noted by successful survey hauls (Figure 33).

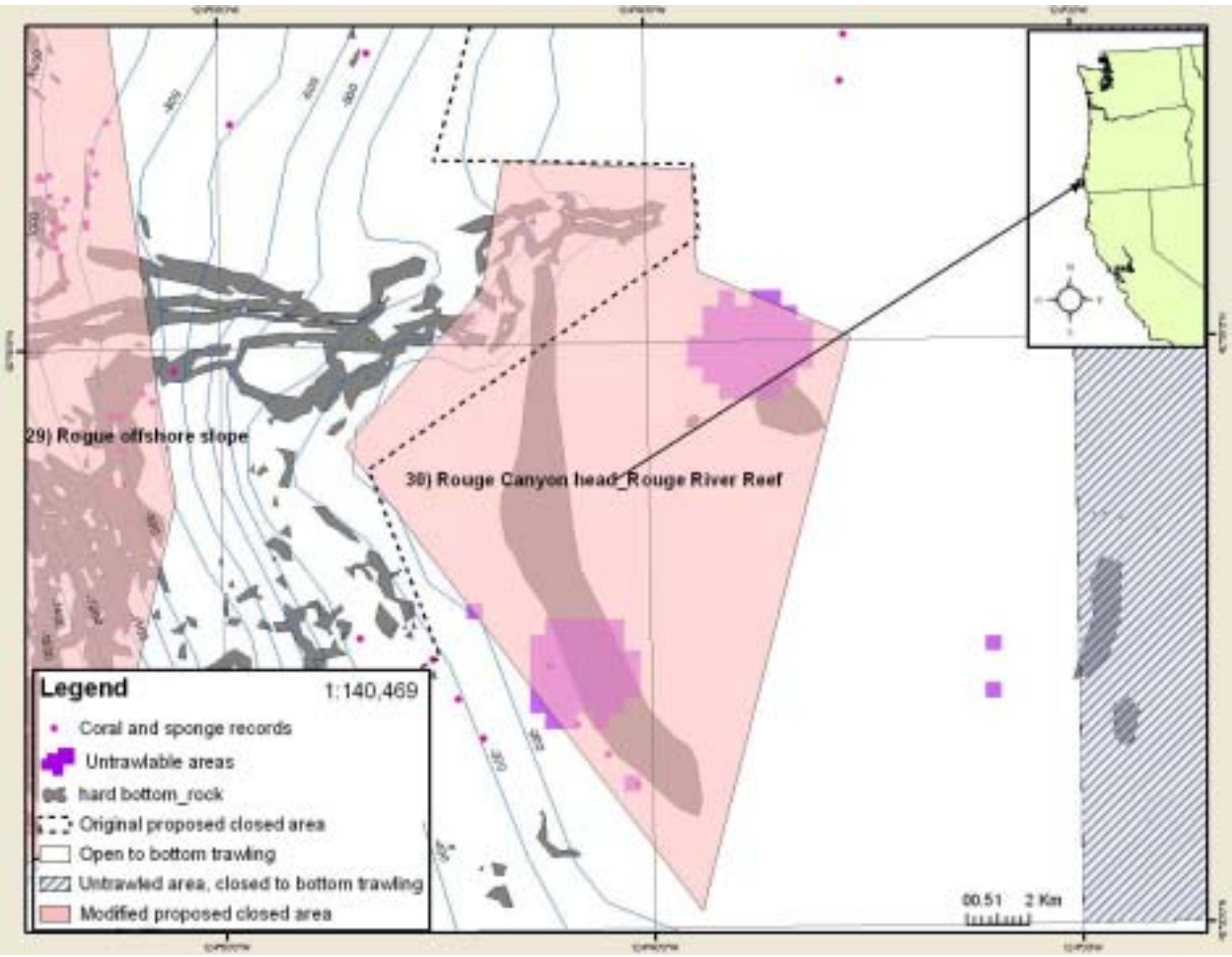


Figure 33: Rogue Canyon head_Rogue River Reef

31. Brookings_slope

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $48,884

This area encompasses slope habitat that is currently closed to bottom trawling in the rockfish conservation area (RCA), and as such, there is likely to be much less displace revenue than estimated. The proposed area contains 55 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). NOAA trawl surveys have not sampled the area well, but four records of sponges and sea pens have been documented in the proposed area (Figure 34).

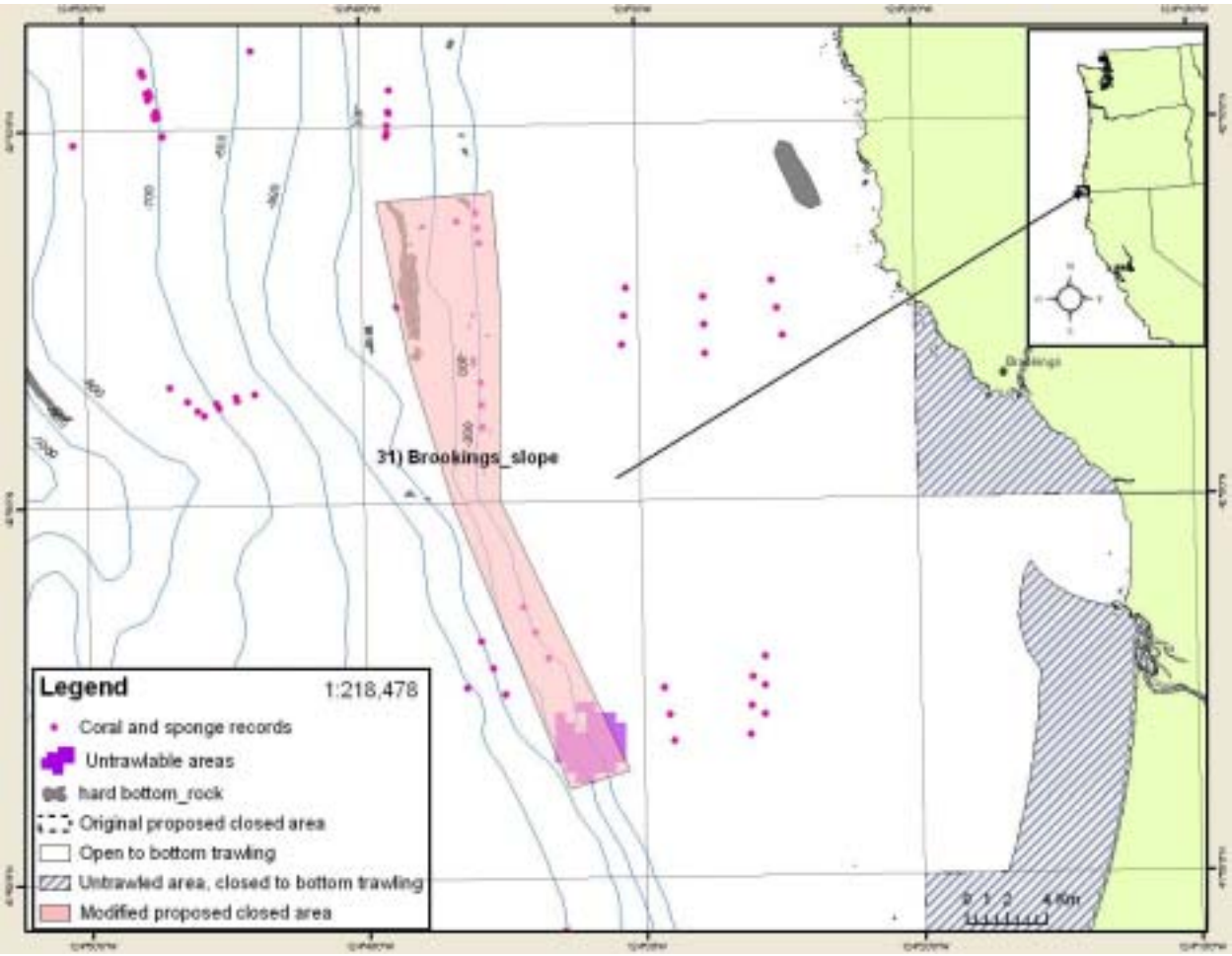


Figure 34: Brookings_slope

32. Crescent City deep_Biogenic_11

Original Alternative C.12 estimated displaced revenue= $2,734
Revised Alternative C.12 estimated displaced revenue= $9,635

This area is in deep water, and is located outside of the bottom trawl footprint (Figure 35). As such, there is likely to be much less displaced revenue than estimated here. This area was also proposed by the trawl industry as a candidate for closure. NOAA trawl surveys have documented 35 records of habitat-forming invertebrates within the proposed closed area. Hexactinellid sponges, black corals, sea whips, and gorgonian corals have been documented in the proposed area.

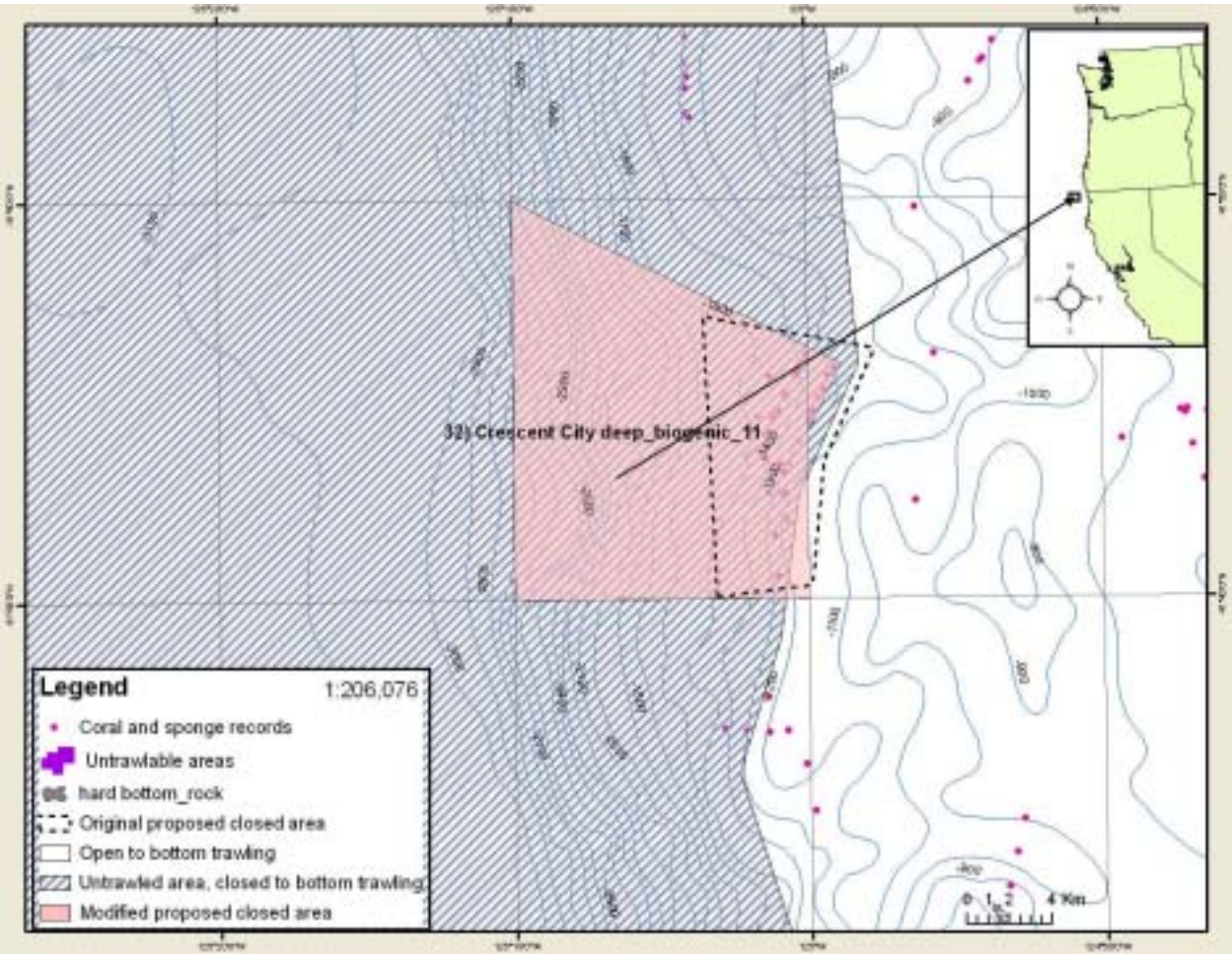


Figure 35: Crescent City deep_Biogenic_11

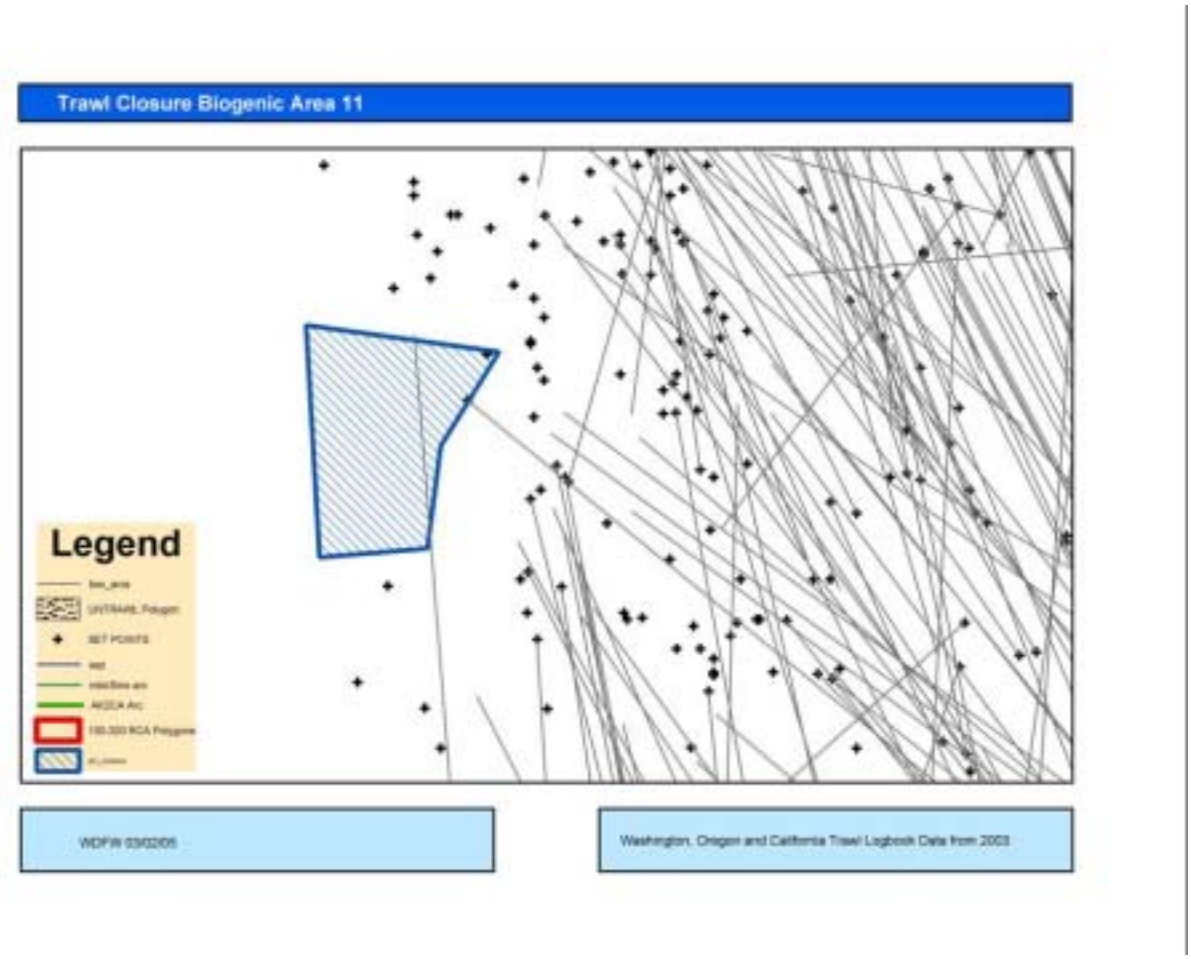


Figure N: 2003 bottom trawl logbook set points (courtesy WDF&W)

33. Crescent City slope

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $49,779

This area encompasses slope habitat located within the rockfish conservation area that is currently closed to bottom trawling. As such, there is likely to be much less displaced revenue than estimated here. The proposed area contains 72 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the “untrawlable” polygons determined by Zimmerman (2003). While the area is not well sampled by NOAA trawl survey gear, 5 records of sponges and sea pens have been documented (Figure 36).

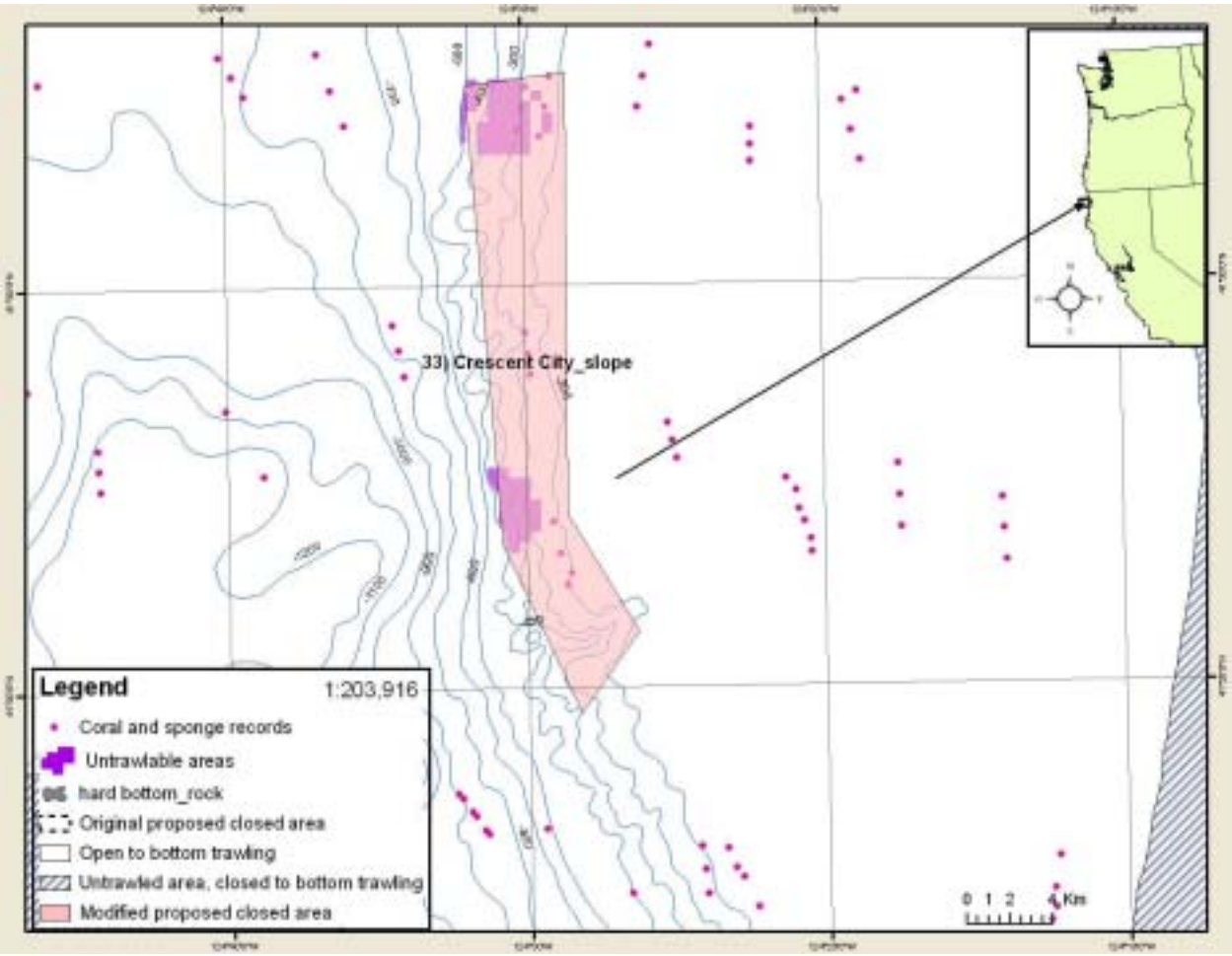


Figure 36: Crescent City slope

34. Eel River Canyon

Original Alternative C.12 estimated displaced revenue= $551,397
Revised Alternative C.12 estimated displaced revenue= $201,696 (likely overestimated, trawl tracks fall outside of area, see Figure O below)

Eel River canyon is a deepwater canyon located north of Mendoncino Ridge (Figure 37)
The boundary of this area for Revised Alternative C.12 avoids some trawled areas along the canyon edge (Figure O). The boundary closely follows the closed area boundary suggested by representatives of the bottom trawl industry. Therefore, the closure should result in minimal displaced bottom trawl effort, probably much less than we estimate here. The proposed area contains 53 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). NOAA trawl surveys have documented 7 records of gorgonian corals and sea pens.

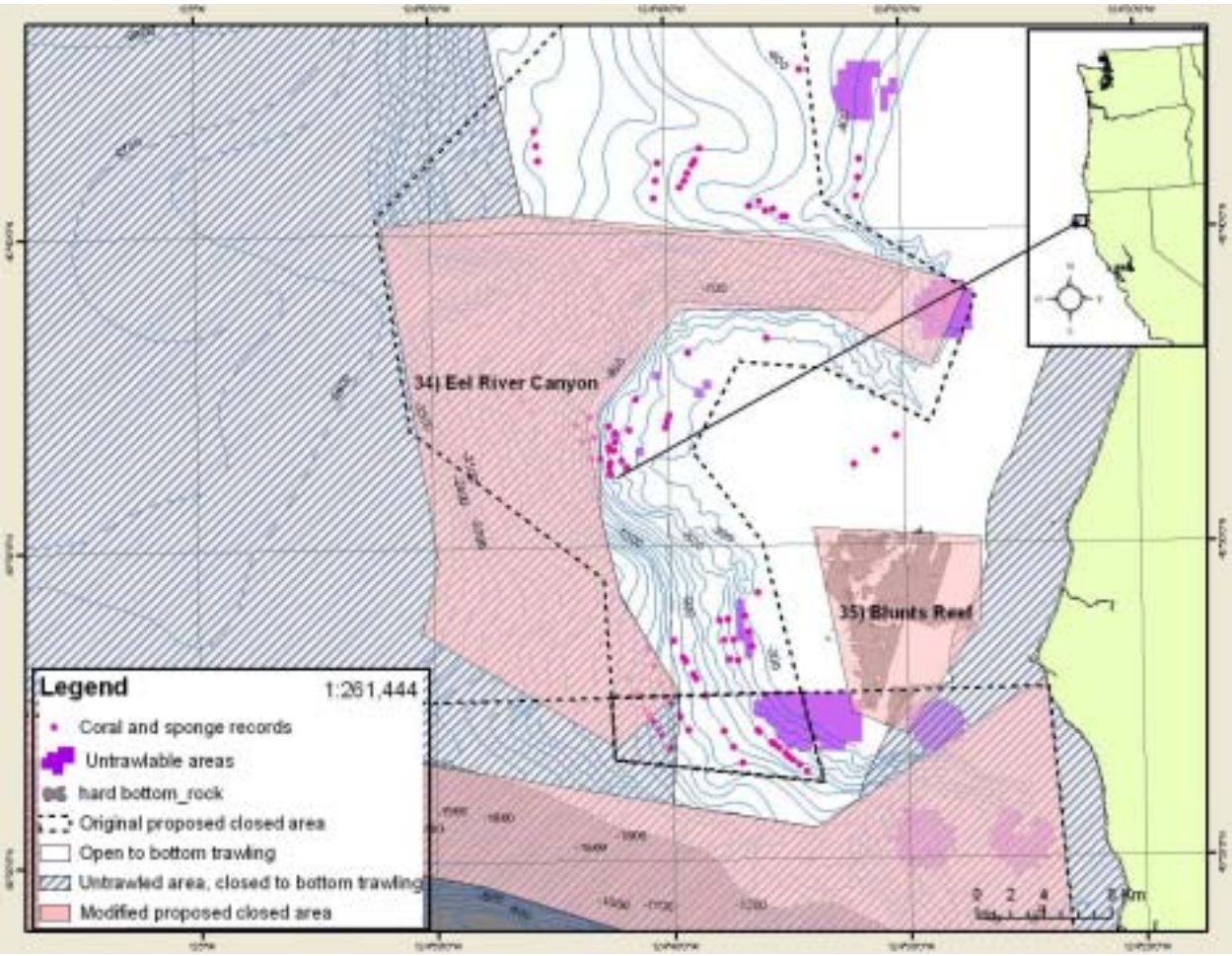


Figure 37: Eel River Canyon

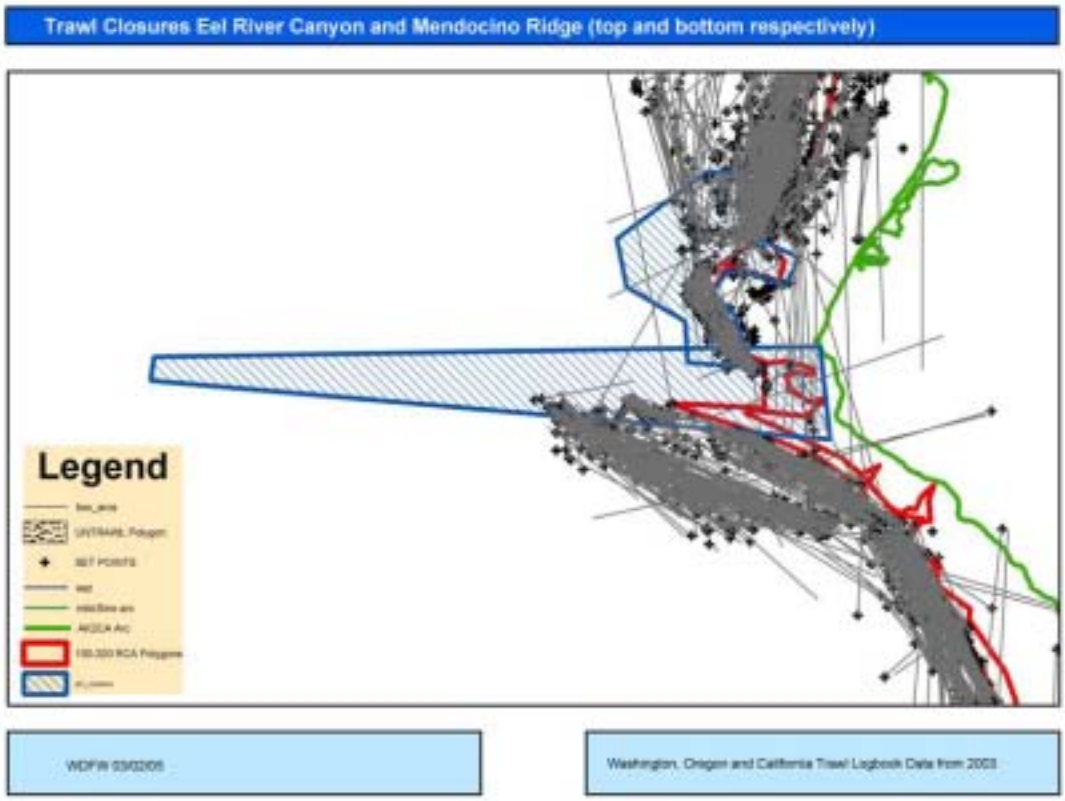


Figure O: 2003 bottom trawl logbook set points (courtesy WDF&W)

35. Blunts Reef

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $25,495 (likely overestimated, trawl tracks fall outside of area, see Figure O above)

This rocky reef off the shelf is located north of Mendocino Ridge (Figure 38). The proposed area contains 13 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the “untrawlable” polygons determined by Zimmerman (2003). Logbook information (Figure O) indicates that little bottom trawling occurred in the area, and little effort should be displaced by this suggested closure.

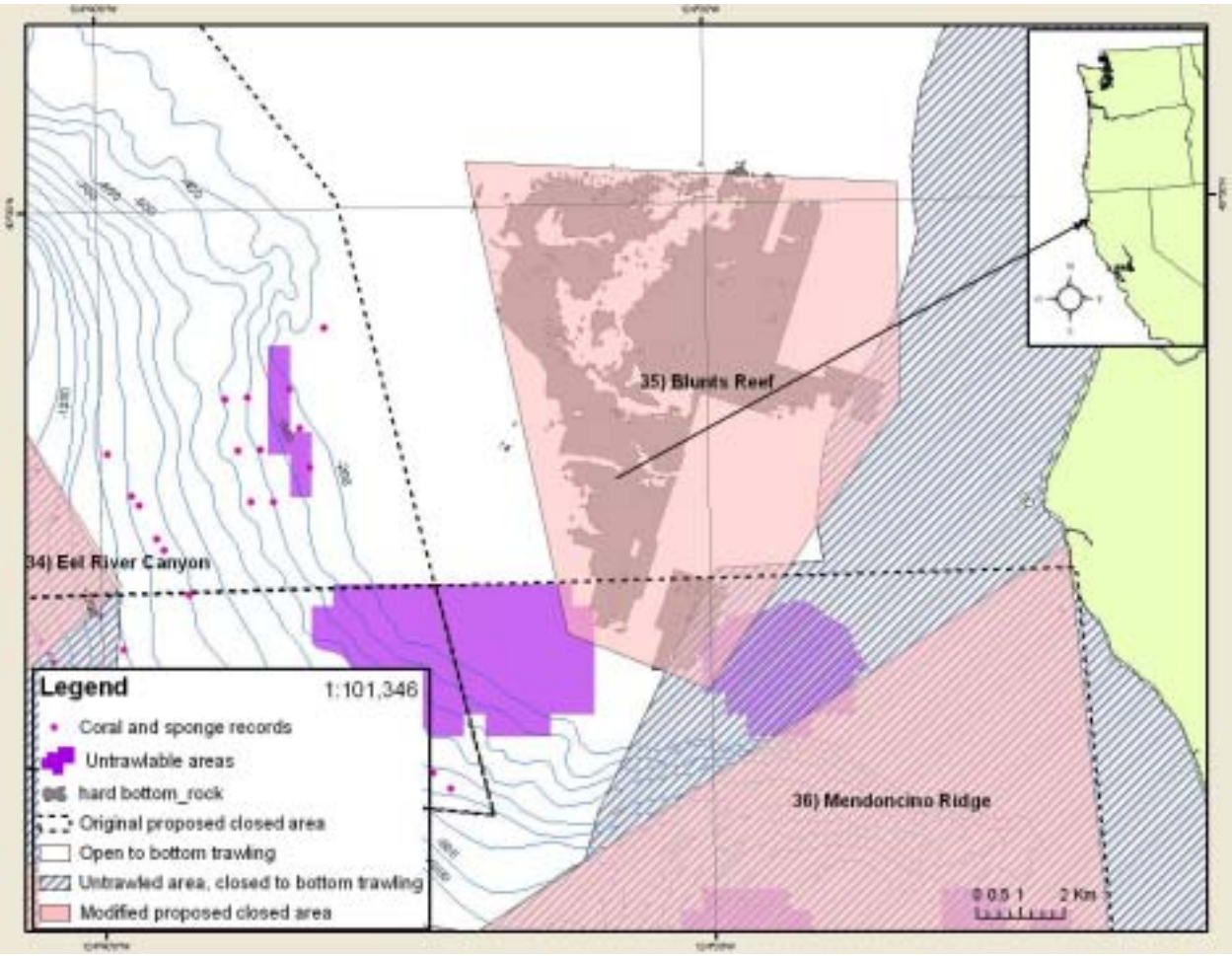


Figure 38: Blunts Reef

36. Mendocino Ridge

Original Alternative C.12 estimated displaced revenue= $201,902
Revised Alternative C.12 estimated displaced revenue= $108,769 (likely overestimated, trawl tracks fall outside of area, see Figure O above)

Mendocino Ridge, also known as the Gorda Escarpment, is a large underwater ridge running east to west separating two major marine ecological provinces (Figure 39). The boundary of the area as it was previously proposed contained some trawl activity (Figure 0). The boundary in Revised Alternative C.12 was modified to avoid some trawled areas along the north and south end of the ridge and this closely follows the closed area boundary suggested by representatives of the bottom trawl industry (Figure 39). As such, little bottom trawl effort should be displaced by this suggested closure and displacement is probably less than what is estimated here. The proposed area contains 279 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the “untrawlable” polygons determined by Zimmerman (2003). The area has not been well sampled by NOAA trawl surveys, but 5 records of gorgonian corals, sea pens, and sponges have been documented.

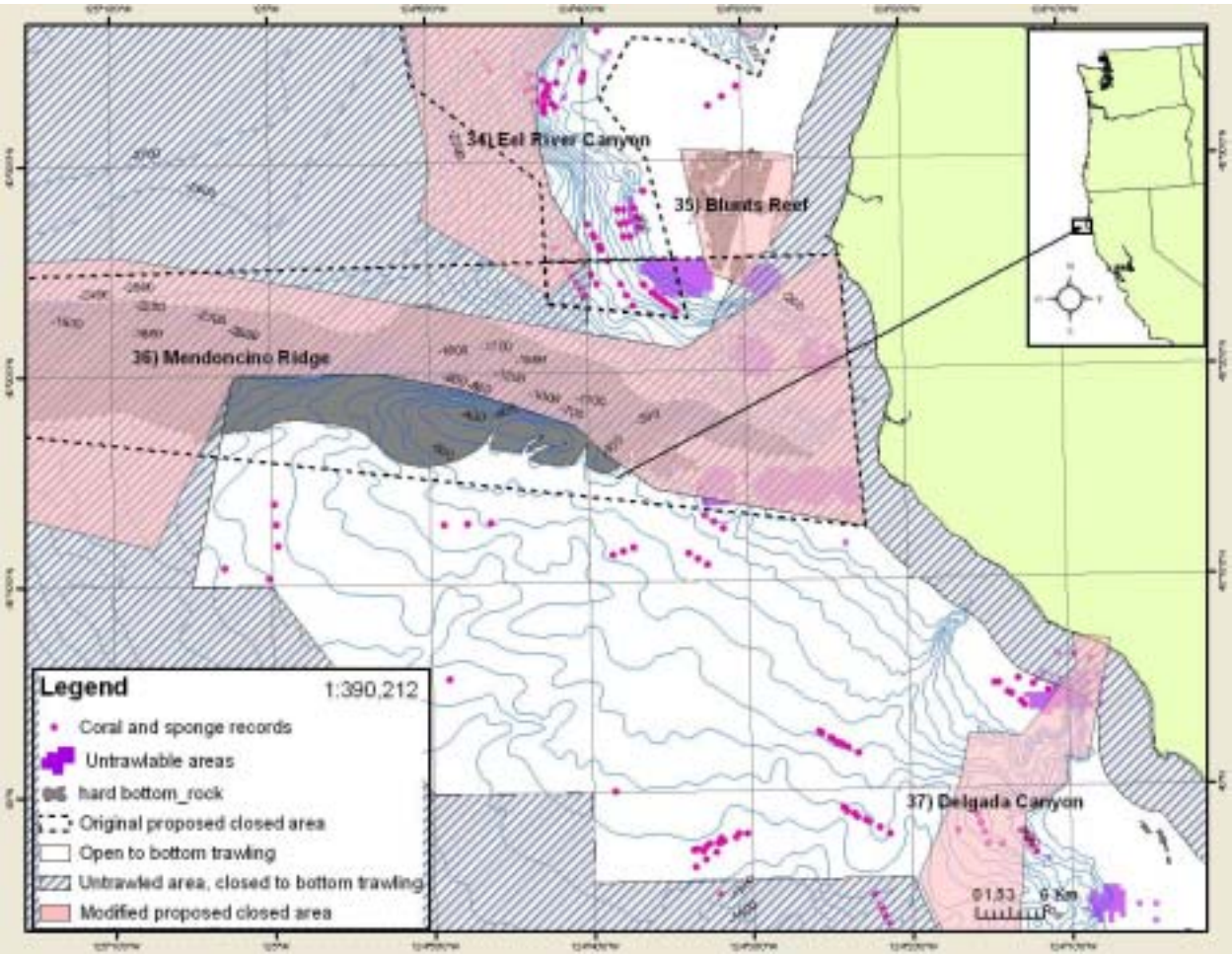


Figure 39: Mendocino Ridge

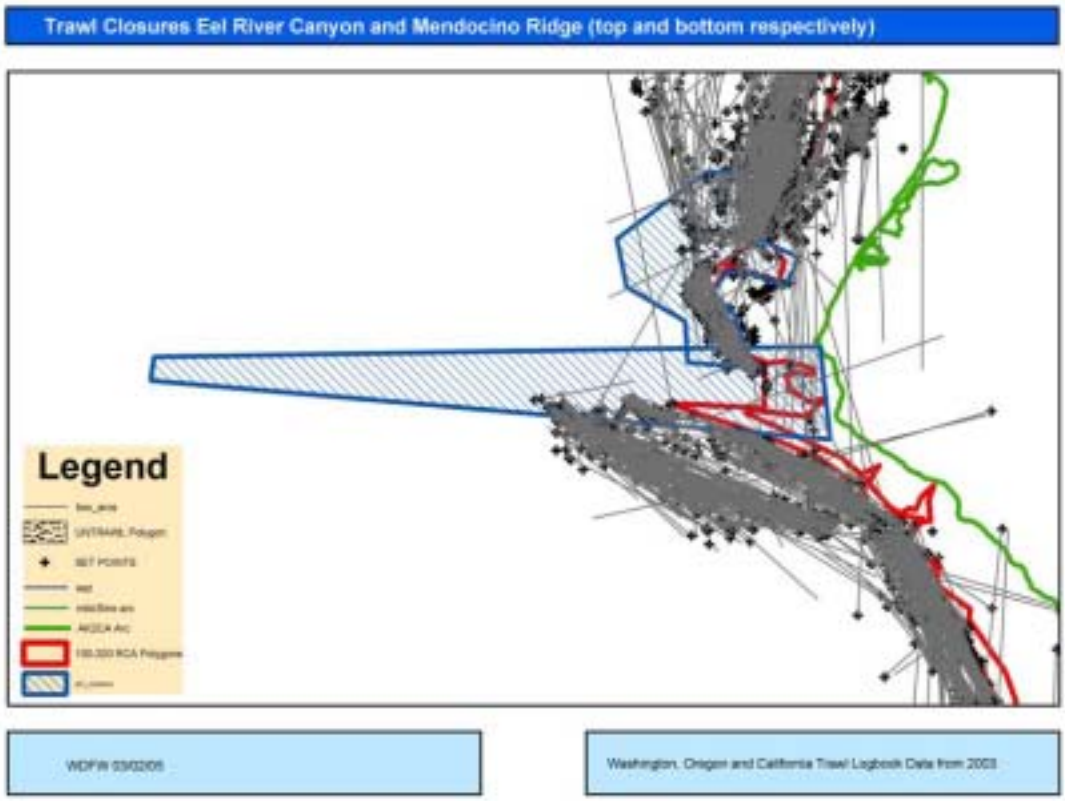


Figure P: 2003 bottom trawl logbook set points (courtesy WDF&W)

37. Delgada Canyon

Original Alternative C.12 estimated displaced revenue=N/A
Revised Alternative C.12 estimated displaced revenue= $79,978

This deep canyon begins close to shore on the Northern California coast (Figure 40). The proposed area contains 99 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). While no NOAA trawl surveys have sampled within the canyon itself, 7 records of sea pens and sea whips have been documented along the edge of the canyon. To our knowledge, the canyon has not been explored by scientific surveys, but scuba divers have noted some fantastic sights in the canyon head:

> *I have never seen areas of filter feeding organisms so thick in one spot in my life. Strawberry anemones so thick that it would make Amentos Reef in Monterey look barren…. As I shined my light into the cracks more I was seeing all sorts of baby rock fish of 6-8 different species laying inverted on the shelves…. It was essentially nothing more than a giant maternity ward for sea life…. I wonder if any marine scientists know about this place?*

http://diver.net/seahunt/fend/f_ericdelgada.htm

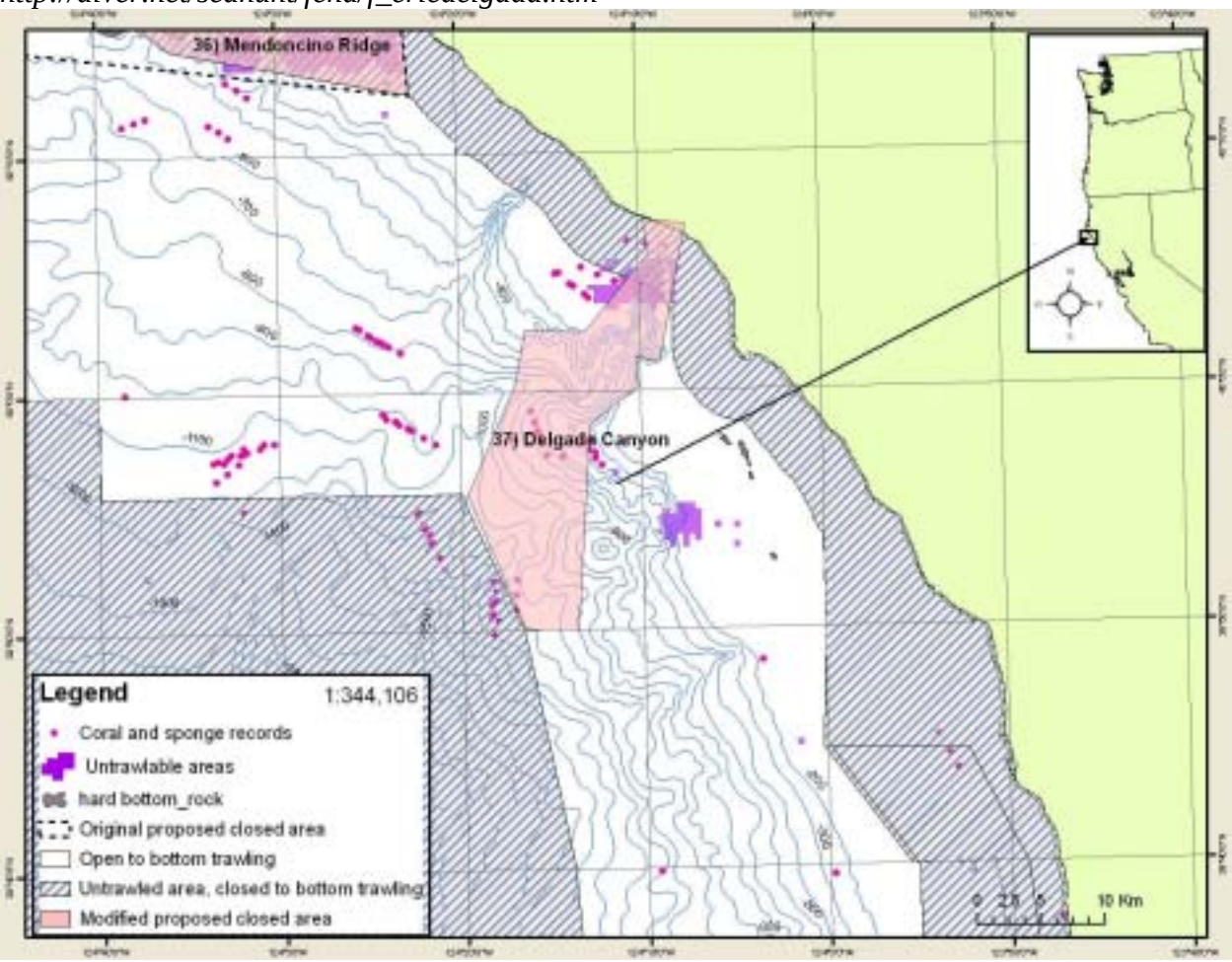


Figure 40: Delgada Canyon

38. Fort Bragg Canyon

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $51,128

This canyon begins offshore of Fort Bragg and extends into deep water outside the bottom trawl footprint (Figure 41). While no NOAA trawl surveys have sampled within the canyon itself, two records of sea pens and sea whips have been documented along the edge of the canyon.

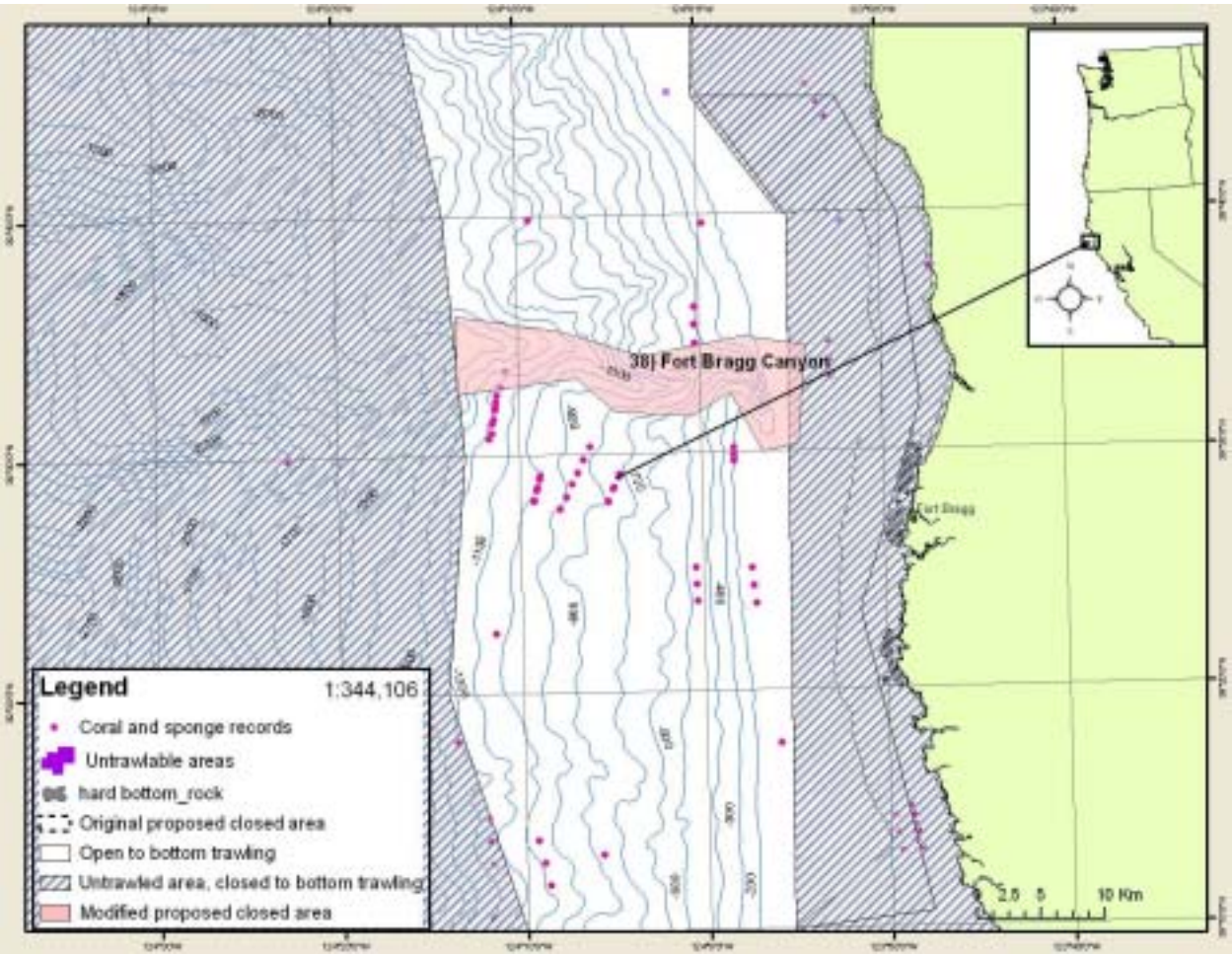


Figure 41: Fort Bragg Canyon

39. Point Arena offshore

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $47,324 (likely overestimated, trawl tracks fall outside of area, see Figure below)

This rocky shelf area is located offshore of Point Arena (Figure 42). Trawl logbook information indicates that no activity occurred in the area (Figure Q), and the area is located outside of the bottom trawl footprint. Minimal bottom trawl effort should be displaced by this suggested closure and the displaced revenue reported here is likely overestimated.

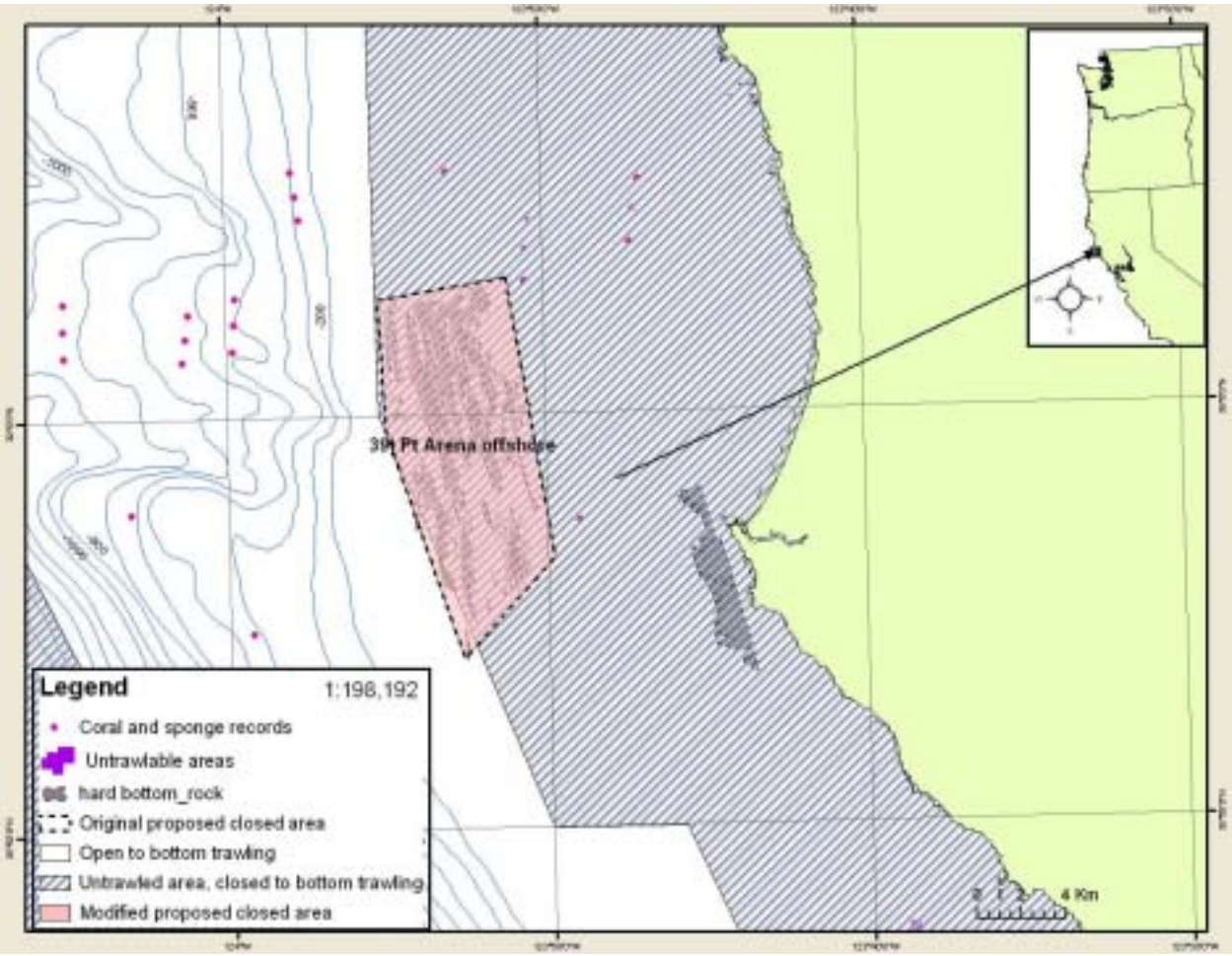


Figure 43: Point Arena offshore

40. Biogenic_ 12

Original Alternative C.12 estimated displaced revenue= $109,117
Revised Alternative C.12 estimated displaced revenue= $61,321 (likely overestimated, trawl tracks fall outside of area, see Figure Q below)

This proposed closed area in Revised Alternative C.12 spans slope habitat from 300 to 1200 meters in depth (Figure 44). NOAA trawl surveys have documented 40 records of habitat-forming invertebrates, including gorgonian corals, sea pens, sea whips, and sponges. The proposed area contains 40 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). Logbook information indicates that little bottom trawling occurs in the area, and minimal bottom trawl effort should be displaced by this suggested closure (Figure Q).

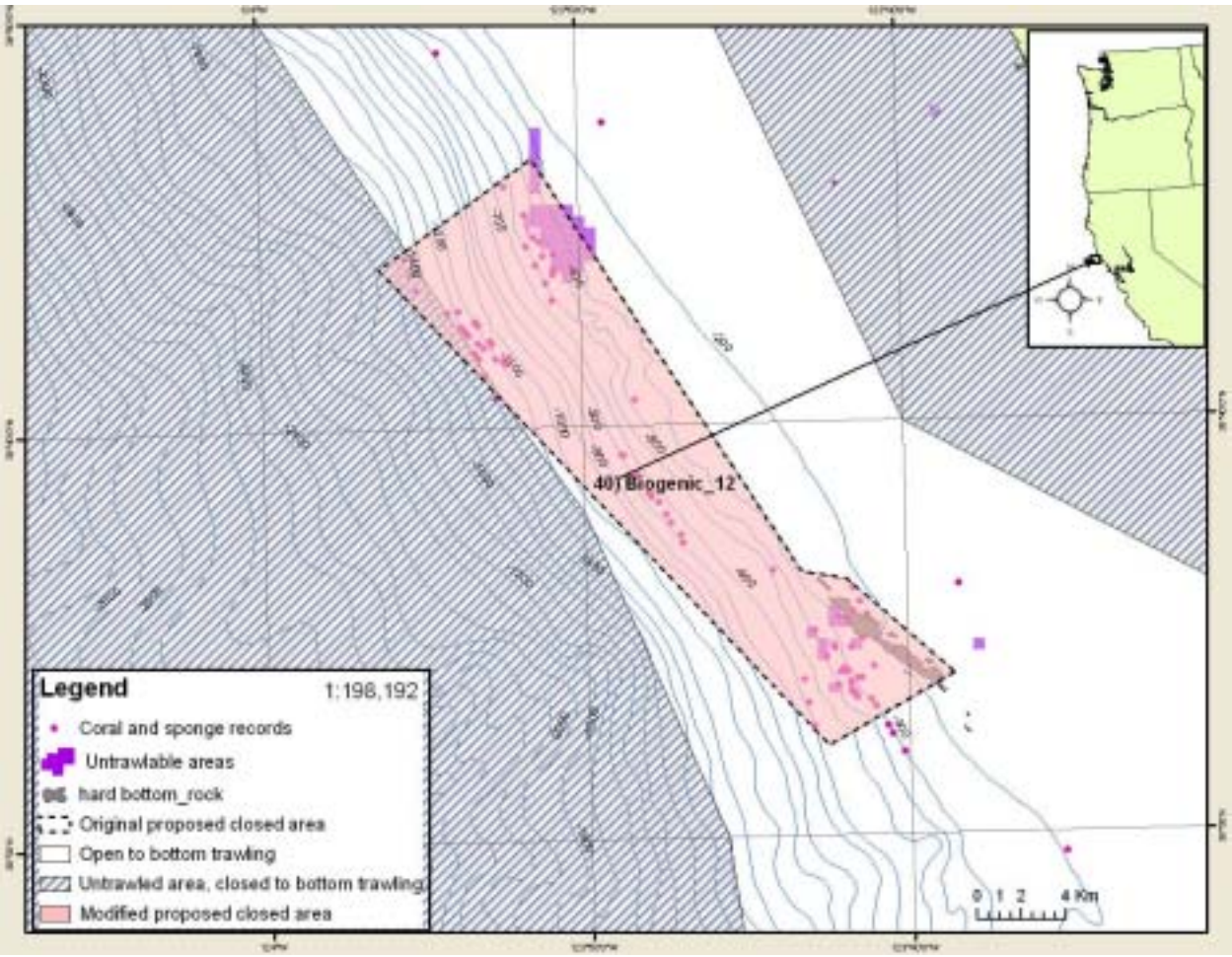


Figure 44: Biogenic_12

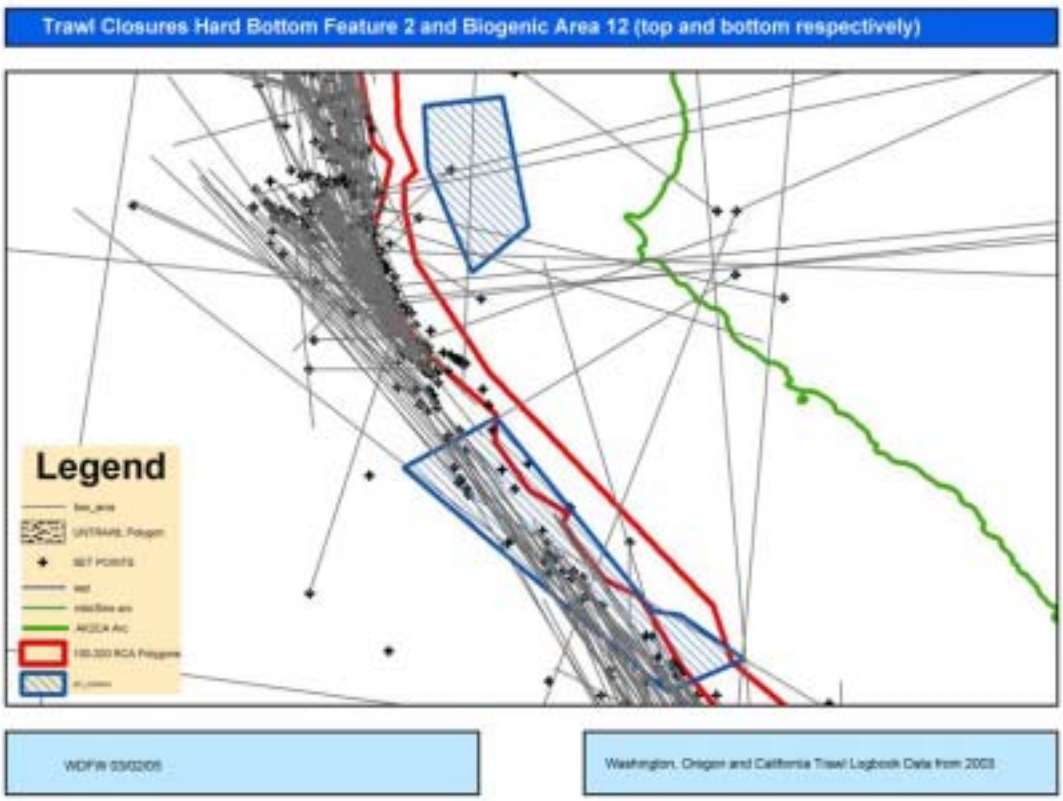


Figure Q: 2003 bottom trawl logbook set points (courtesy WDF&W)

41. Cordell Bank

Original Alternative C.12 estimated displaced revenue= $140,883
Revised Alternative C.12 estimated displaced revenue= $49,064 (likely overestimated, trawl tracks fall outside of area, see Figure R below)

Cordell Bank is an underwater island 7 km by 15 km surrounded by deep water on three sides. Due to a unique combination of topographic and oceanographic features, this area is extremely productive. At depths between 35 and 50 meters, the rocky habitats are carpeted with sponges, ascidians, hydrocorals, anemones, and sea stars. Fed by the productive currents, this seafloor habitat creates complex living structures for juvenile rockfish, lingcod, and many species of adult rockfish.

Designated as a National Marine Sanctuary in 1989, Cordell Bank is one of the most productive offshore areas in the United States. The combination of the California current, upwelling of nutrient rich ocean waters and the topography of the area provides for a flourishing ecosystem. This area is thickly covered by sponges, anemones, hydrocorals, and other invertebrates. It also hosts 180 species of fish, providing spawning habitat for lingcod. Finally this area hosts twenty six resident and migratory species of marine mammals.[6]

[6] Cordell Bank State of the Sanctuary Report. http://sanctuaries.nos.noaa.gov/oms/omscordell/omscordell.html

The boundary of area as it was proposed in Original Alternative C.12 was modified in Revised Alternative C.12 to avoid some trawled areas (Figure R) along the western slope and a south portion of the shelf. The Revised Alternative C.12 boundary closely follows the closed area boundary suggested by representatives of the bottom trawl industry (Figure 45). As such, minimal bottom trawl effort should be displaced by this suggested closure.

The ridges and pinnacles covered with structure forming invertebrates provides complex habitat which is sensitive to bottom tending gears. The proposed area contains 58 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). NOAA trawl surveys have documented 20 records of habitat-forming invertebrates, including gorgonian corals, sea pens, sea whips, and sponges.

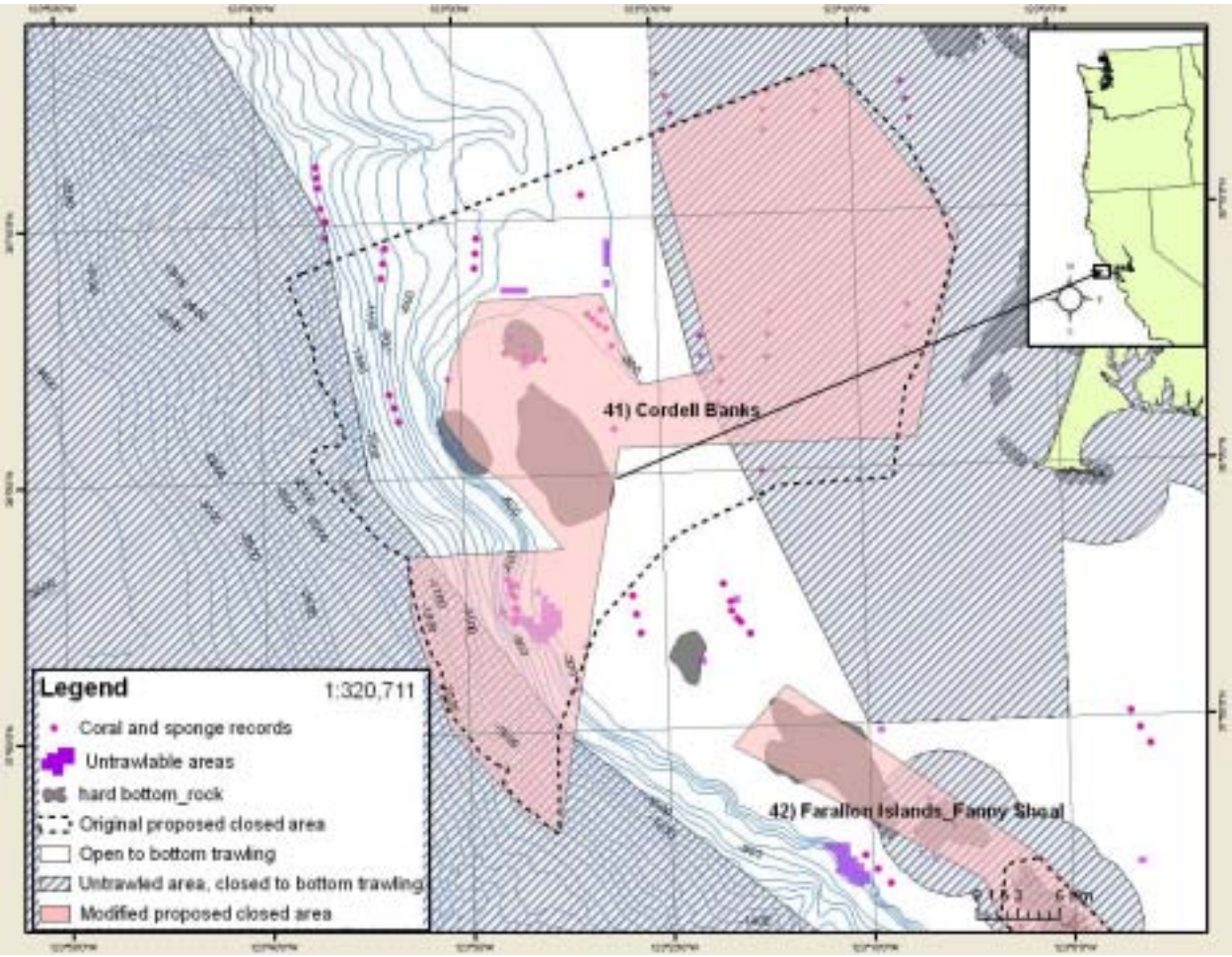


Figure 45: Cordell Bank

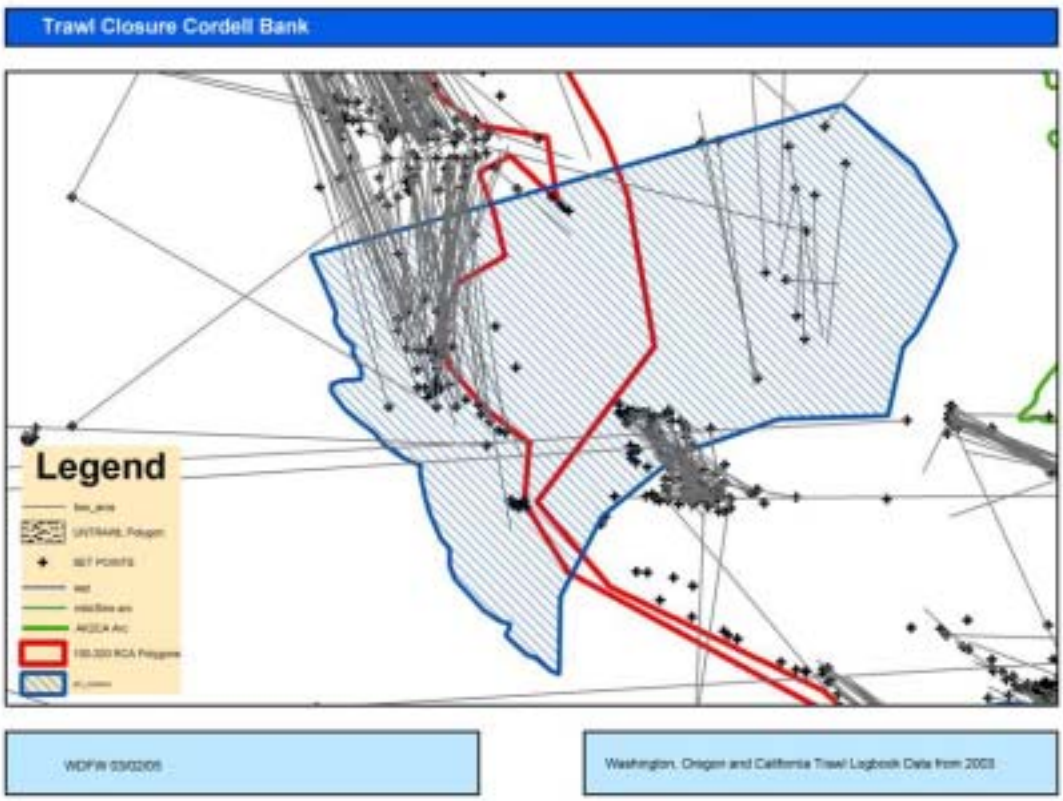


Figure R: 2003 bottom trawl logbook set points (courtesy WDF&W)

42. Farallon Islands_Fanny Shoal

Original Alternative C.12 estimated displaced revenue= $78
Revised Alternative C.12 estimated displaced revenue= $9,967 (likely overestimated, trawl tracks fall outside of area, see Figure S below)

This area was previously proposed as "*hard bottom feature_3*". The boundary of the proposed closure was modified to encompass more areas of hard bottom habitat to the north (Figure 46). Much of the proposed area falls within existing state of California bottom trawl closures. Trawl logbook information indicates little bottom trawl effort occurs in the area (Figure S), and minimal effort should be displaced by this suggested closure. The displaced revenue reported here is likely overestimated. This area around the Farallon Islands has not been well sampled by NOAA trawl surveys. The proposed area contains one record of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003). The California Academy of Sciences collected 3 specimens of coral in the area; the bubblegum coral *Paragorgia*, *Callagorgia*, and the stylasteridae coral *Stylantheca sp*.

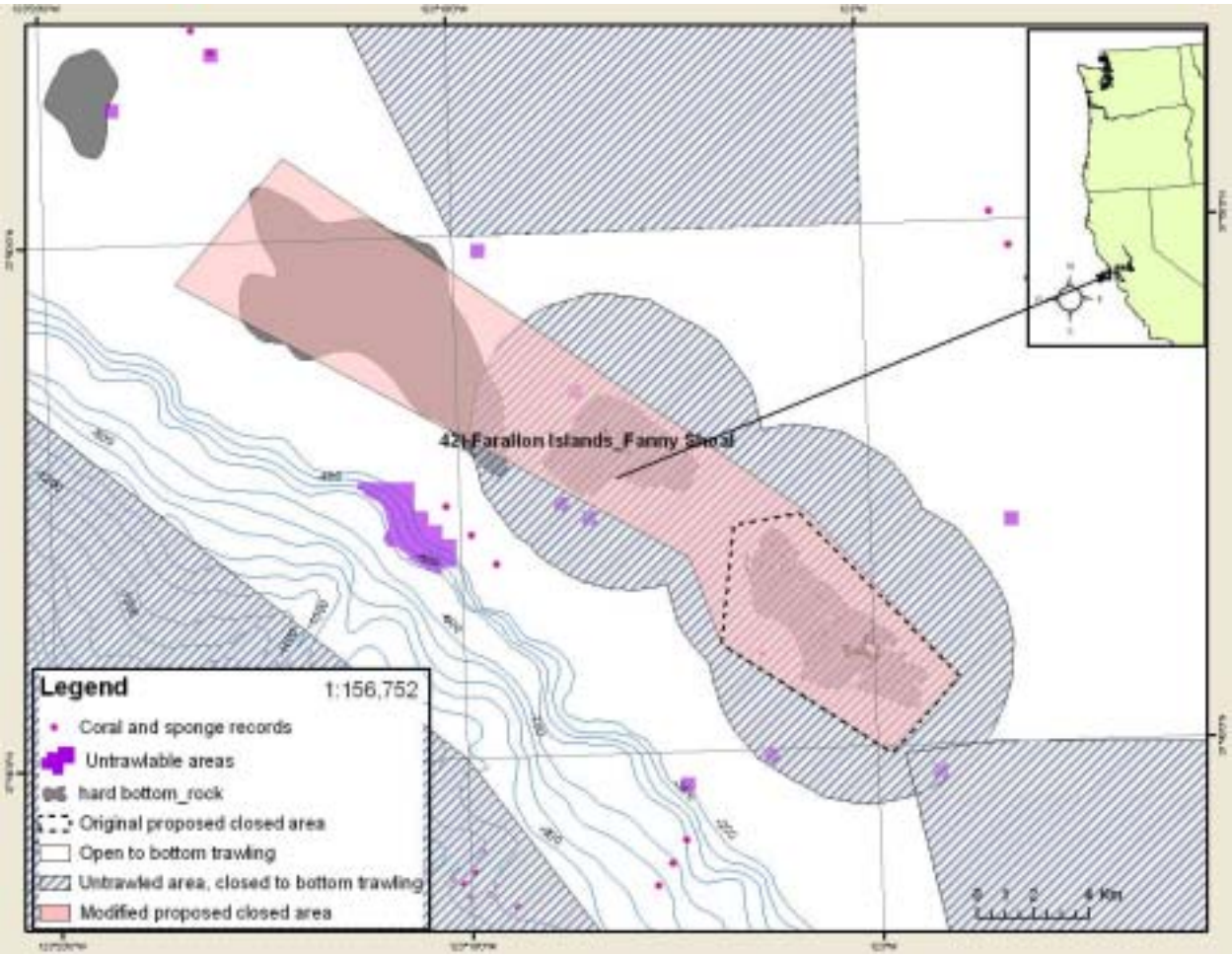


Figure 46: Farallon Islands_Fanny Shoal

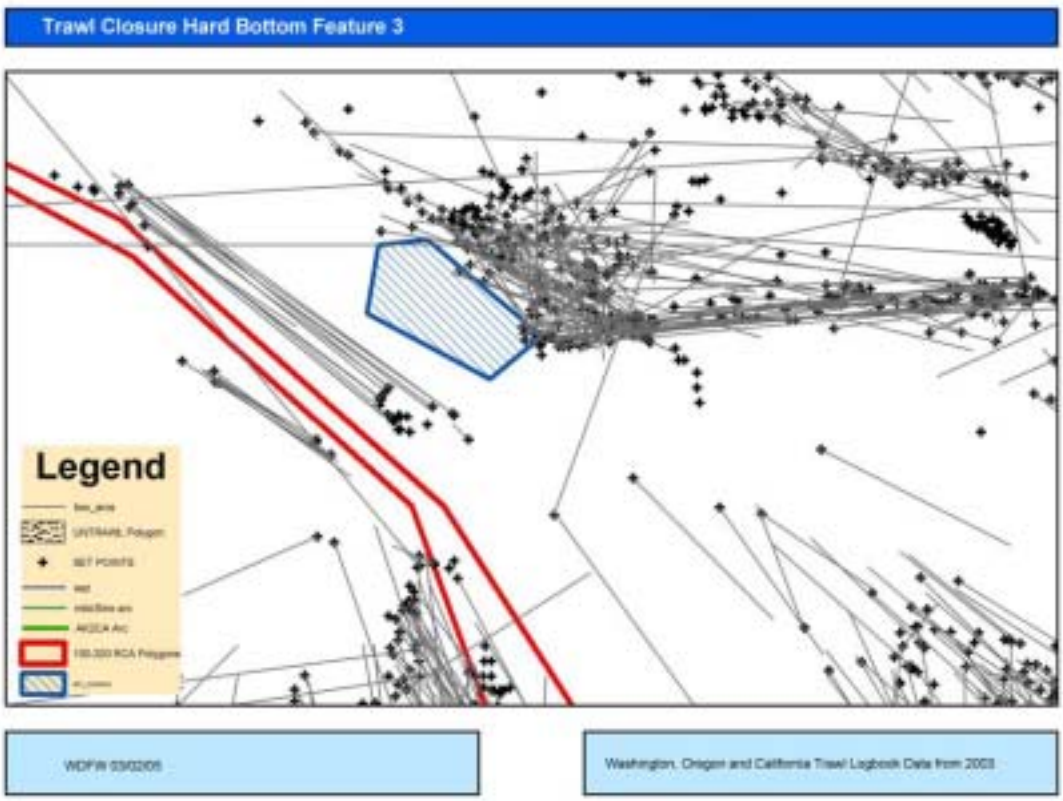


Figure S: 2003 bottom trawl logbook set points (courtesy WDF&W)

43. Half Moon Bay

Original Alternative C.12 estimated displaced revenue= $580
Revised Alternative C.12 estimated displaced revenue= $41,073 (likely overestimated, trawl tracks fall outside of area, see Figure T below)

This area was previously proposed as "*hard bottom feature_4*". This area of rocky shelf habitat is located offshore of Half Moon Bay (Figure 47). It is likely difficult to trawl in this area, and logbook information indicates that little bottom trawl effort occurred in the area. As such, the displaced revenue reported here is likely overestimated. The proposed area contains 6 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003).

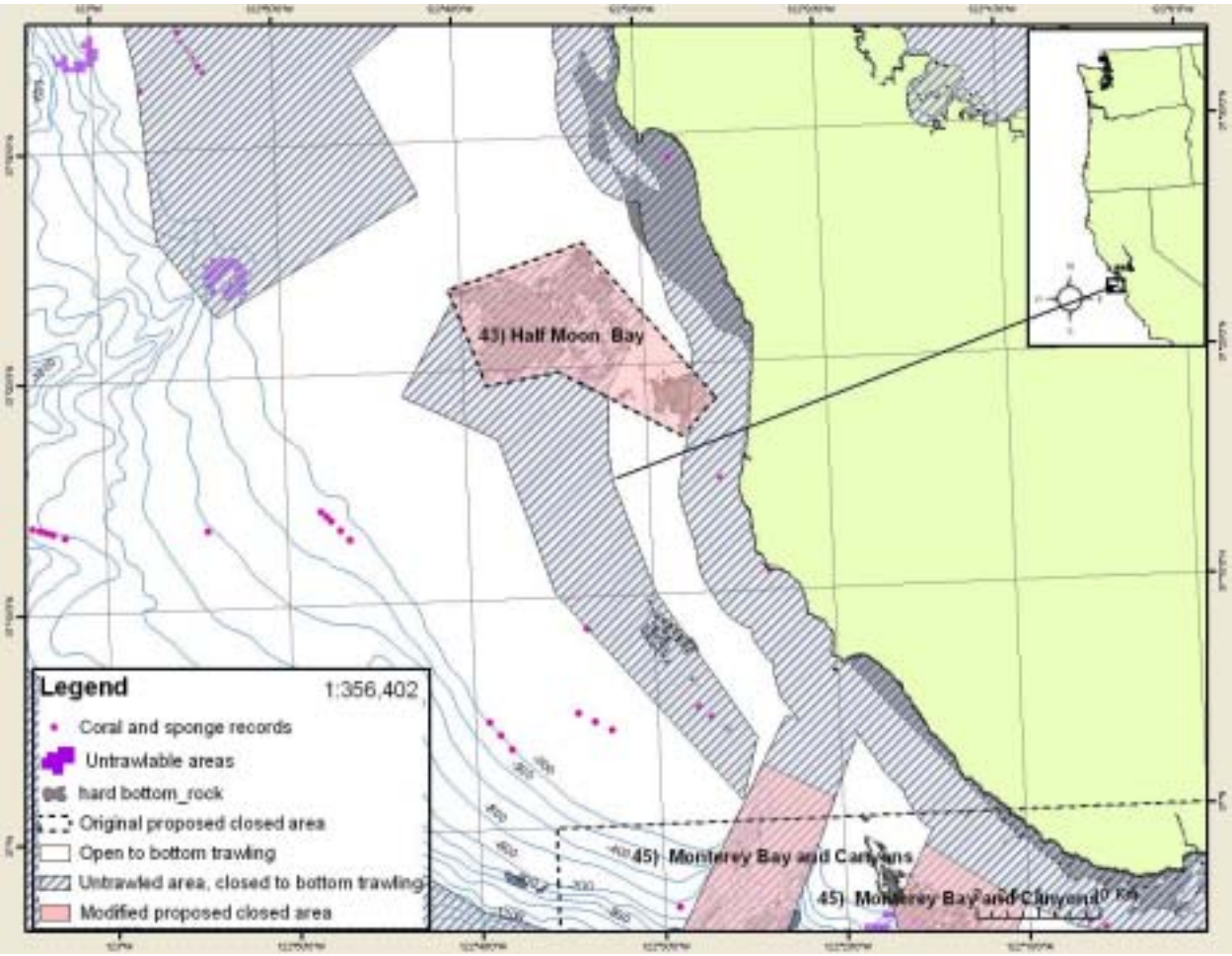


Figure 47: Half Moon Bay

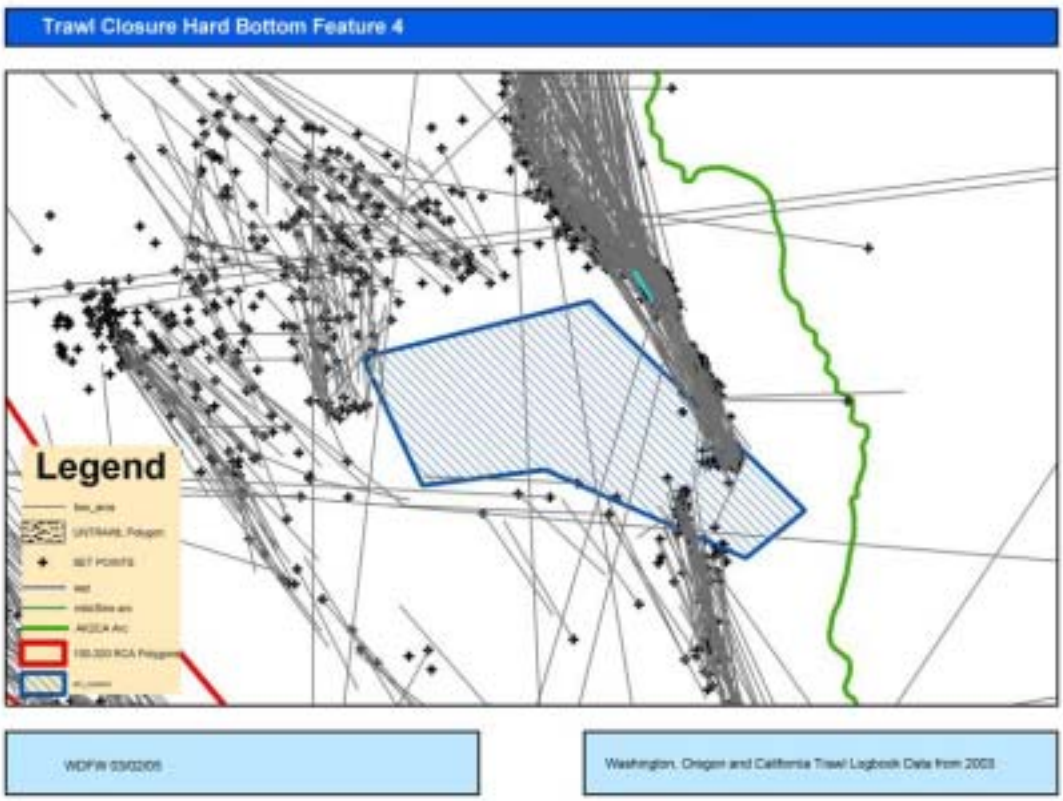


Figure T: 2003 bottom trawl logbook set points (courtesy WDF&W)

44. Point Sur_deep

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $10,173 (likely overestimated, trawl tracks fall outside of area, see Figure U below)

This area is located offshore in deep water, and was also suggested as an area for closure by the bottom trawl industry. A rocky escarpment rises 400 meters in the middle of the area, and the proposed area contains habitat from 1000 to 1400 meters depth (Figure 48). Eleven records of habitat-forming invertebrates, including sea pens and sea whips, have been documented in the area by NOAA trawl surveys. The proposed area is located outside the trawl footprint, and minimal effort should be displaced by this suggested closure.

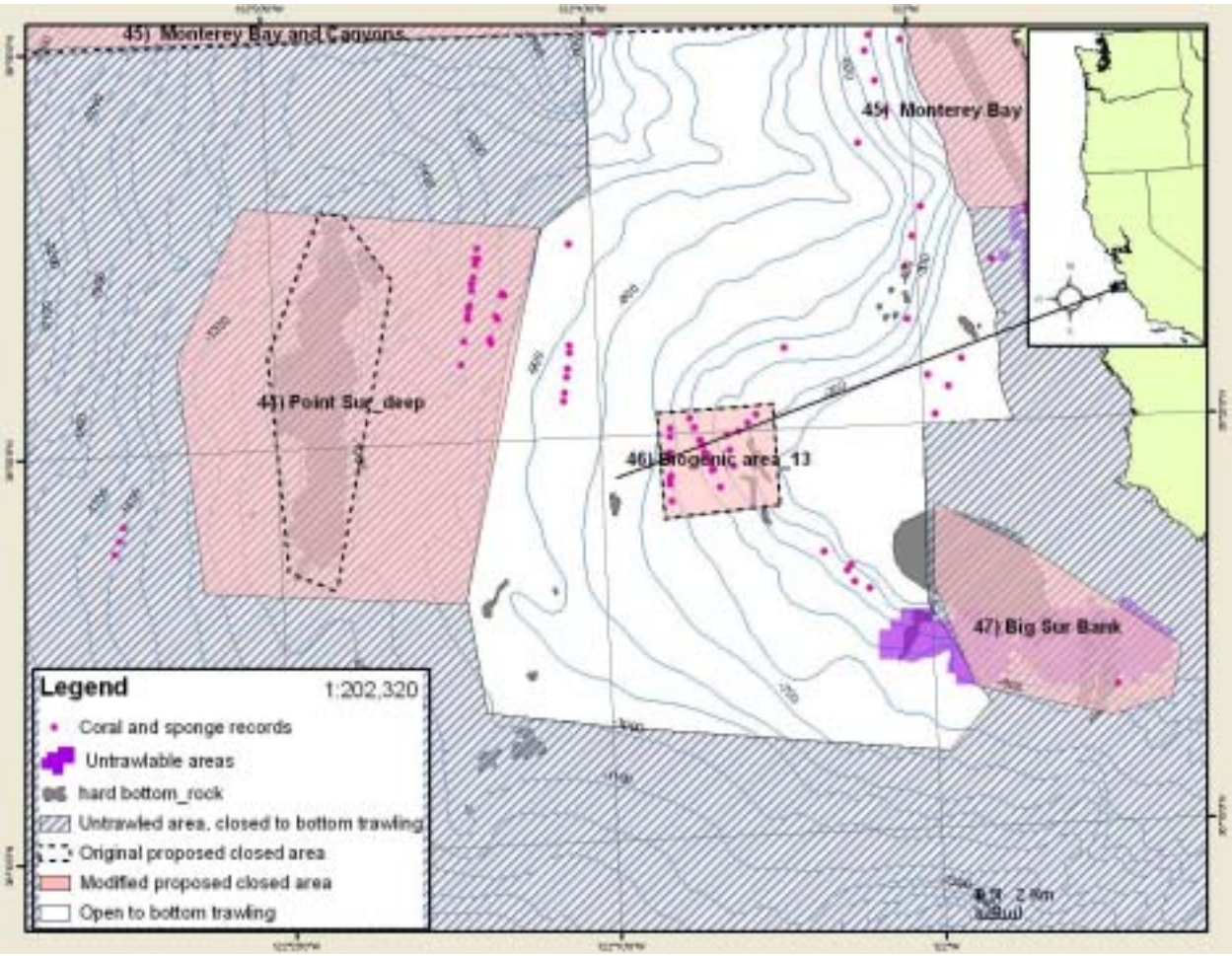


Figure 48: Point Sur_deep

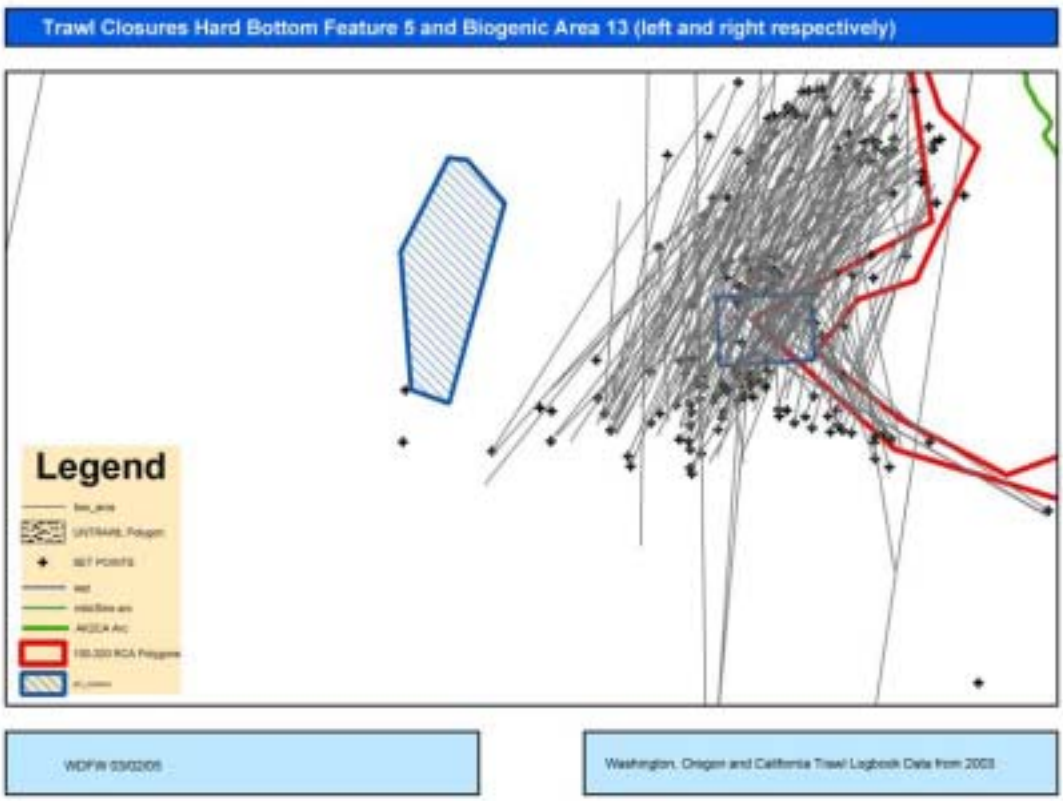


Figure U: 2003 bottom trawl logbook set points (courtesy WDF&W)

45. Monterey Bay and canyons

Original Alternative C.12 estimated displaced revenue= $645,196
Revised Alternative C.12 estimated displaced revenue= $191,468 (likely overestimated, trawl tracks fall outside of area, see Figure V below)

The deepest and largest submarine canyon on the coast of North America is the Monterey Canyon, just south of San Francisco, California (Figure 48). This canyon is 470 km long, approximately 12 km wide at its widest point, and has a maximum rim to floor relief of 1700 m, making it much larger than Arizona's Grand Canyon.

Monterey Bay and Canyon are part of the Monterey Bay National Marine Sanctuary designated in 1992. These areas contain a rich array of habitats from rugged rocky shores and lush kelp forests and one of the largest underwater canyons in North America. The sanctuary supports thirty three species of marine mammals, ninety-four species of seabirds, 345 species of fish, four species of sea turtles and thousands of species of invertebrates.[7] The area contains complex, canyon habitat and pinnacles. The proposed closed area in Revised Alternative C.12 contains 185 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003).

[7] State of the Sanctuary Report. Monterey Bay National Marine Sanctuary. http://www.mbnms.nos.noaa.gov

Trawl logbook information indicated that bottom trawling occurs in several discrete areas of the bay and off the slope (Figure V). The bottom trawl industry suggested a closure for the area that avoided closing any of these areas. As such, the boundaries of the original proposal were modified to avoid most of the trawled areas, and follows much of the boundary proposed by the trawl industry. Therefore, minimal displaced effort should result from the proposed closure and the displaced revenue reported here is likely overestimated.

The area is rich in records of habitat-forming invertebrates. NOAA trawl surveys have documented nine records of gorgonian corals, sea pens and sponges. Submersible dives by MBARI have documented 290 records of deep-sea corals in the proposed area, including bubblegum corals, black corals, and bamboo corals. The California Academy of Sciences has collected samples of hydrocorals, *Plumerella sp*., *Callogorgia sp*., *Paragorgia sp*., and bamboo corals.

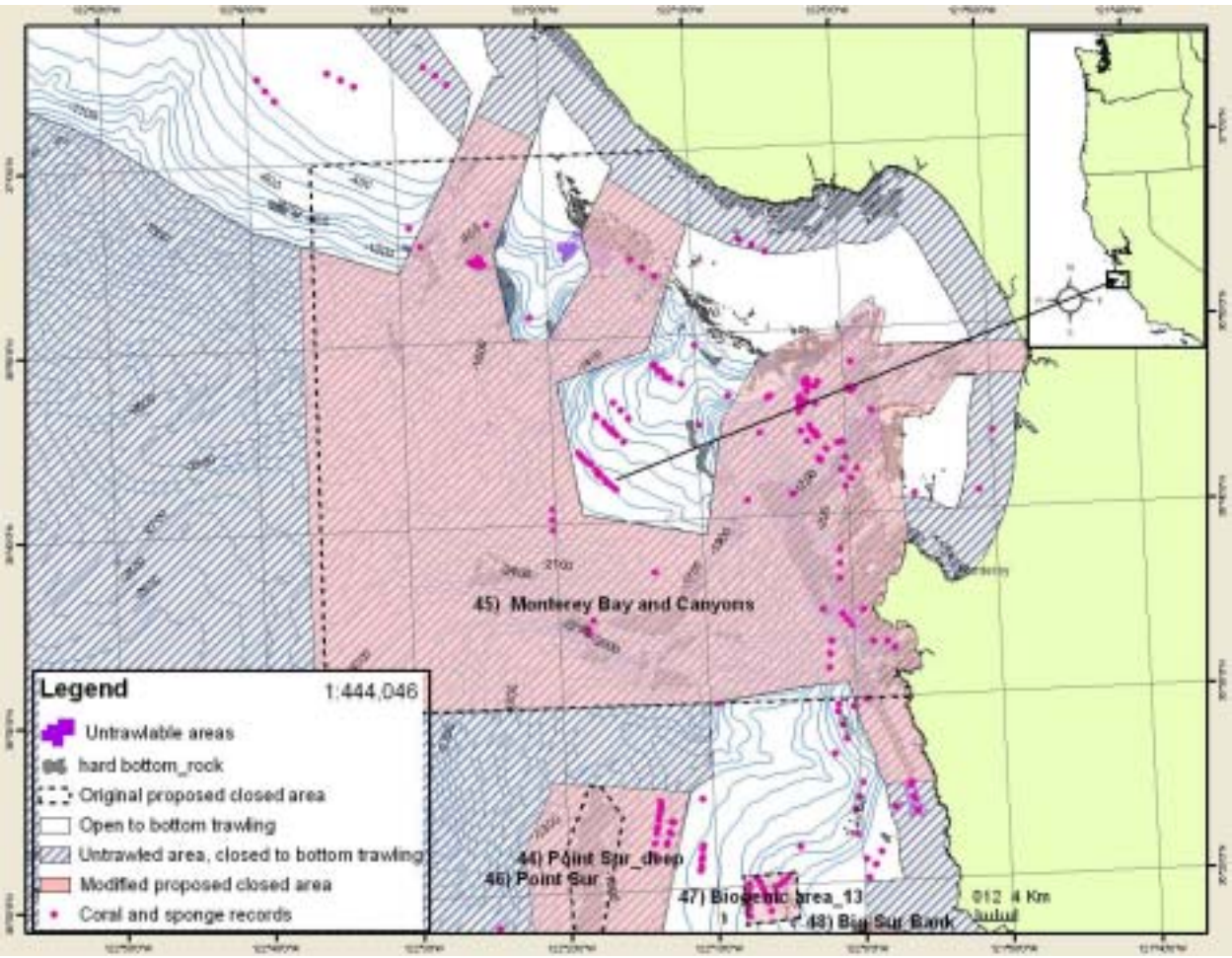


Figure 48: Monterey Bay and Canyon

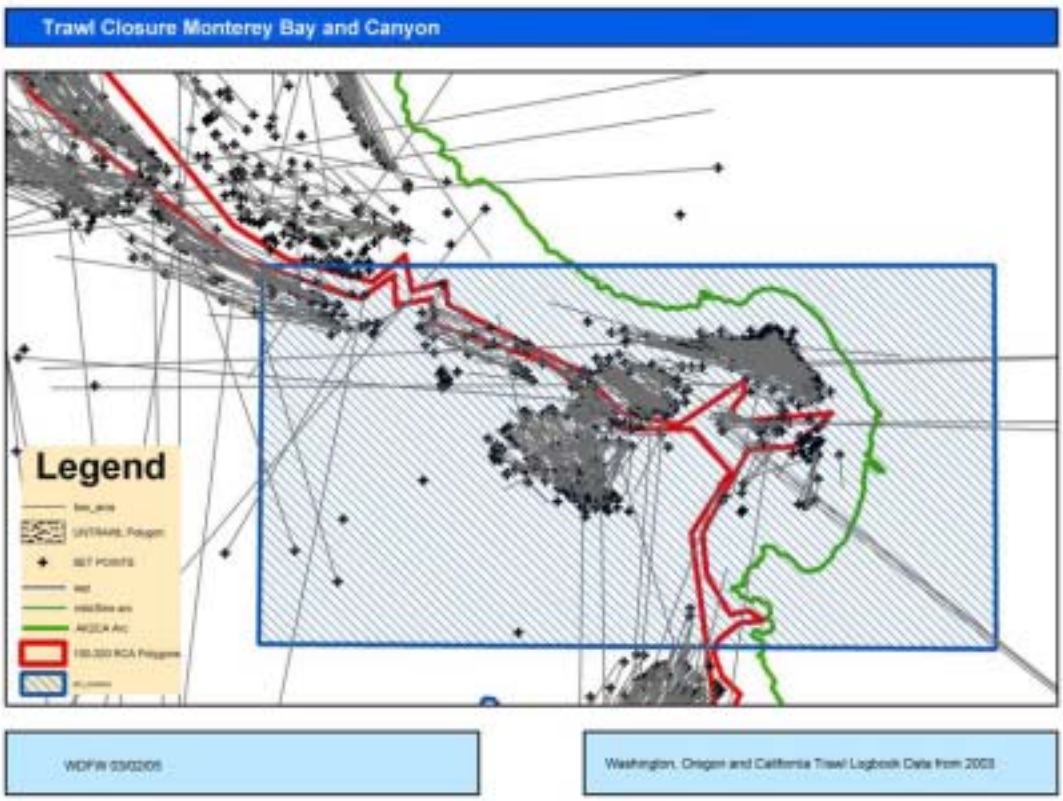


Figure V: 2003 bottom trawl logbook set points (courtesy WDF&W)

46. Biogenic_13

Original Alternative C.12 estimated displaced revenue= $26,257
Revised Alternative C.12 estimated displaced revenue= $11,282

The proposed area contains several rocky habitat features, and spans habitat from 300 to 700 meters depth (Figure 49). NOAA trawl surveys within the proposed area have documented 21 records of habitat-forming invertebrates, including black corals, gorgonian corals, sea pens, and sponges. Trawl logbook information indicates that trawling occurs across the proposed area (Figure U). However, the area suggested for closure is small relative to surrounding trawled area. This proposed area would be a good candidate for a control study site to assess the effects of bottom trawling on habitat.

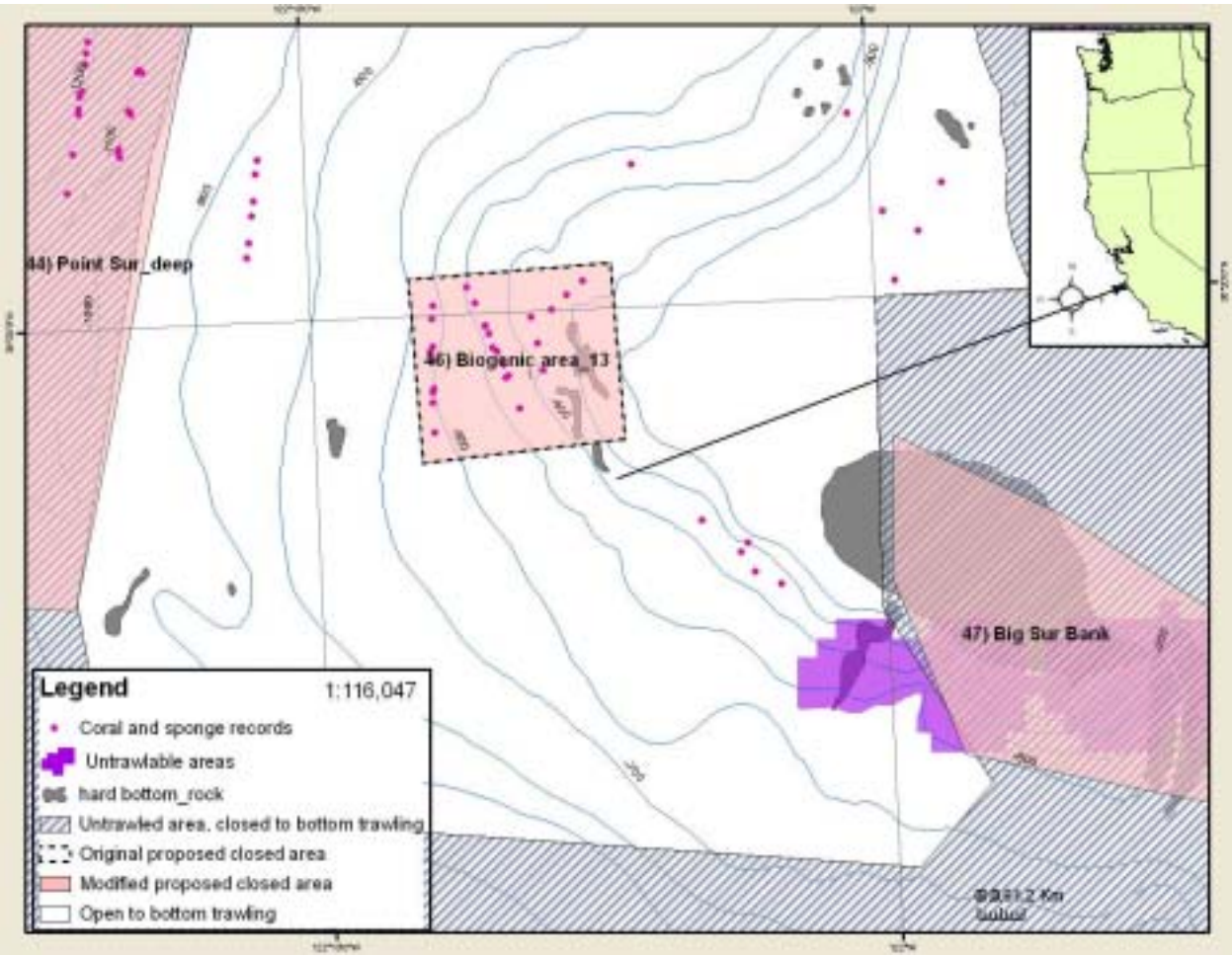


Figure 49: Biogenic_13

47. Big Sur Bank

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $41,694 (likely overestimated, trawl tracks fall outside of area, see Figure V above)

This area contains rocky shelf habitat under 200 meters depth off the coast of Big Sur point (Figure 50). Trawl logbook information indicates no trawl activity in the area, and the area is located outside the bottom trawl footprint. Therefore, minimal displaced effort should result from the proposed closure. The displaced revenue reported here is likely overestimated. The proposed area contains 175 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003).

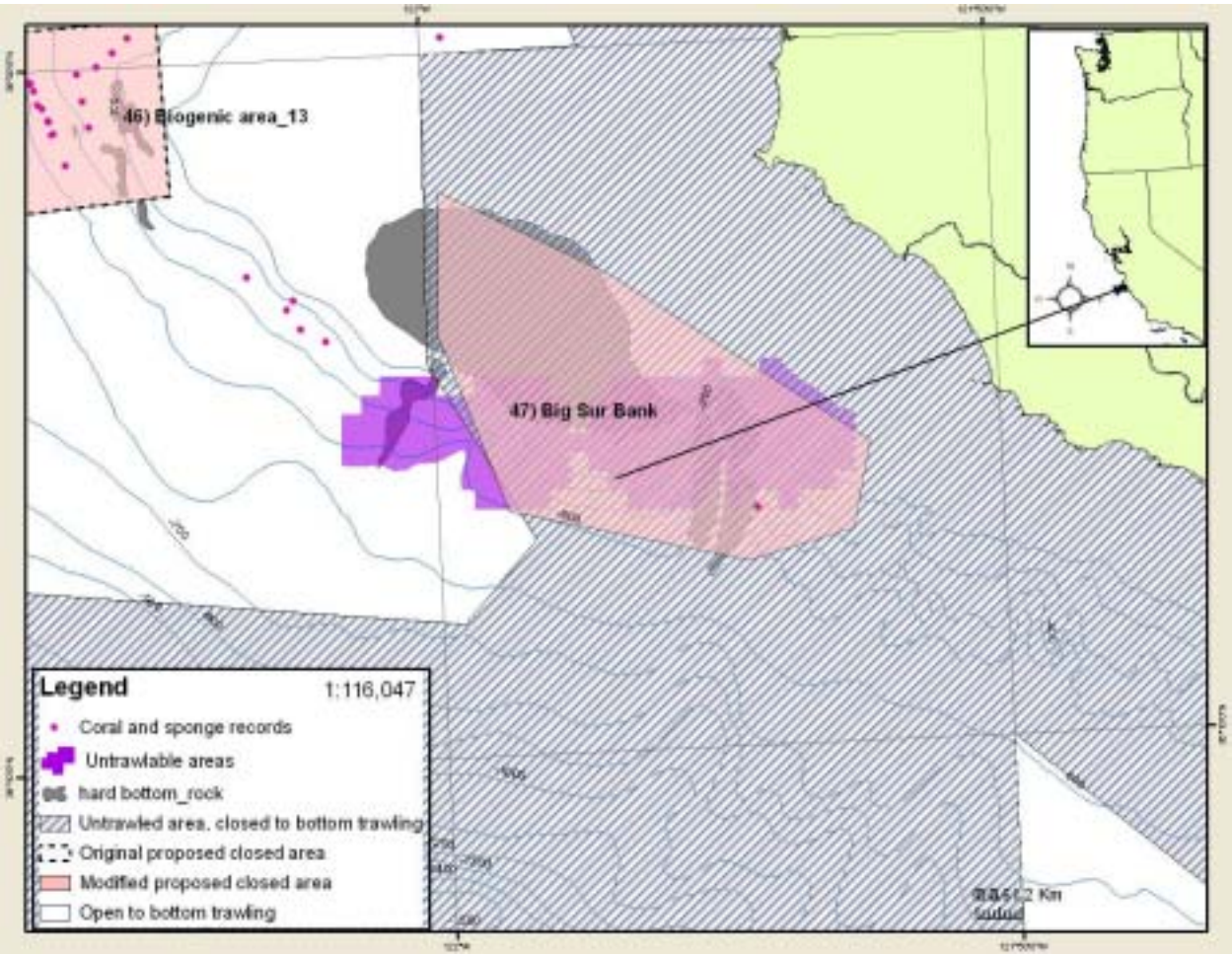


Figure 50: Big Sur Bank

48. Morro Ridge

Original Alternative C.12 estimated displaced revenue= $258,779
Revised Alternative C.12 estimated displaced revenue= $30,125 (likely overestimated, trawl tracks fall outside of area, see Figure W below)

Morro Ridge is a long ridge of hard substrate off the Central California coast (Figure 51). The southern portion of the ridge rises to 500 meters depth while the northern portion drops to 1000 meters. Trawl logbook information indicated that some trawl effort occurred along the eastern edge and south western point of the previously proposed closed area (Figure W). The proposed closed area for Revised Alternative C.12 avoids these areas, and minimal displaced effort should result from the proposed closure.

The Revised Alternative C.12 closed area contains numerous records of habitat-forming invertebrates from NOAA. NOAA trawl surveys have documented 81 records of gorgonian corals, sea pens, sea whips, and sponges. The proposed area contains 26 records of underwater obstructions, trawl hangs and areas where NOAA survey nets have hung up, identified by the "untrawlable" polygons determined by Zimmerman (2003).

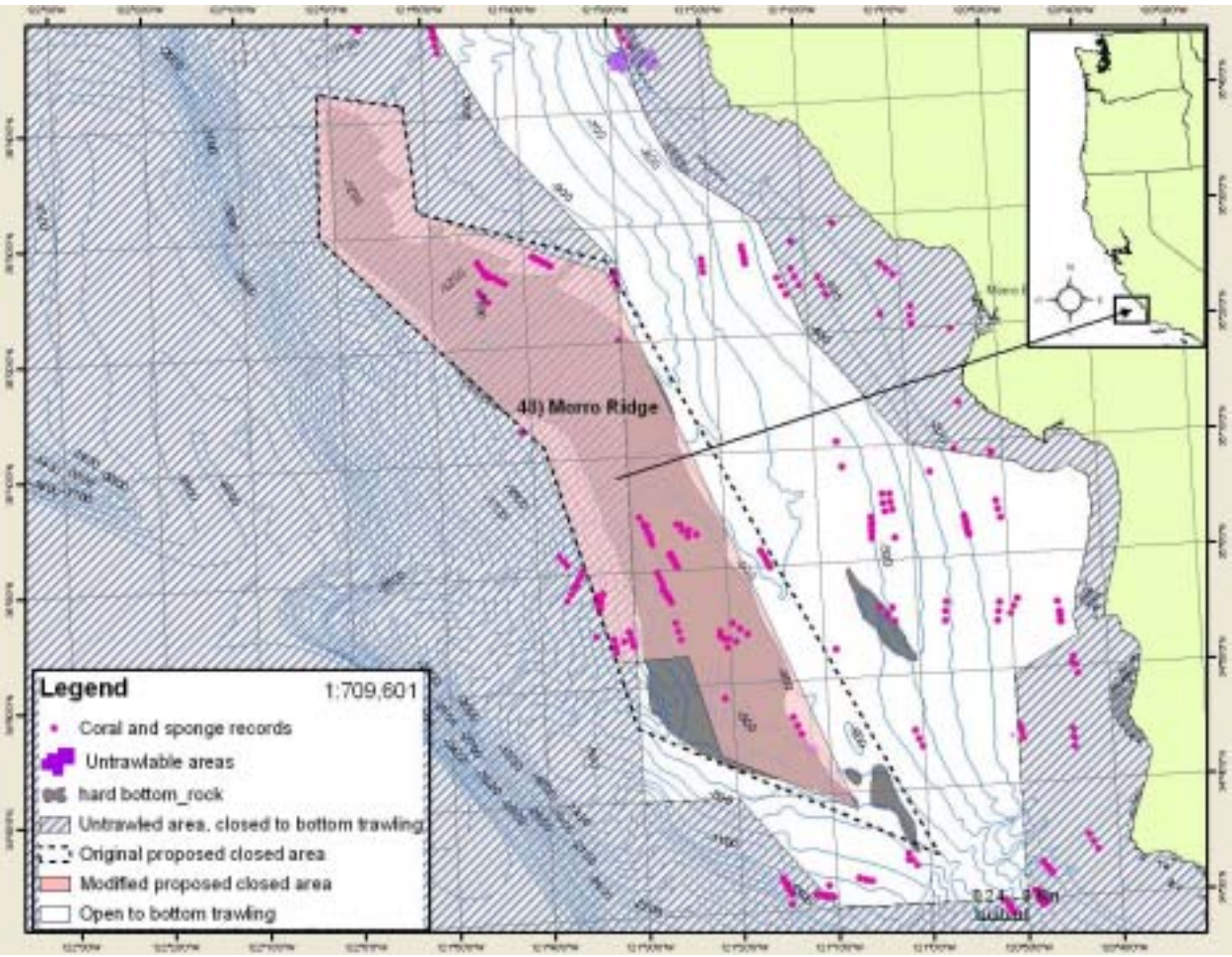


Figure 51: Morro Ridge

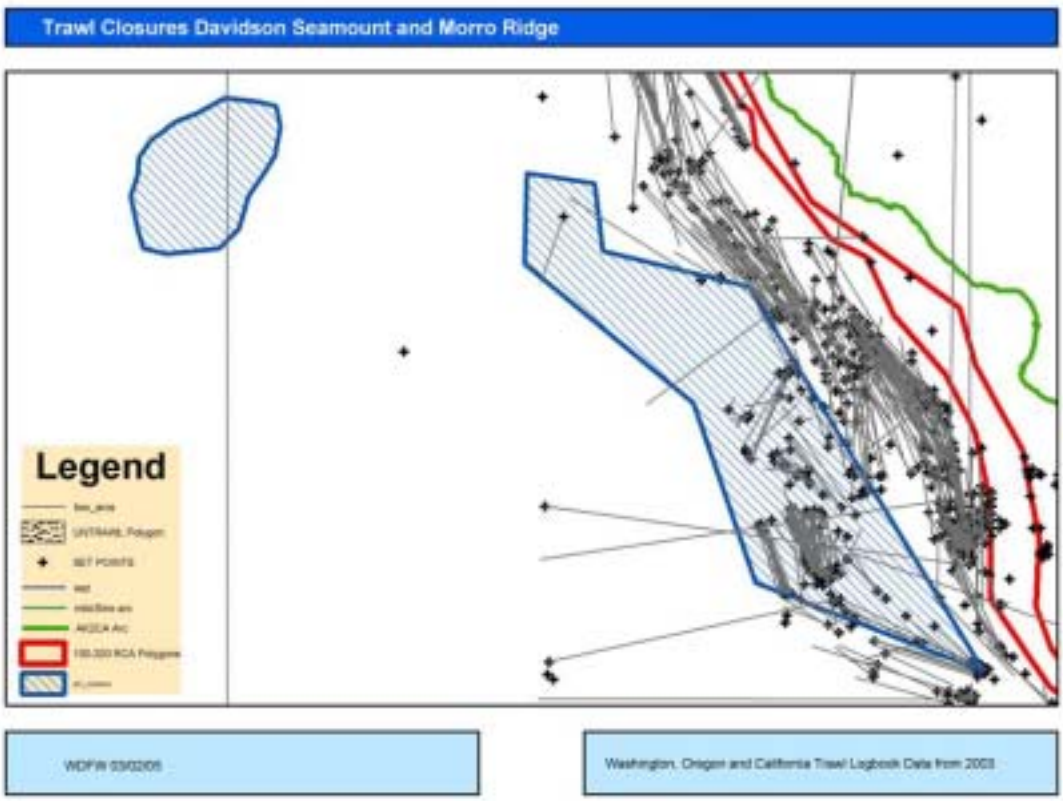


Figure W: 2003 bottom trawl logbook set points (courtesy WDF&W)

49. Channel Islands

Original Alternative C.12 estimated displaced revenue= 0
Revised Alternative C.12 estimated displaced revenue= $11,016 (likely overestimated, trawl tracks fall outside of area, see Figure X below)

The Channel Islands National Marine Sanctuary contains numerous records of biogenic habitat, particularly gorgonian corals (Figure 52). It is located at the meeting point between two major oceanographic currents, and therefore has a relatively high diversity of marine life from both tropical and temperate marine ecosystems. While the area has not been well sampled with trawl gear, NOAA trawl surveys within the proposed area have documented 6 records of Hexactinellid sponges at up to 296 kg per survey haul. The California Academy of Sciences has documented hydrocoral in the area. The Smithsonian Institution has documented three rare collections of the reef building deep-sea corals *Lophelia pertusa* and *Madrepora occulata.* Trawl logbook information indicates little trawl activity (Figure x). The proposed closed area encompasses existing state of California bottom trawl closures, therefore minimal displaced effort should result from the proposed closure. The estimated displaced revenue reported here is likely overestimated.

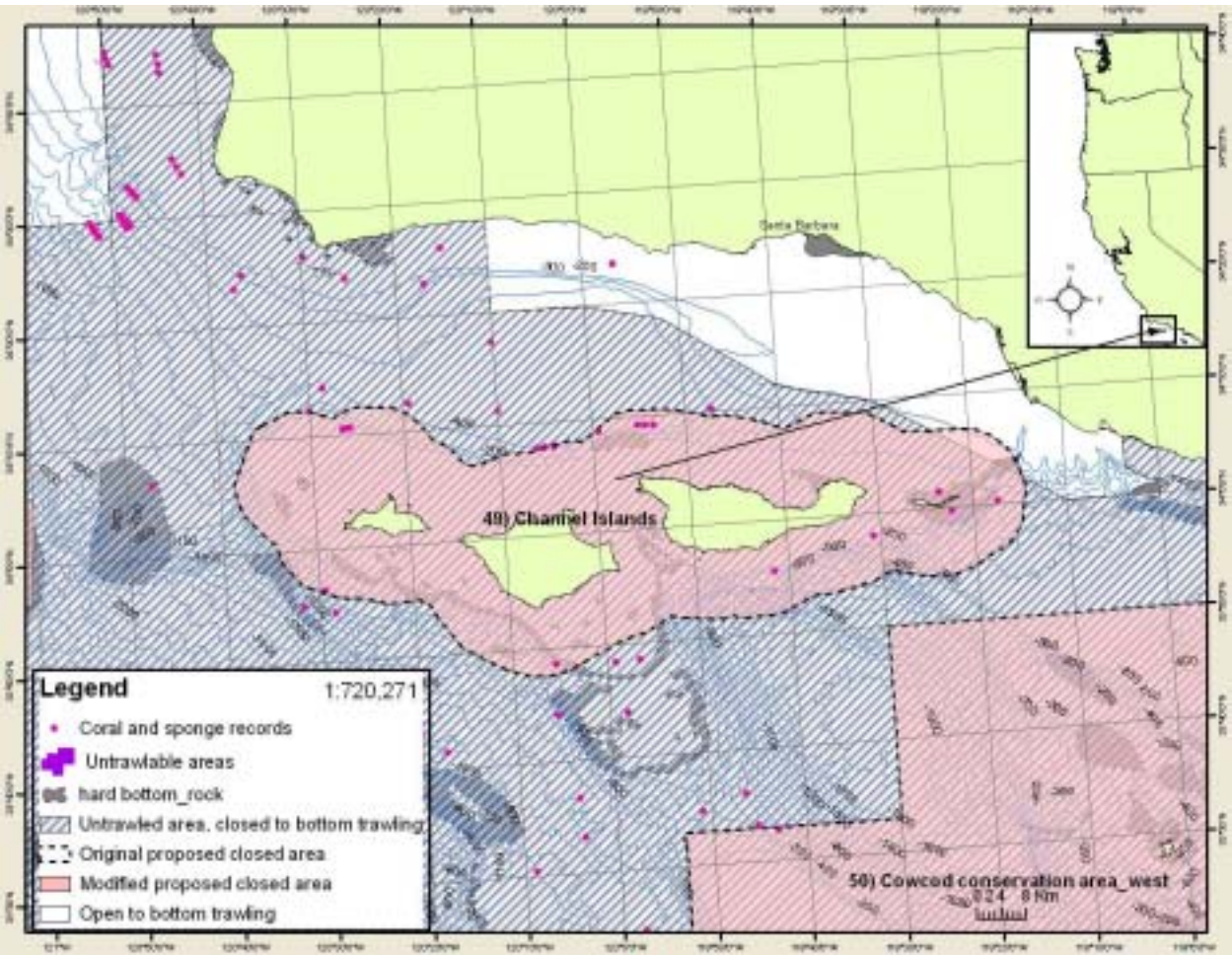


Figure 52: Channel Islands

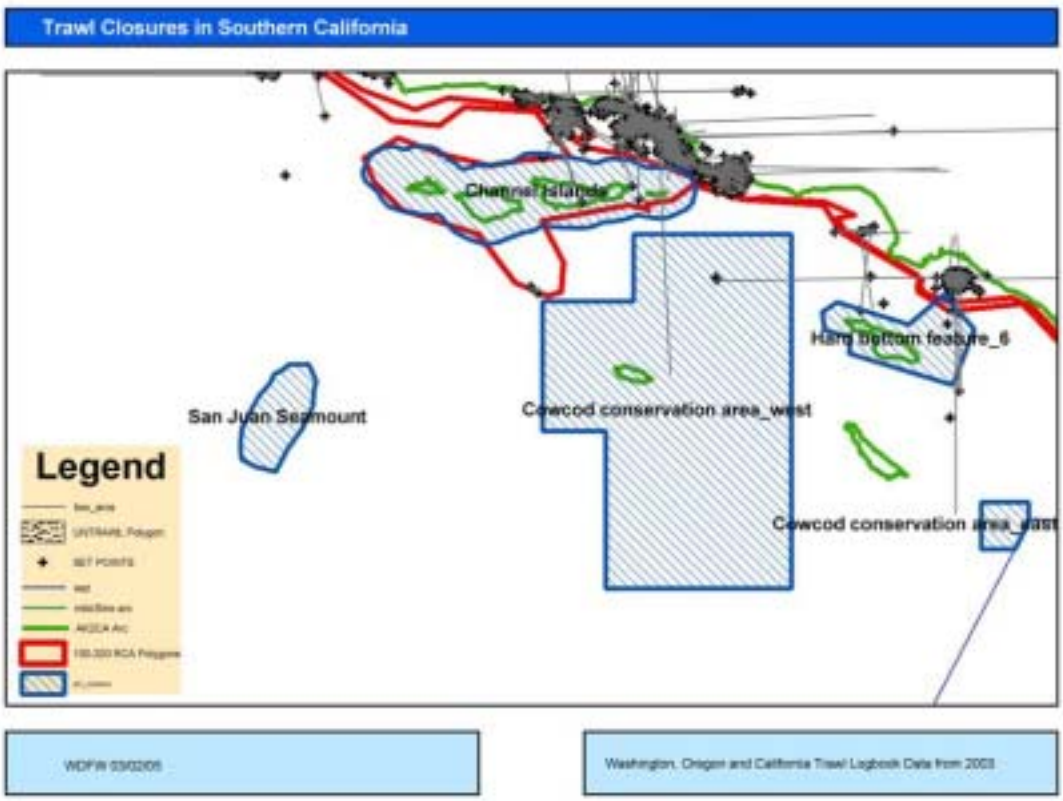


Figure X: 2003 bottom trawl logbook set points (courtesy WDF&W)

50. Cowcod conservation area_west
52. Cowcod conservation area_east
Original Alternative C.12 estimated displaced revenue=$0
Revised Alternative C.12 estimated displaced revenue= $0

The Cowcod Conservation Areas (Figure 53) were established by the Pacific Fishery Management Council and the National Marine Fisheries Service in 2001 to help protect and rebuild cowcod which have been driven down by 89 to 96 percent of unfished levels. Cowcod is a long-lived species with low productivity requiring almost a century to rebuild the population.[8] Due to the low levels of allowable mortality necessary to rebuild cowcod, the primary rebuilding strategy is avoidance.[9] These areas contain hard bottom habitats including a number of offshore banks.[10] While the area has not been well sampled with trawl gear, NOAA trawl surveys within the area have documented three records of Hexactinellid sponges. Submersible dives have also

[8] Final Environmental Impact Statement for Amendment 16-3 to the Pacific Coast Groundfish Fishery Management Plans for Bocaccio, Cowcod, Widow rockfish and Yelloweye Rockfish. July 2004. Pacific Fishery Management Council. at p. 63.
[9] *Id*. at 45.
[10] Analysis provided by NMFS for the EIS Oversight Committee in Portland, OR on August 16-18, 2004.

documented occurrences of black corals.[11] The area is not trawled due to the current closure, and logbook information indicates that little trawling has occurred in the recent past (Figure X). Therefore minimal displaced effort should result from the proposed closure.

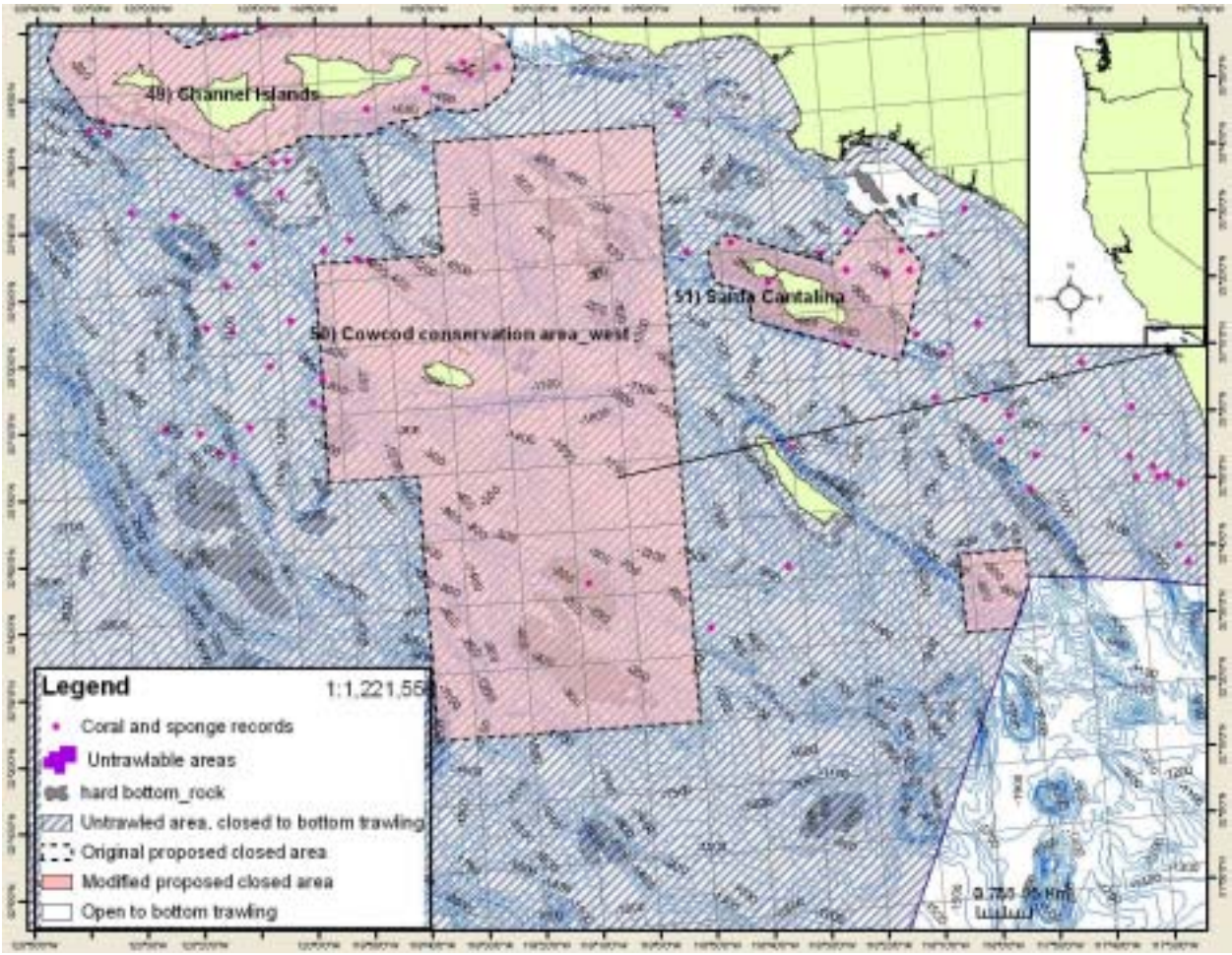


Figure 53: Cowcod conservation areas east and west

51. Santa Cantalina

Original Alternative C.12 estimated displaced revenue= $0
Revised Alternative C.12 estimated displaced revenue= $2,315

This area contains habitat around Santa Cantalina (Figure 54). This area had previously been proposed as "*hard bottom feature_6*". While the area has not been well sampled with trawl gear, NOAA trawl surveys within the area have documented 9 records of habitat-forming invertebrates including Hexactinellid sponges, sea pens, and black corals. The Santa Barbara Museum of Natural History has documented the rare reef-building deep-sea coral *Lophelia pertusa* in the proposed closed area. Trawl logbook information indicates that little trawl activity occurs in the proposed area, and most of the area is located outside the trawl footprint (Figure X). Therefore

[11] Preliminary Report on Occurrences of Structure-Forming Megafaunal Invertebrates off the West Coast of Washington, Oregon and California. Northwest Fishery Science Center. August 2004.

minimal displaced effort should result from the proposed closure and the displaced revenue reported here is likely overestimated.

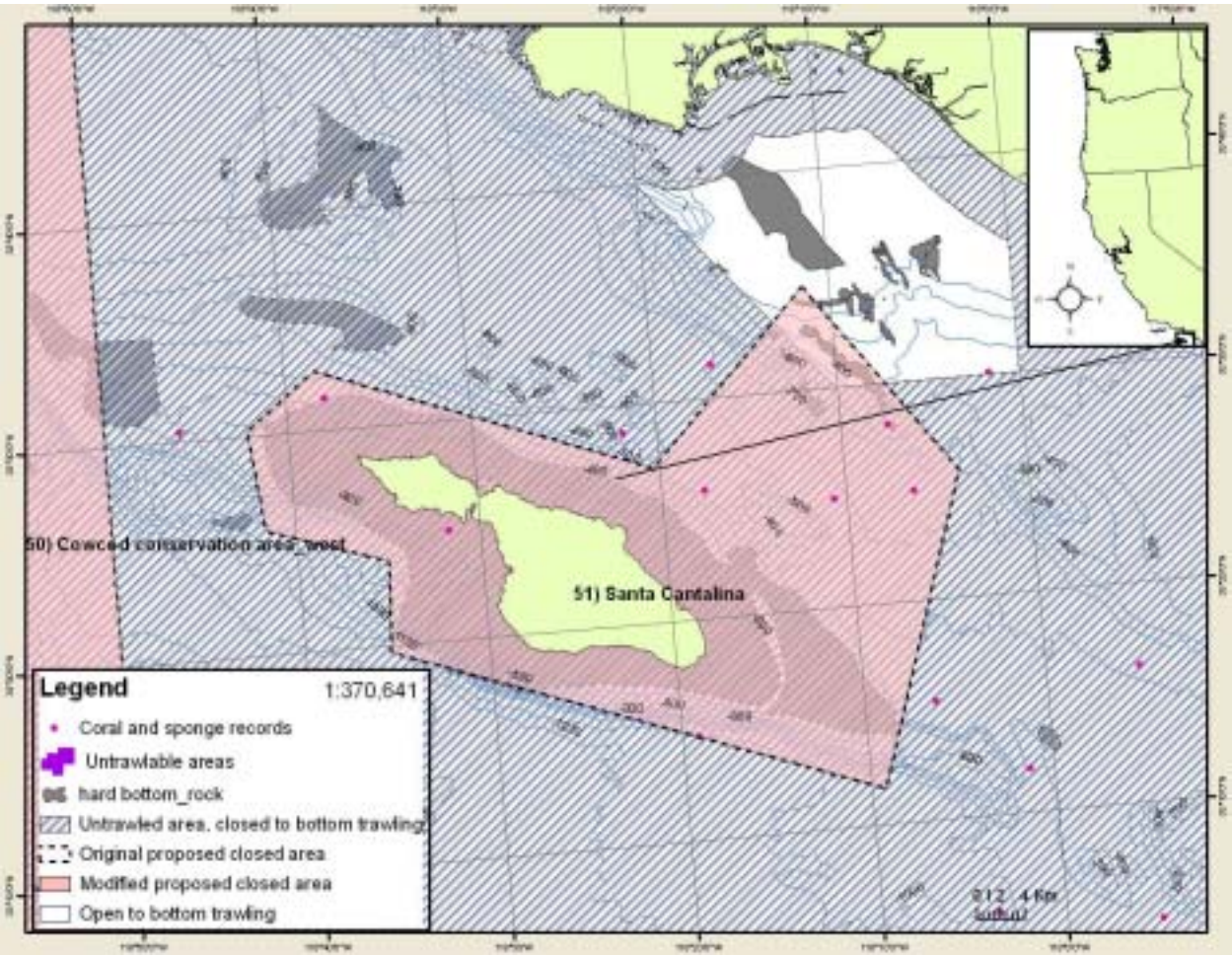


Figure 54: Santa Cantalina

Seamounts

Eight undersea structures of volcanic origin that meet the definition of seamount (those that rise up more than 1000 meters from the seafloor) have been identified within the jurisdiction of the PFMC. These are President Jackson, Thompson, San Juan, Guide, Pioneer, Gumdrop, Rodriguez, and Davidson Seamounts. The location and areal delineation of seven of the seamounts were plotted in GIS from data provided on the *Consolidated GIS Data, Volume 1, Physical and Biological Habitat data disk* (PFMC 2003). An additional seamount, Rodriguez Seamount, was not included in the GIS data disk, but was later identified and incorporated into the Revised Alternative.

Davidson Seamount has been the most well explored of the seamounts, and numerous records of bubblegum corals, black corals, and Hexactinellid sponges have been documented. DeVogelaere et al. (2003) found 24 coral taxa on Davidson Seamount and described numerous species associations, particularly that *Paragorgia sp*. were found in areas with highest species diversity. All of the seamounts off the Pacific coast have not been subject to bottom trawling and all are located outside the bottom trawl footprint. Logbook data documented no trawling on

any seamounts on the U.S. West Coast. Therefore, there would be no economic impacts from bottom trawl closures that prevent future damage to these unique communities.

53. Thompson Seamount

Original Alternative C.12 estimated displaced revenue= $0
Revised Alternative C.12 estimated displaced revenue= $0

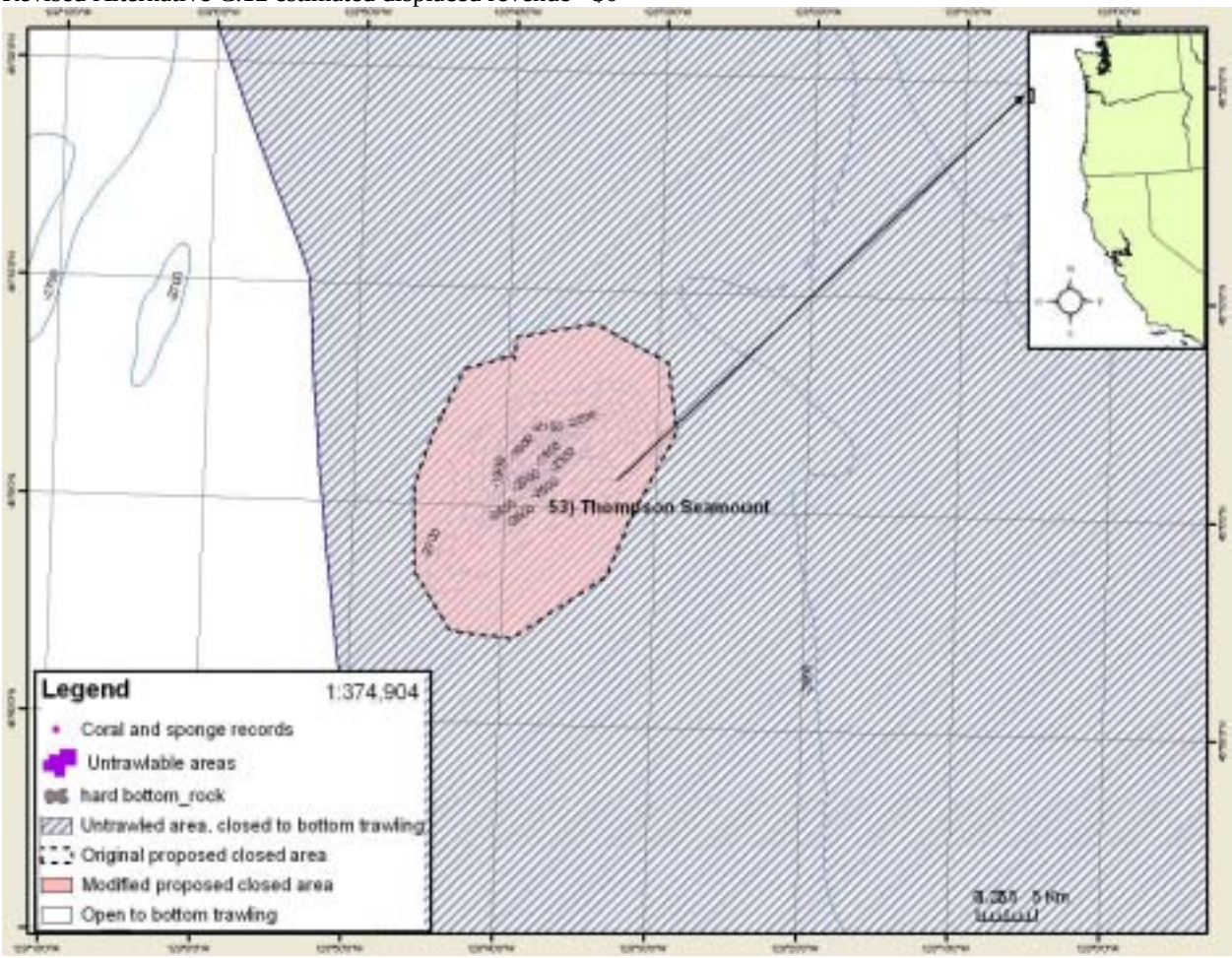


Figure 54: Thompson Seamount

54. President Jackson Seamount

Original Alternative C.12 estimated displaced revenue= $0
Revised Alternative C.12 estimated displaced revenue= $0

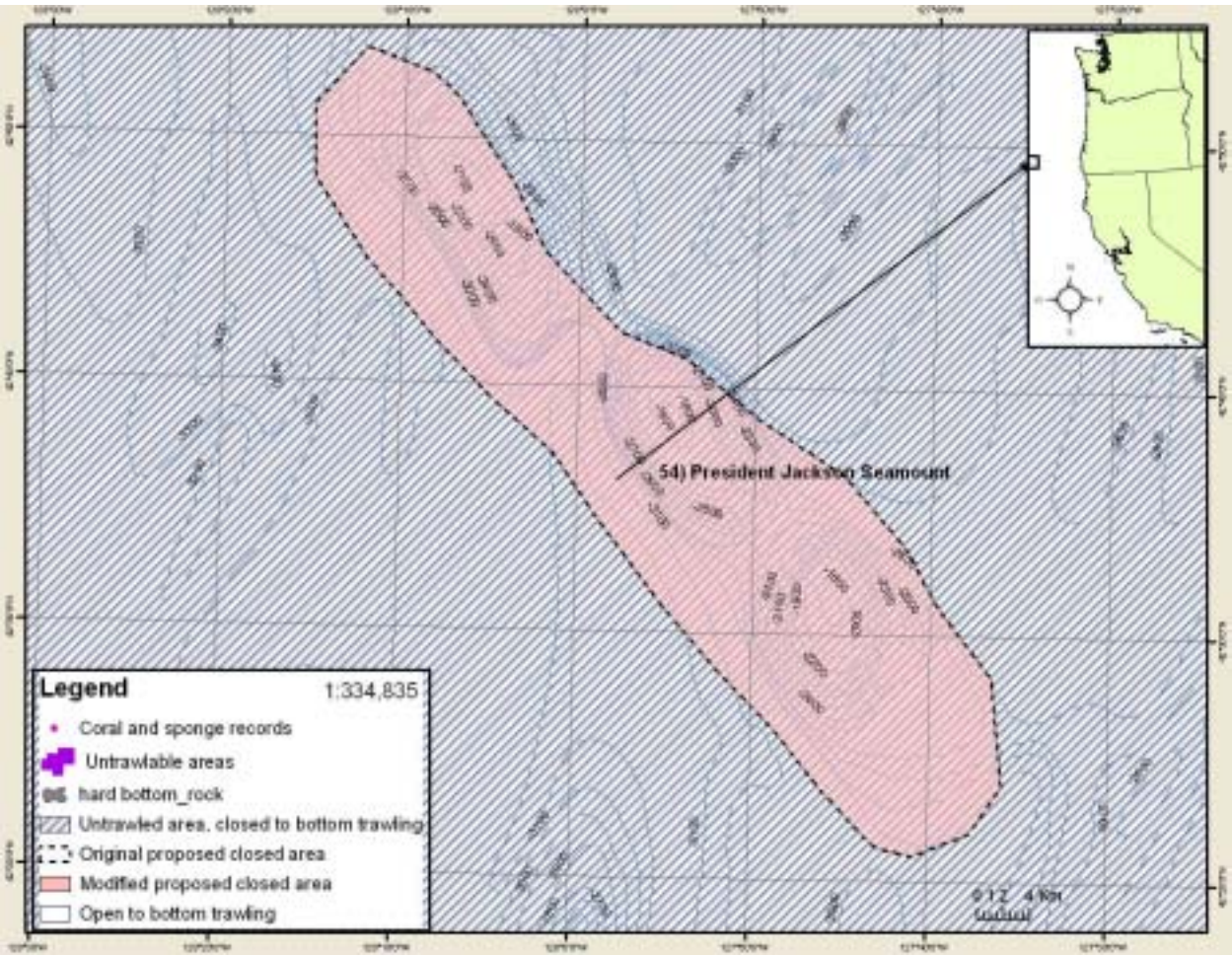


Figure 55: President Jackson Seamount

55. Taney Seamount

Original Alternative C.12 estimated displaced revenue= $0
Revised Alternative C.12 estimated displaced revenue= $0

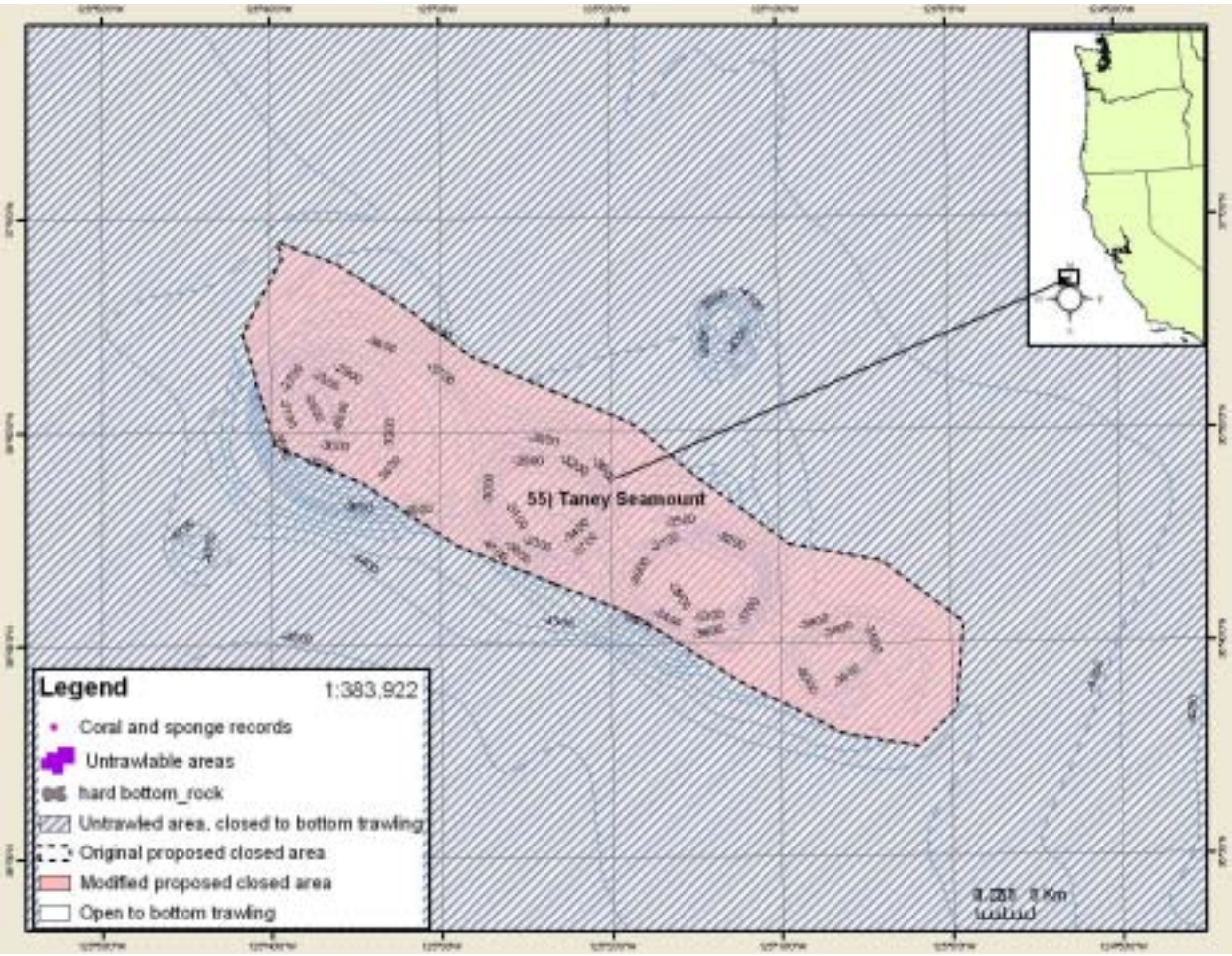


Figure 56: Taney Seamount

56. Gumdrop Seamount
57. Pioneer Seamount
58. Guide Seamount

Original Alternative C.12 estimated displaced revenue= $0
Revised Alternative C.12 estimated displaced revenue= $0

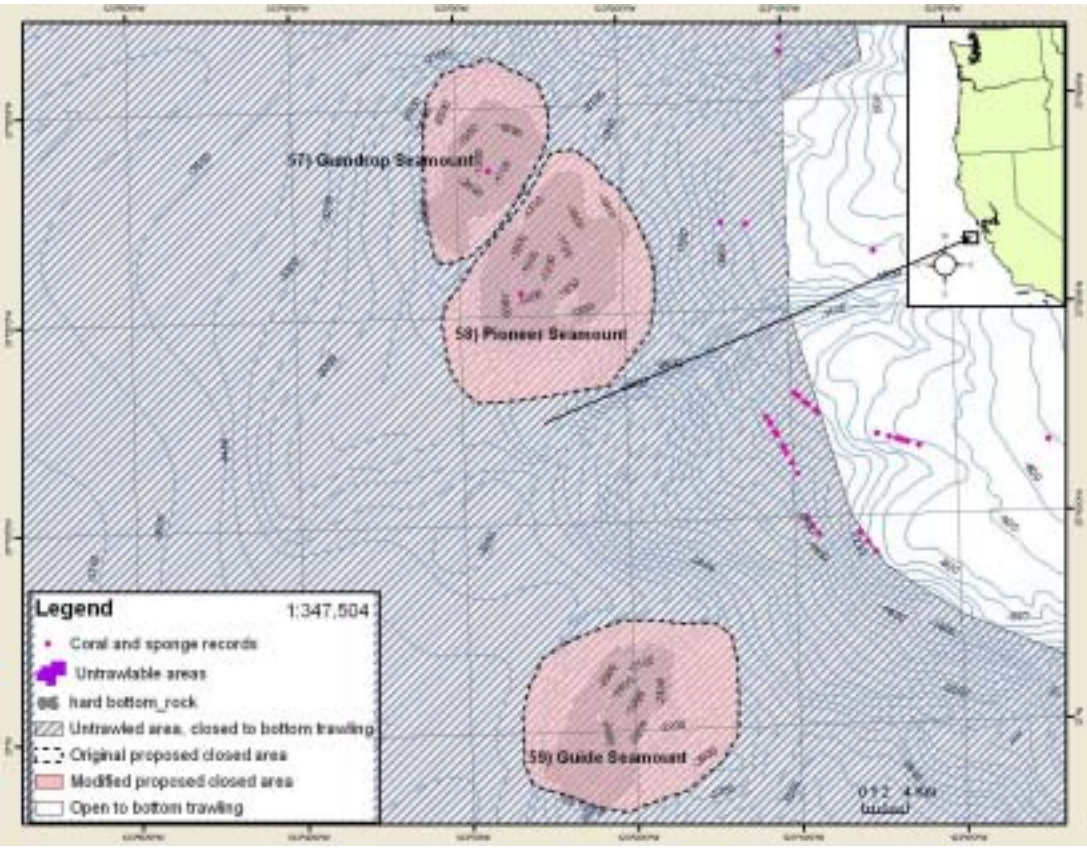


Figure 57: Gumdrop, Pioneer, and Guide Seamount

59. Davidson Seamount

Original Alternative C.12 estimated displaced revenue= $0
Revised Alternative C.12 estimated displaced revenue= $0

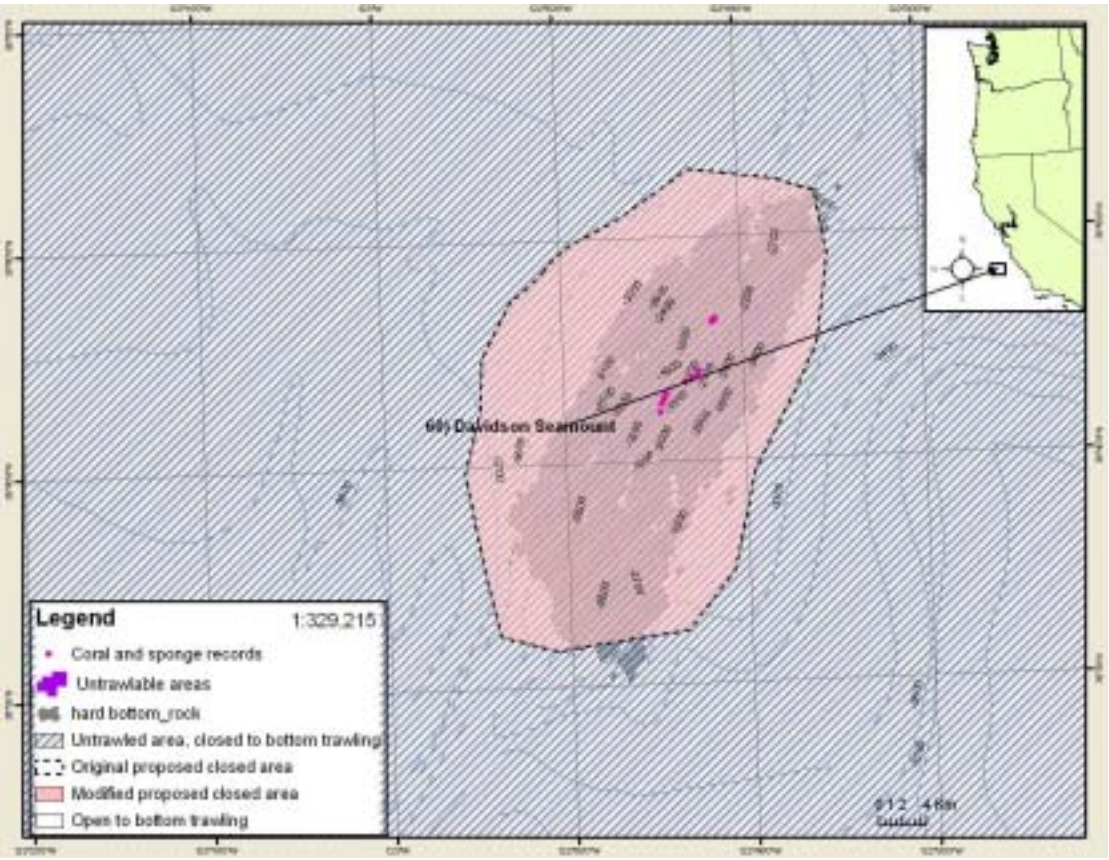


Figure 58: Davidson Seamount

60. San Juan Seamount

Original Alternative C.12 estimated displaced revenue= $0
Revised Alternative C.12 estimated displaced revenue= $0

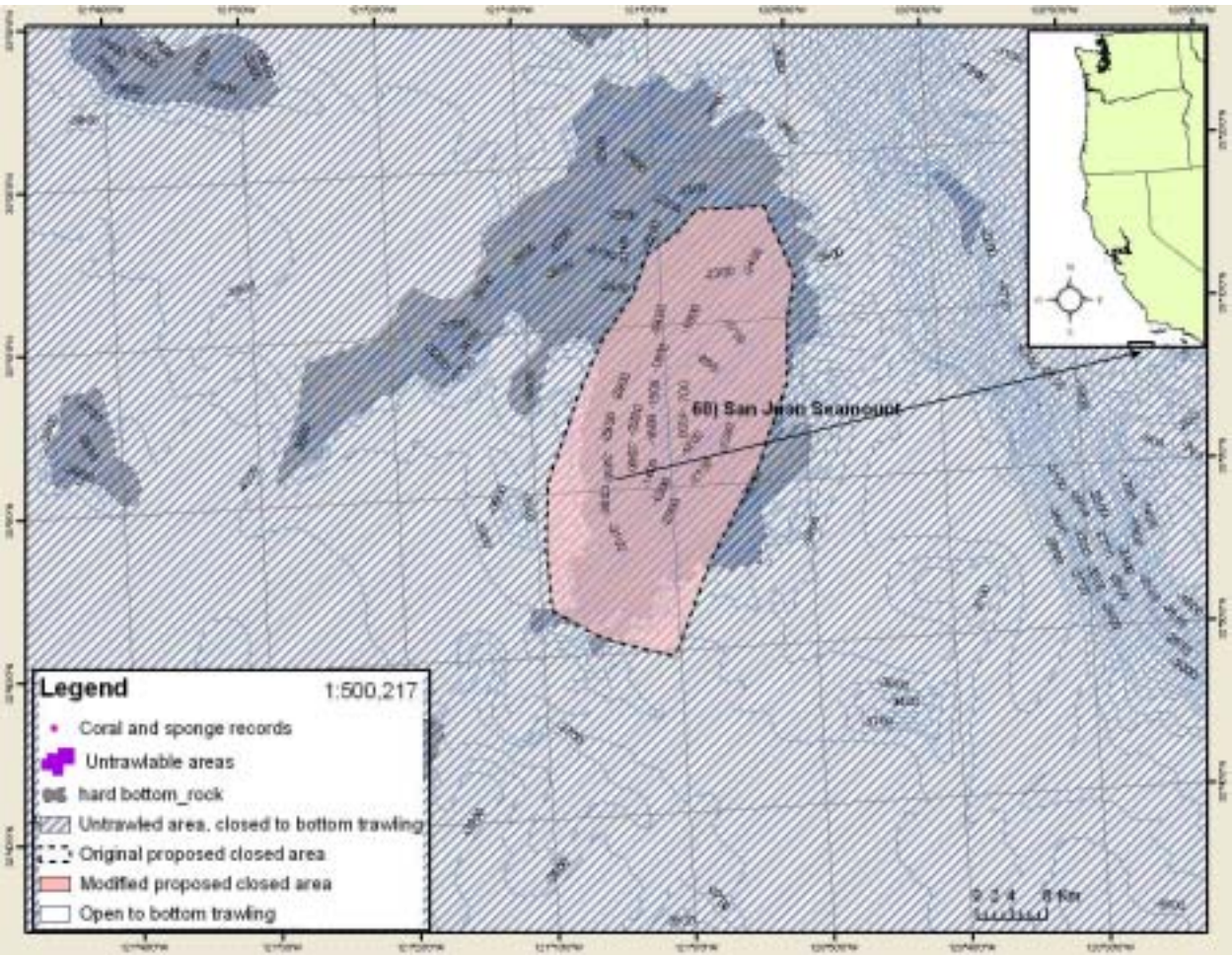
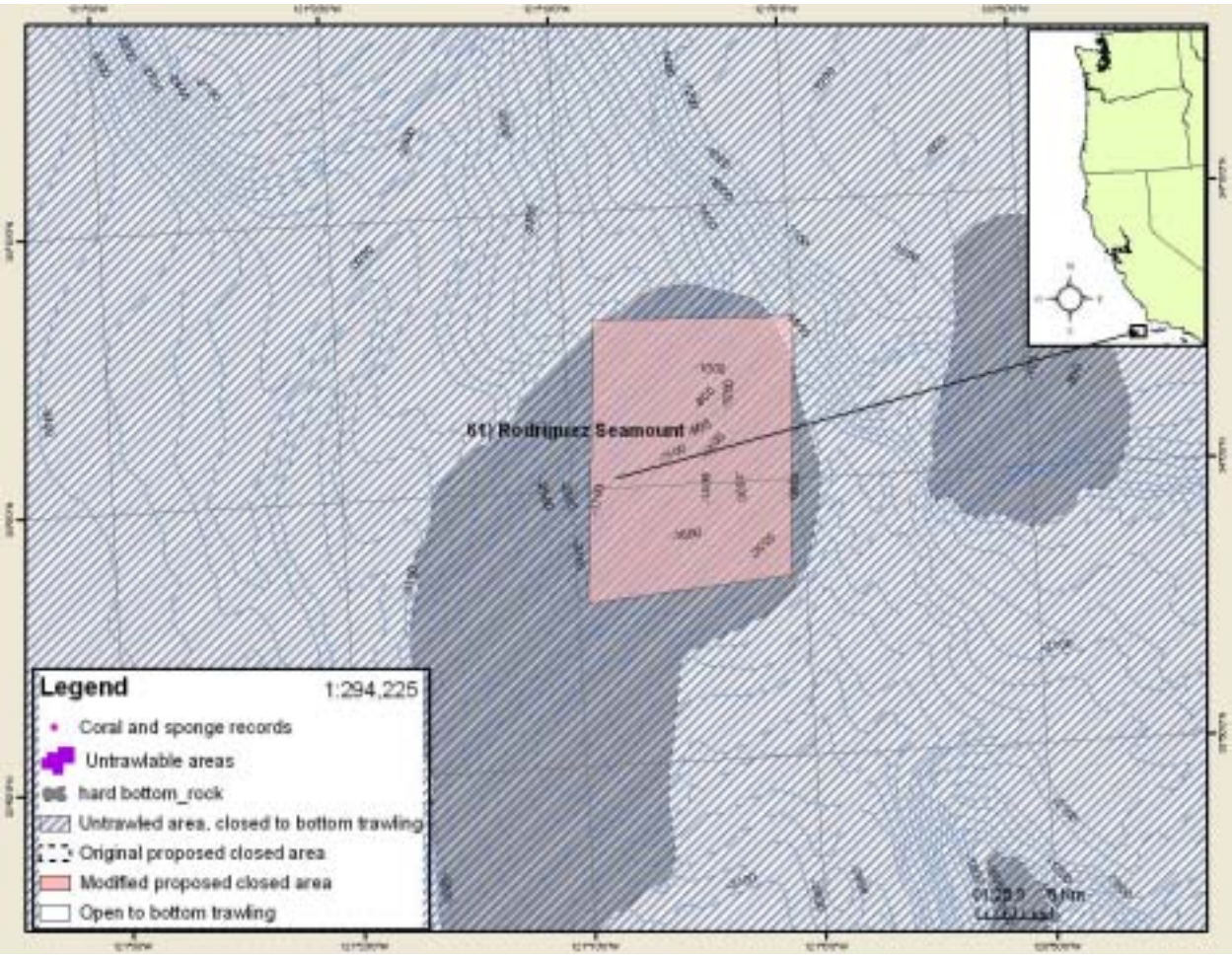


Figure 59: San Juan Seamount

61. Rodriguez Seamount

Original Alternative C.12 estimated displaced revenue= N/A
Revised Alternative C.12 estimated displaced revenue= $0



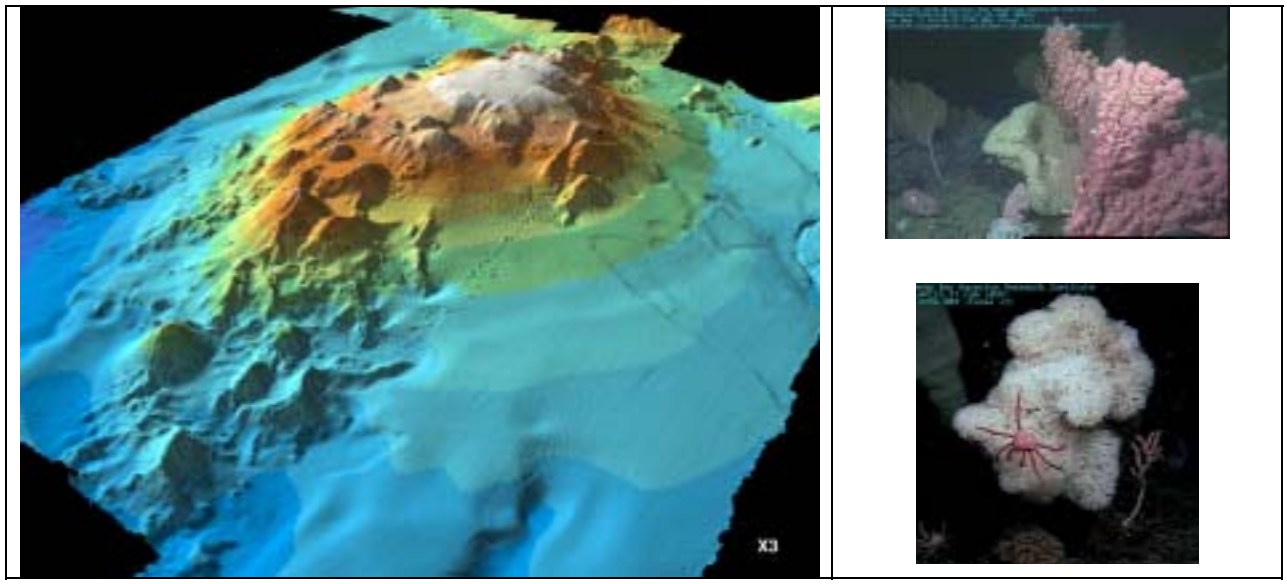


Figure 60: Multibeam image of Rodriguez Guyot off Southern California (left). Large paragorgia sp. corals (right top) and glass sponges (right bottom) are common on this guyot. Courtesy MBARI

Figure 61: San Juan Seamount

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Displacement Comparison Chart of Original Alternative C.12 and Revised Alternative C.12

		Estimated displaced ex-vessel revenue	
Number	Name	Original	Revised
1	Olympic_1	1,286,058	431,115
2	Olympic_2	326,284	280,685
3	Olympic_3	N/A *	395,676
4	Biogenic_1	172,849	36,486
5	Biogenic_2	31,982	15,438
6	Grays Canyon	5,917	34,512
7	Biogenic_3	2,351	4,554
8	Astoria Canyon head #	509,857	33,399
9	Astoria_slope #		74,755
10	Ridges_Biogenic_5	189,585	136,537
11	Nehalem Bank	N/A *	8,824
12	Biogenic_new_1	N/A *	69,960
13	Biogenic_new_2	N/A *	5,969
14	Biogenic_6	3,585	29,402
15	Biogenic_7	76,470	91,908
16	Biogenic_8	36,172	41,852
17	Siletz Reef	N/A *	132
18	Daisy Bank	0	11,768
19	Biogenic_new_3	N/A *	70,573
20	Stonewall Bank	N/A *	7,252
21	Cape Perpetua Reef	N/A *	125
22	Heceta Bank #	379,291	200,810
23	Heceta Escarpment #		28,665
24	Ridges_biogenic_10	12,121	94,628
25	Siltcoos Reef	N/A *	383
26	Cape Arago_Bandon Reef	2,016	12,018
27	Orford and MacKenzies Reef	N/A *	3,929
28	Coquille Bank	N/A *	75,004
29	Rogue offshore slope #	491,706	81,296
30	Rouge Canyon head_ Rouge River Reef #		63,876
31	Brookings_slope	N/A *	48,884
32	Crescent City deep_biogenic_11	2,734	9,635
33	Crescent City_slope	N/A *	49,779
34	Eel River Canyon	551,397	201,696
35	Blunts Reef	N/A *	25,495
36	Mendoncino Ridge	201,902	108,769
37	Delgada Canyon	N/A *	79,978
38	Fort Bragg Canyon	N/A *	51,128
39	Pt Arena offshore	N/A *	47,324
40	Biogenic_12	109,117	61,321
41	Cordell Banks	140,883	49,064

42	Farallon Islands_Fanny Shoal	78	9,967
43	Half Moon Bay	580	41,073
44	Point Sur_deep	0	10,173
45	Monterey Bay and Canyons	645,196	191,468
46	Biogenic area_13	26,257	11,282
47	Big Sur Bank	N/A *	1,694
48	Morro Ridge	258,779	30,125
49	Channel Islands	0	11,016
50	Cowcod conservation area_west	0	0
51	Santa Cantalina	0	2,315
52	Cowcod conservation area_east	0	0
53	Thompson Seamount	0	0
54	President Jackson Seamount	0	0
55	Taney Seamount	0	0
56	Gumdrop Seamount	0	0
57	Pioneer Seamount	0	0
58	Guide Seamount	0	0
59	Davidson Seamount	0	0
60	San Juan Seamount	0	0
61	Rodriguez Seamount	0	0
	Grand Total	**5,463,659**	**3,408,709**
Percent of annual estimated revenue		**22%**	**14%**

* Indicates areas in the revised Alternative C.12 proposal which were not identified in the original Alternative C.12.
# Indicates areas in the original Alternative C.12 proposal which were split into component areas in the revised Alternative C.12.

As a result of analyses of the spatial distribution of trawl track information from logbooks, input from trawl fishermen, and comments from the SSC, areas of Alternative C.12 were revised to provide for expanded trawl grounds while protection of habitat areas. This revised Alternative C.12 reduces revenue displacement across the EFH area while maintaining integrity of protection/mitigation. The revised Alternative C.12 results in displacement of less than 15% and far less loss in any actual revenue.

The estimates of displaced revenue of the original Alternative C.12 proposal were provided by the WDF&G, who estimated displaced revenue by summing catch from 2003 trawl logbook set points contained within the closed area. The estimates of the revised Alternative C.12 were made by determining the proportional overlap of a closed area with 2000-2003 trawl effort data that was provided in 10 x 10 minute blocks. The proportional method assumes a uniform distribution of fishing effort across a block. However, the revised closed area boundaries were made with the spatial distribution of trawl tracks

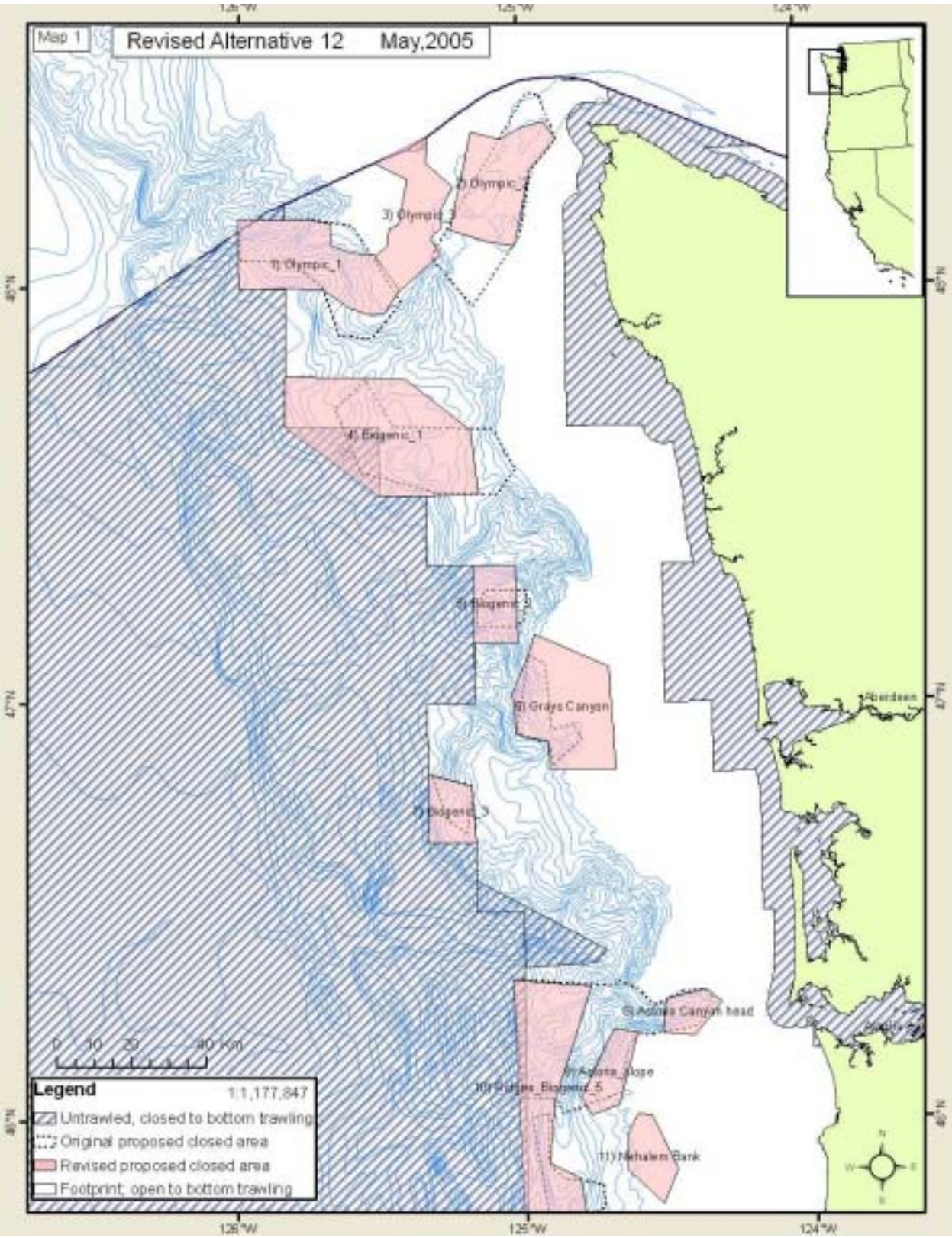

Figure 2: Revised Alternative C.12, Overview Map 1

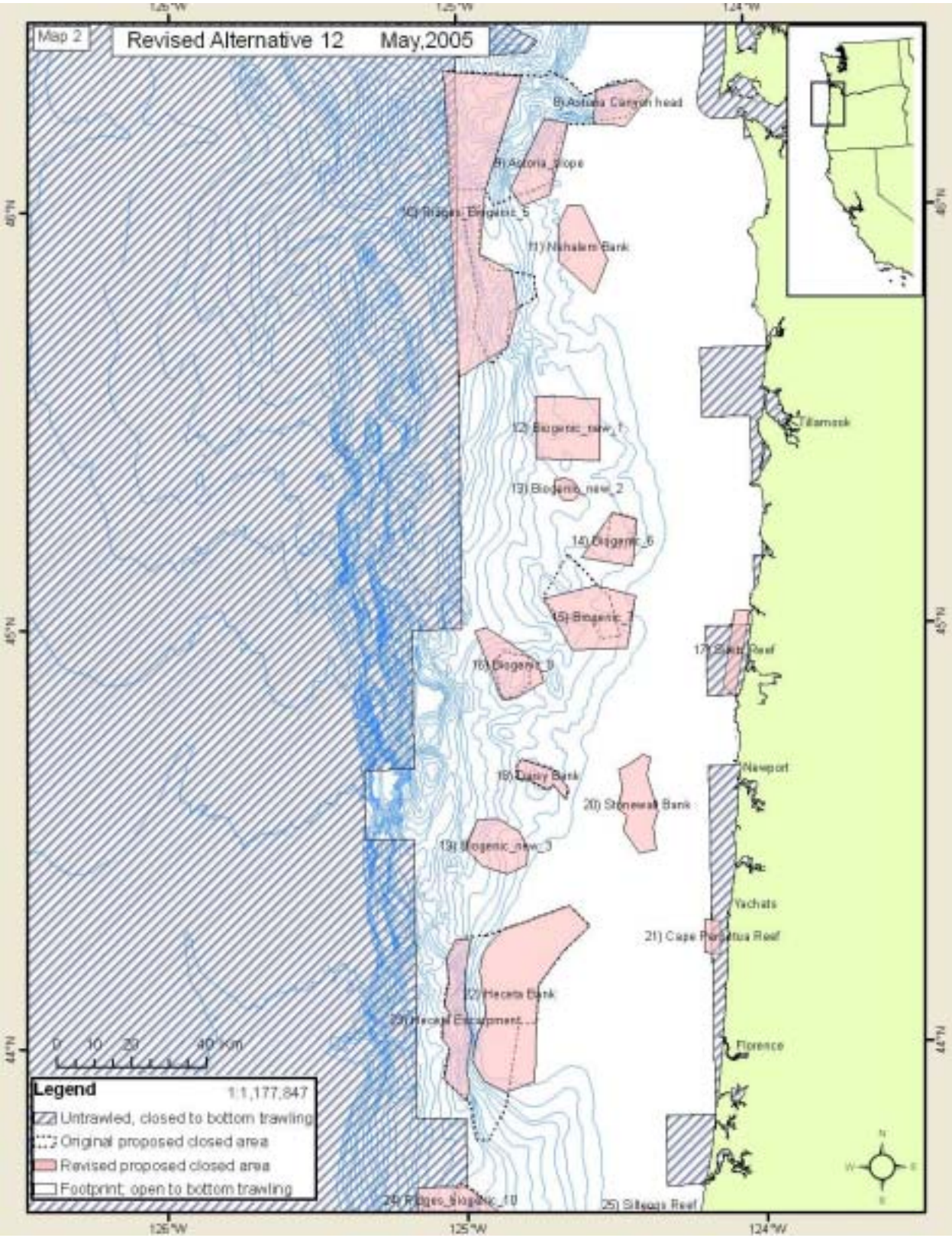

Figure 3: Revised Alternative C.12, Overview Map 2

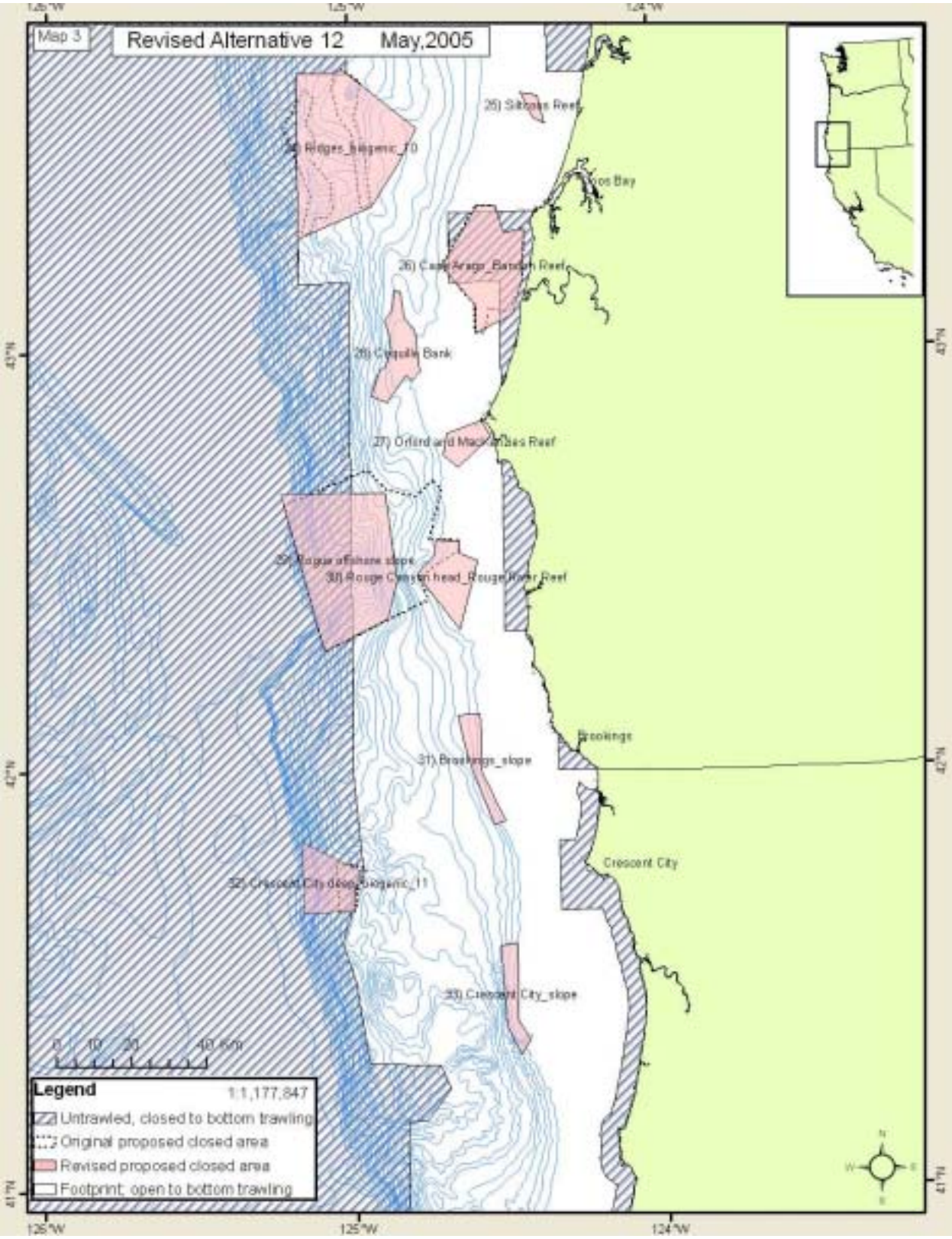

Figure 4: Revised Alternative C.12, Overview Map 3

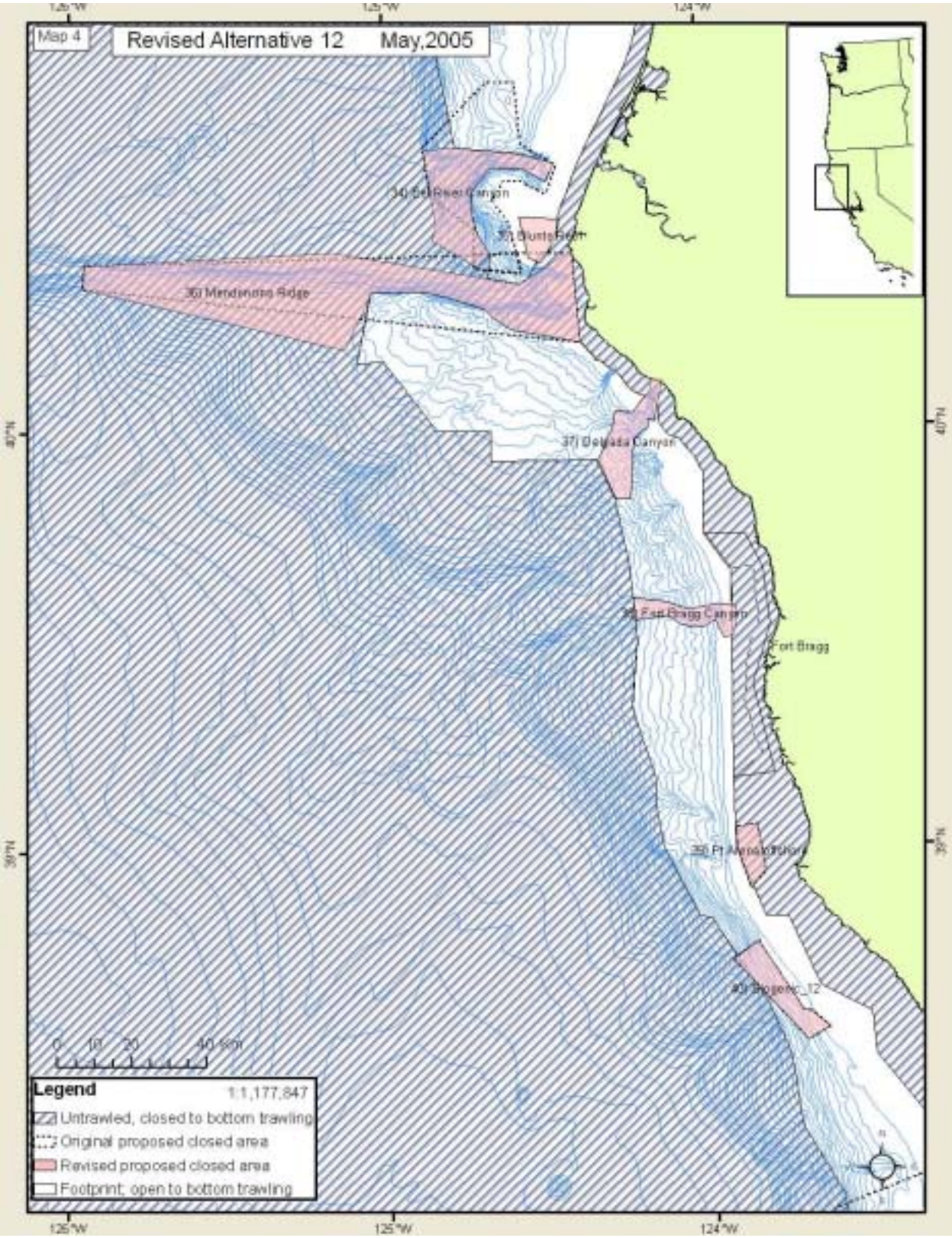

Figure 5: Revised Alternative C.12, Overview Map 4

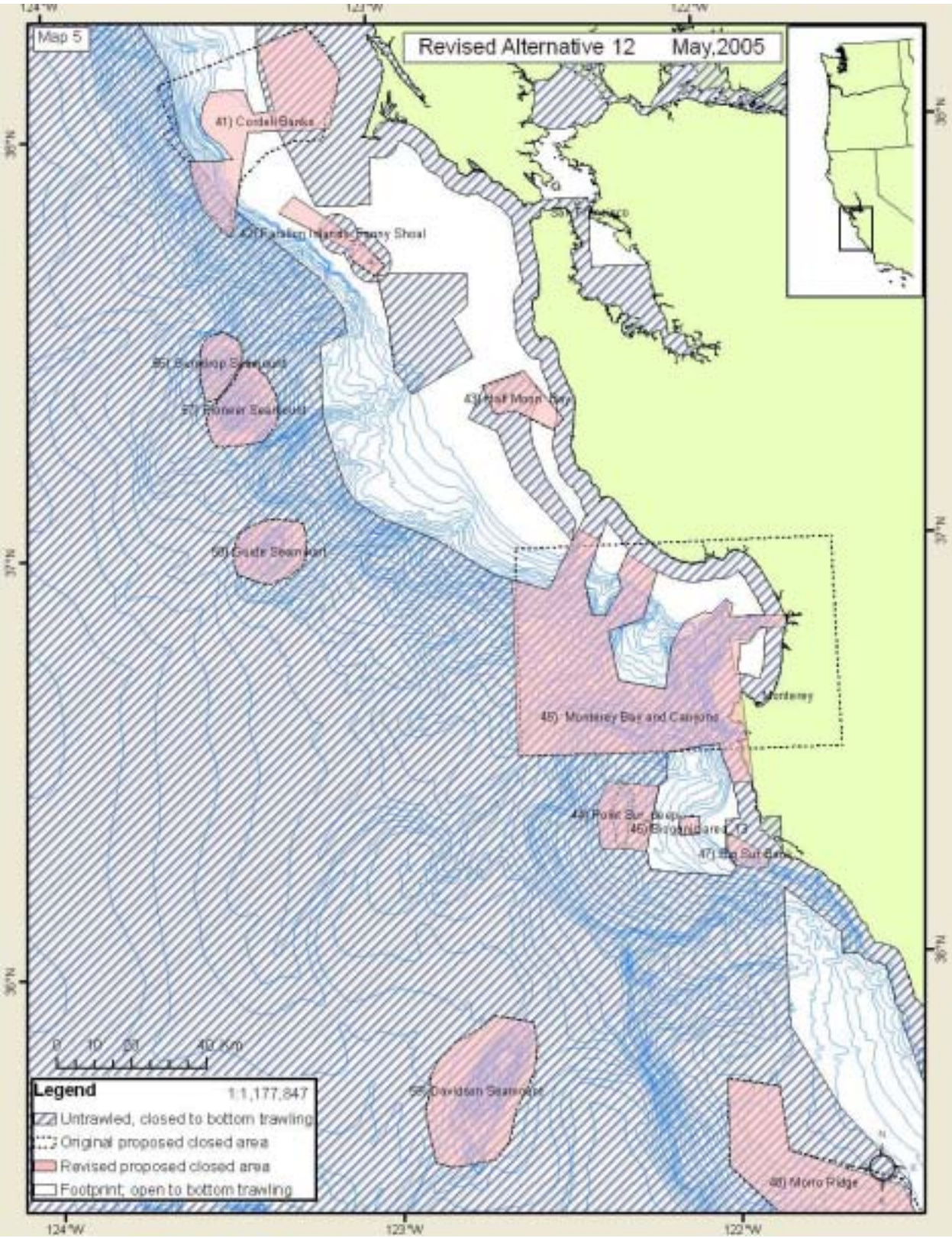

Figure 6: Revised Alternative C.12, Overview Map 5

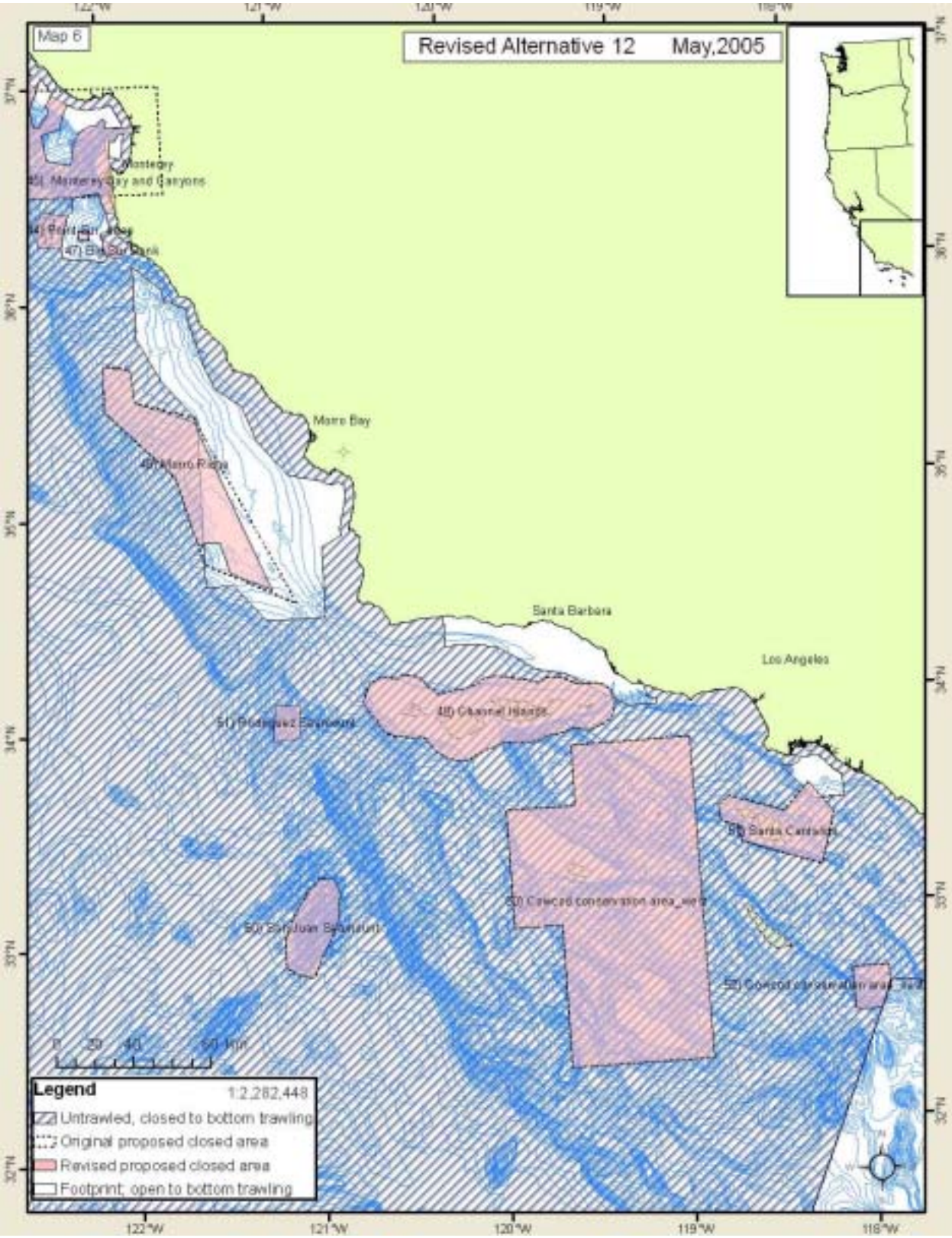

Figure 7: Revised Alternative C.12, Overview Map 6

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DETAILED SUPPORT AND JUSTIFICATON OF REVISED ALTERNATIVE C.12

While perfect information is not available for the designation of Essential Fish Habitat, or the determination of adverse impacts to that habitat, the potential for long-term and perhaps irreversible adverse impacts demands that precautionary action be taken immediately to reduce the impact of bottom trawling on the U.S. West Coast seafloor. The literature on environmental policy generally concludes that higher uncertainty justifies stronger policy intervention to avoid damages than certainty-equivalent cases (i.e. Nordhaus 1994). The reason for this result is that the amount of damage is non-linear. In other words, the increases in damages are greater in the worst case scenario than the decreases in the best-case scenario. This result is highly applicable to the analysis of EFH designation and mitigation measures because of the severity of economic damages in the worst case scenario. For example, if it turns out that commercial fish productivity is strongly tied to the presence of biogenic habitat structures (as suggested in the literature), the long-term effects of continued damage to these habitats would be extremely severe and irreversible from a fisheries perspective. Therefore, even if there is a low probability of this outcome, a comprehensive policy analysis should pay strong attention to this outcome in the evaluation of different policy interventions to minimize adverse impacts to EFH.

While there continue to be uncertainties, a substantial amount of scientific studies and data are available, both to designate Essential Fish Habitat and mitigate the adverse effects of fishing to the extent practicable. Based on the information currently available, it is clear that bottom trawling is causing adverse impacts to Essential Fish Habitat on the U.S. West Coast and that the revised Alternative C.12 (presented in this document) is the most practicable solution to minimize these adverse impacts.

Designation of Essential Fish Habitat

Given the available information concerning designation of Essential Fish Habitat, the alternative most consistent with a precautionary, ecosystem-based management approach to fisheries is Alternative A.2 with the addition of seamounts. This alternative is also consistent with the EFH Final Rule, which speaks directly to the various levels of information which may be available to determine EFH. Section 600.815(a)(1) recognizes four levels of EFH information for each life stage of each species:

(*1*) *Level 1: Distribution data are available for some or all portions of the geographic range of the species.*
(*2*) *Level 2: Habitat-related densities of the species are available.*
(*3*) *Level 3: Growth, reproduction, or survival rates within habitats are available.*
(*4*) *Level 4: Production rates by habitat are available.*

Based on the information presented in the EFH DEIS, it is clear that EFH information is currently at or below Level 1 for most groundfish in the Pacific Coast groundfish fishery. The EFH Final Rule describes how "habitat use" is to be inferred when information is Level 1:

In the event that distribution data are available only for portions of the geographic area occupied by a particular life stage of a species, habitat use can be inferred on the basis of distributions among habitats where the species has been found and on information about its habitat requirements and behavior. Habitat use may also be inferred, if appropriate, based on information on a similar species or another life stage.

This section also defines the burden of proof standard to be used by the Councils:

Councils should interpret this information in a risk averse fashion to ensure adequate areas are identified as EFH for managed species. Level 1 information, if available, should be used to identify the geographic range of the species at each life stage. If only Level 1 information is available, distribution data should be evaluated (e.g., using a frequency of occurrence or other appropriate analysis) to identify EFH as those habitat areas most commonly used by the species.

Use of the term "risk averse" in this context makes clear that the law and regulations do not require proof of causality before designating EFH, but rather use of whichever level of information is available. When information is at Level 1, any habitat that fish are associated with should be designated as EFH.

Observations of fish outside any given habitat type does not provide evidence that these habitats are not EFH. First, habitat use does not need to be obligate to affect the population of fish. For example, facultative and fortutious habitat use has been shown to enhance fish populations even if the habitat use is not obligate (Mumby et al. 2004). Second, there may be various forms of complex habitat in a given area, giving fish several options to use as shelter, for example. In this case, removal of some of the complex habitat (i.e. corals) decreases the availability of suitable habitats, even though other suitable habitats still remain. Basic ecological theory states that reduction in the availability of suitable habitat reduces the carrying capacity of the species that uses the habitat, even if other suitable habitat remains. This theory is supported by Rubec et al. (1999). Fishery management science in the U.S. is based on the premise that carrying capacity is proportional to maximum productivity (i.e. MSY). Therefore, even if corals are not the only type of complex habitat available to fish, their removal may reduce the productivity of fish. Furthermore, even if biogenic habitat is only utilized by fish at certain times of the year, it may have a strong influence on survivorship or reproductive success. For example, a fish may depend on the presence of biogenic habitat only at specific events such as spawning periods. Even though these events may be infrequent, they have a strong effect on population dynamic processes that determine productivity. Therefore, the absence of fish in biogenic habitat at one specific moment in time is not evidence that the habitat is not linked to the survivorship or fecundity of commercial fish and invertebrates.

Seamounts provide an area of vertical relief from the relatively flat and featureless abyssal plain. As such, seamounts are sites of enriched biological activity with enhanced biomass of pelagic and benthic organisms relative to the surrounding waters (Mullineaux and Mills 1997; Dower and Perry 2001; Haury et al. 2000). Studies indicate that seamounts function as deep-sea islands of localized species distributions, dominated by suspension feeders like corals and sponges which can be easily damaged by fishing gear that makes contact with the bottom (Monterey Bay National Marine Sanctuary, Sanctuary Integrated Monitoring Network, URL: www.mbnmssimon.org/sections/seamounts/overview.php). Recent studies conducted by the Monterey Bay Aquarium Research Institute on West Coast seamounts have documented unique and diverse biological communities. (http://www.mbari.org/volcanism/seamounts/seamountsresearchtop.htm).

Along the crests and slopes of several seamounts, MBARI scientists observed long-lived coral and sponge habitats. DeVogelaere et al. (2003) found 24 coral taxa on Davidson Seamount off California and described numerous species associations, particularly that *Paragorgia sp*. were found in areas with highest species diversity. Guyots are a type of volcanic seamount with a flat top or plateau. Because the tops are flat, they may be particularly vulnerable to trawling due to the relative ease of setting trawl gear. The rarity and uniqueness of seamount faunal communities provides strong scientific justification for a highly precautionary approach. Koslow et al. (2001) conducted a survey of Tasmanian seamounts where 30% of species identified were new to science and 30-60% were endemic to particular seamounts.

Accordingly, we support Alternative A.2 with the addition of seamounts as the EFH Description and Identification alternative.

Importance of Structure-forming Megafaunal Invertebrates as Key Components of the Ecosystem and Essential Fish Habitat

Corals, sponges, and other habitat-forming invertebrates provide three-dimensional structure on the seafloor that increases the complexity of benthic substrates. While corals and sponges are the most conspicuous and easily observable biogenic structures, they generally occur in diverse biological communities with other invertebrates such as crinoids, basket stars, ascidians, annelids, and bryozoans. Henry (2001) found thirteen hydroid species collected from only four coral specimens, suggesting that northern corals support highly diverse epifaunal communities. Beaulieu (2001) observed 139 taxa associated with deep-sea sponge communities in the northeast Pacific. Buhl-Mortensen and Mortensen (2004) found 17 species of Pandalus shrimp, isopods, amphipods, copepods, and decapods associated with *Paragorgia arborea* and *Primnoa resedaeformis* in Nova Scotia, including an obligate associated copepod. Removal of habitat structure in relatively low-structure soft-sediment systems significantly decreases biodiversity, and consequently that of the wider marine ecosystem (Thrush et al. 2001). Therefore, protecting known areas of coral and sponge habitat inherently protects areas of high benthic diversity and a host of benthic organisms that provide habitat for fish in the form of food and shelter.

Deep sea corals and sponges provide three dimensional structures that form habitat for commercial groundfish, shellfish, and other marine life (Husebo et al. 2002; Krieger and Wing 2002; Malecha et al. 2002; Heifetz 2002). Deep sea corals and sponges are found at depths from 30 meters to over 3,000 meters (Krieger and Wing 2002). Many cup corals, hydrocorals, and *Metridium* anemones are found at depths as shallow as 15 m. Some larger species of deep sea corals, such as *Paragorgia sp*. can grow over 3 m tall. Because these long-lived filter feeders are attached to the seafloor, they may be important indicators of areas in the ocean that have consistently favorable ecological conditions, such as areas of high upwelling that are worth protecting for other reasons as well.

Based on the best available science, cold water corals and sponges are important Essential Fish Habitat that are vulnerable to the impacts of bottom trawling. In February 2004, over 1,100 scientists signed a consensus statement declaring that "In short, based on current knowledge, deep-sea coral and sponge communities appear to be as important to the biodiversity of the oceans and the sustainability of fisheries as their analogues in shallow tropical seas." This

statement is corroborated by numerous scientific studies documenting the importance of cold-water corals as habitat for fish and invertebrates. Here are 12 examples:

1. A recent study in the Olympic Coast National Marine Sanctuary (Hyland et al. 2004) corroborates the conclusion reached in other regions that coral and sponge ecosystems are valuable habitat for demersal fisheries on the U.S. West Coast and important "reservoirs of marine biodiversity" (Hyland et al. 2004). This study documented bottom trawl marks in the vicinity and a large proportion of dead or broken corals.
2. Krieger and Wing (2002) identified 10 megafaunal groups associated with *Primnoa sp*. deep sea corals, that use the corals for feeding, breeding, and protection from predators. Six rockfish species were either beneath, among, or above the coral colonies. Shrimp were among the coral polyps and a pair of mating king crabs was hiding beneath the coral. The authors conclude that removal of these slow-growing corals could cause long-term changes in associated megafauna.
3. Dr. Milton Love (pers. comm.) identified large schools of juvenile rockfish (including widow and squarespot rockfish) closely associated among the branches of the newly-discovered "Christmas tree coral", likely using the coral for protection. This deep sea coral species was named based on the numerous associated species that clung to the branches like Christmas ornaments (Opresko 2005).
4. Mortensen et al. (1995) identified megafauna associated with deep sea coral bioherms in Norway, including redfish, saithe, squat lobsters, sponges, and gorgonians (*Paragorgia arborea*, *Paramuricea placomus*, *Primnoa resedaeformis*).
5. Buhl-Mortensen and Mortensen (2004) documented 17 crustacean species associated with cold-water gorgonian corals off Canada, most of which were using the habitat as protection from predators and some were obligate to the corals. This suggests corals provide habitat for commercial fish prey.
6. Husebo et al. (2002) found that the largest catches of redfish (*Sebastes marinus*) were made with long-line fleets set in deep sea coral reef habitats. Ling and tusk were also most numerous in coral habitats, although not statistically significant. Fish caught in coral habitats tended to be larger in size than in non-coral habitats. Reasons for the associations were feeding and physical structure.
7. Christiansen and Lutter (2003) cite evidence that commercially caught demersal and pelagic fish species, mainly redfish, saithe, ling and tusk, have a higher abundance near deep sea coral reefs and patches.
8. Costello et al. (2003) found that fish species and abundance was greater on the deep sea coral habitat than surrounding seabed; 69% of species and 79% of abundance was associated with the reefs.
9. Koenig et al. (2003) state that important predatory fish species have been seen aggregating around the larger coral structures of *Oculina sp*. deep sea corals off Florida, and small fish have taken up residence inside the modules.
10. Scott and Risk (2003) found abundant fish associated with *Primnoa* which are not common in areas where coral is absent. The authors state that deep sea corals off Canada are being rapidly depleted by bottom trawling, which in turn appears to have an impact on fish stocks.
11. Sulak et al. (2003) listed economically important fish species observed in deep sea coral habitat, several of which were restricted to this habitat. The authors also found several poorly known fish species associated with deep sea corals.

12. Brodeur (2001) documented Pacific Ocean perch using sea whip forest habitat in the Pribilof Canyon in the Bering Sea on a diel cycle as resting areas.

Sponges represent a major component of biogenic fish habitat that has not received the level of attention as corals. However, sponges are a diverse group of large, slow-growing seafloor animals that provide habitat for fish and invertebrates on the U.S. West Coast. There are two major groups of sponges on the U.S. West Coast: hexactinellid (glass) sponges and demosponges. Sponges can reach sizes of 3 meters high and provide complex three dimensional structure on the seafloor. Large glass sponges found off the coast of British Columbia have been age dated to be 220 years old, and the average size based on current knowledge of growth rates is 35 years (Leys and Lauzon 1998). Several studies worldwide have documented the importance of sponges as fish habitat:

1. Freese and Wing (2003) documented that Aphrocallistes sponges provide habitat for juvenile red rockfish in the Gulf of Alaska. The authors state that the fish observed in the study benefited from the sponges through predator avoidance and that bottom trawl damage to sponge communities would be expected to have a negative impact on juvenile red rockfish survival rates.
2. Eastman and Eakin (1999) documented fishes of the genus Artedidraco are associated with sponge beds in the Ross Sea of Antarctica.
3. Tokranov (1998) described the association of the sponge sculpin (*Thyriscus anoplus*) with sponge beds in the northern Kuril Islands.
4. Konecki and Targett (1989) found that cod icefish (*Lepidonotothen larseni*) lay their eggs on the biogenic substrate provided by the spongocoel of the hexactinellid sponge *Rossella nuda* off Antarctica. The authors state that glass sponges serve as important nesting and refuge sites for Antarctic fishes and that destruction of sponge communities by bottom trawling could have an adverse impact of the fish ecology of the region.
5. Moreno (1980) and Daniels (1978) documented several species of fishes known to utilize sponges as spawning and nesting sites and for predator avoidance.
6. Munehara (1991) established that the silverspotted sculpin (*Blepsias cirrhosus*) uses the sponge *Mycale adhaerens* as a spawning bed and that the eggs benefit from the association through predator avoidance, oxygen supply, and the antibacterial and antifungal properties of the sponges.
7. Herrnkind and Butler (1994 identified sponges as “benthic juvenile shelter” for spiny lobster in Florida Bay that were found to be one of the most productive sites for survival of postlarvae.
8. Rocha et al. (2000) found that sponges are habitat 'oases' in a desert of rubble and flat rocky bottoms in Brazil. The study identified fish associations with shallow and deepwater sponges, including several obligate associations and and four endemic species of fishes associated with deepwater sponges.

The following species are known to associate with corals and sponges: rougheye rockfish, redbanded rockfish, shortraker rockfish, sharpchin rockfish, Pacific Ocean perch, dusky rockfish, yelloweye rockfish, northern rockfish, shortspine thornyhead, several species of flatfish, Atka mackerel, golden king crab, shrimp, Pacific cod, walleye pollock, greenling, Greenland turbot, sablefish, and various non-commercial marine species (Freese 2000; Krieger and Wing 2002;

Heifetz 1999; Else et al. 2002; Heifetz 2002). Red tree corals (*Primnoa sp*.) are known to provide protection from predators, shelter, feeding areas, spawning habitat, and breeding areas for fish and shellfish and are found throughout the U.S. West Coast (Krieger and Wing 2002). Stone (preliminary data, 2004) found an 87% rate of association between adult Alaskan FMP species and biogenic habitat and a 100% association rate for juveniles. Kaiser et al. (1999) found that biogenic habitat structure is an important component of demersal fish habitat, and observed higher densities of gadoid fish species associated with structural fauna such as soft corals, hydroids, bryozoans, and sponges in the southern North Sea and eastern English Channel. Husebo et al. (2002) found that the largest catches of redfish (*Sebastes marinus*) were made with long-line fleets set in deep sea coral reef habitats. Rocha et al. (2000) found that sponges are habitat 'oases' in a desert of rubble and flat rocky bottoms in Brazil. Reed (2002) in a study of deep water *Oculina* reefs along eastern Florida, noted extensive areas of *Oculina* rubble in part as the result of bottom fishing and major declines in commercial fish populations in the reefs from 1970-1990. Prevention of damage by bottom trawls to corals and other "living substrates" may increase the amount of protective cover available to slope rockfish to escape predation, increase survival of juvenile fish and thus have a positive impact on the stocks (Alaska Region EFH EIS).

Managed fish species in the PFMC management region using structure-forming invertebrates (such as corals, basketstars, brittlestars, demosponges, gooseneck barnacles, sea anemones, sea lilies, sea urchins, sea whips, tube worms, and vase sponges) as biogenic habitat include: Arrowtooth flounder, big skate, bocaccio, California skate, cowcod, Dover sole, flag rockfish, greenspotted rockfish, lingcod, longspine thornyhead, Pacific ocean perch, quillback rockfish, rosethorn rockfish, sablefish, sharpchin rockfish, shortspine thornyhead, spotted ratfish, starry rockfish, tiger rockfish, vermilion rockfish, yelloweye rockfish, and yellowtail rockfish (Pacific EFH DEIS).

Bottom Trawling Causes Adverse Impacts to Essential Fish Habitat

Adverse impacts to essential fish habitat from fishing that are more than minimal and not temporary is the legal trigger requiring mitigation measures. Based on the information included in the EFH DEIS and additional studies not considered in the document, it is clear despite the present uncertainties that bottom trawling taking place under the current Groundfish Fishery Management Plan is having adverse impacts on Essential Fish Habitat that are more than minimal and not temporary.

There is general scientific consensus that bottom trawling has wide ranging effects on habitats and ecosystems. According to the National Research Council (2002) Report on the Effects of Trawling and Dredging on Seafloor Habitat, these adverse impacts include:

- changes in physical habitat of ecosystems
- changes in biologic structure of ecosystems
- reductions in benthic habitat complexity
- changes in availability of organic matter for microbial food webs
- changes in species composition

• reductions in biodiversity.

These statements are corroborated by numerous scientific studies from around the world corroborate the conclusion that bottom trawling causes adverse impacts to biogenic habitat. Here are 31 examples of these studies:

1. Hyland et al. (2004) documented bottom trawl marks in the vicinity of coral and sponge beds in the Olympic Coast National Marine Sanctuary and observed a large proportion of dead or broken corals.
2. Engel and Kvitek (1998) compared heavily trawled and lightly trawled areas in otherwise similar regions off Big Sur, CA, finding lower epifaunal invertebrate densities at the more heavily trawled site. The authors conclude that intensive trawling significantly decreased physical habitat heterogeneity and biodiversity.
3. Grehan et al. (2003) found evidence that deep sea corals are being destroyed by trawling, as evidenced by trawl scars, flattened coral rubble, barren sediment, and lost trawl gear. The authors state that this provides irrefutable proof of a serious threat to the marine ecosystem caused by fishing that warrants immediate emergency measures to protect the remaining corals.
4. Conway et al. (2003) studied the environmental conditions where sponge reefs are found and discovered that like deep-sea coral reefs, many of the hexactinosan sponge reefs in British Columbia have been damaged or destroyed by the groundfish trawl fishery.
5. Hall-Spencer et al. (2002) document widespread trawling damage to cold-water coral reefs at 840-1300 m depth along the West Ireland continental shelf break and at 200 m off West Norway. The trawled coral matrix was at least 4550 years old. The authors discuss the need for urgent conservation measures to protect these corals.
6. Lundalv and Jonsson (2003) found about 50% of investigated coral sites in the Kosterfjord area to be destroyed by recent bottom trawling, while the remaining areas exhibit major signs of trawl damage.
7. Mortensen et al. (2003) found signs of fishing impact such as broken live corals, tilted corals, and scattered skeletons. Broken or tilted corals were observed along 29% of the transects.A total of 4 % of the coral colonies observed were impacted.
8. Fossa et al. (2002) developed an estimate of 30-50% of the deep sea coral *Lophelia* reefs in Norway have been damaged by bottom trawling and that fishermen claim that catches are significantly lowered in areas where the reefs are damaged.
9. Koslow et al. (2001) sampled the benthic fauna of Tasmanian seamounts finding high abundance and diversity of hard and soft corals, hydroids, sponges, ophiuroids, and sea stars, a large fraction of which were new to science. This study also found that heavy trawling has completely removed the reef aggregations.
10. Wassenberg et al. (2002) documented direct removal of sponges caused by trawling, accompanied by long-term changes in species composition over time.
11. Ardizzone and Pelusi (1983) and Ardizzone et al. (2000) found bottom trawling to reduce the quality and quantity of Posidonia oceania beds, a biogenic habitat in the Mediterranean Sea.
12. Hall-Spencer and Moore (2000) found a 70% reduction in maerl thalli habitats, which have important ecological functions, with no recovery after four years.
13. Kaiser et al. (1996) conducted a multivariate analysis showing that both beam trawling and dredging reduce the abundance of most epifaunal species in the Irish Sea.

14. Kaiser et al. (2000a) found that chronic fishing has caused a shift from communities dominated by relatively sessile, emergent, high biomass species to communities dominated by infaunal, smaller-bodied fauna. Removal of emergent fauna has thus degraded the topographic complexity of seabed habitats in areas of high fishing effort. The authors note that communities within these areas currently may be in an alternative stable state.
15. Ault et al. (1997) found conspicuous long-term damage to sponges and soft corals after one pass of a trawl and that the sponge *Ircina felix* and corals of the genus *Pseudoplexaura* appeared to be the taxa most vulnerable to breakage or dislodgement by trawling.
16. Collie et al. (1996), Collie et al. (1997), and Collie et al. (2000) found conspicuously and significantly reduced abundance of colonial epifaunal species that provide complex habitat for shrimp, polychaetes, brittle stars, and small fish at sites disturbed by bottom fishing in Georges Bank, and found that many species whose abundances were reduced were also prey for commercial fish.
17. DeAlteris et al. (2000) discuss physical impacts and biological alterations in community structure caused by trawling in New England and recommended closure areas to reduce the impact of mobile fishing gear on habitat and biodiversity.
18. Magorrian (1995) found otter trawling to remove emergent epifauna and reduce the structural complexity of mussel beds in Strangford Lough, and recommended marine reserves as a management tool.
19. McAllister and Spiller (1994) found that trawling and dredging have major impacts on marine habitats by removing protruding invertebrate animal life including sea anemones, sponges, sea squirts, crinoids and many others which provide shelter and food sources for juvenile fish and shellfish. Specific trawling effects in the study included shearing off higher hummocks, filling in low spots, changing the configuration of the bottom, removing areas more exposed to or protected from the current, exposing shellfish, worms and other sediment dwelling species to predation, and stirring up clouds of mud and other sediment that plug gills and similar structures of filter feeders. The authors recommend closures, control areas, and conversions to less damaging gear types.
20. Norse and Watling (1999) state that trawling damages refuges from predation and feeding places for demersal fish, which are correlated with species diversity and post settlement survivorship of some commercial species.
21. Pitcher et al. (2000) found that total annual removal of benthic fauna ranged from very low to over 80% in areas of highest trawl intensity in Australia's Great Barrier Reef. They found that highly vulnerable populations of epifaunal species may be depleted by about 55% overall and there will be a substantial alteration in most trawled grids with a shift to less vulnerable species.
22. Reed (2002) in a study of deep water Oculina reefs along eastern Florida, noted extensive areas of Oculina rubble in part as the result of bottom fishing and major declines in commercial fish populations in the reefs from 1970-1990.
23. Rumohr et al. (1994) found reductions in abundance of epifauna and absence of inner structures (feeding burrows, living chambers, tubes) in areas impacted by trawling in the German Bight.
24. Bavestrello et al. (1997) found fishing damage to gorgonian corals in the Ligurian Sea, found slow recolonization and recovery rates for these corals, and recommended special protection for these corals as a Natural Marine Park.

25. Stone and Malecha (2003) state that "gardens of corals, sponges, and other sessile invertebrates" were similar in structural complexity to tropical coral reefs with which they shared several important characteristics including complex vertical relief and high taxonomic diversity. The authors note the particular sensitivity of these habitats to disturbance and observed anthropogenic disturbance to corals.
26. Wheeler et al. (2003) found broken coral rubble and dead coral in areas of higher trawl intensity, whereas untrawled areas had a much higher abundance of undisturbed upright coral colonies.
27. Van Santbrink and Bergman (1994) documented 70% mortality to anthozoans after two passes of a beam trawl in the southern North Sea.
28. The NMFS Alaska Fisheries Science Center website (NMFS 2004) shows several underwater video clips taken with a Remotely Operated Vehicle. Clip 9 shows heavily trawled coral habitat containing "broken-up coral debris in this area -- heavily damaged". (http://www.afsc.noaa.gov/race/media/videos/vids_habitat.htm)
29. Anderson et al. (2003) documented high levels of coral and sponge bycatch in the New Zealand orange roughy trawl fishery.
30. MacDonald et al. (1996) made several estimates of habitat sensitivities to physical disturbance, concluding that fragile, slow recruiting animals are the most susceptible to disturbance.
31. Van Santbrink and Bergman (1994) documented mortality rates of several benthic species as a result of two passes of a trawl.

Bottom trawling is the leading, most widespread cause of reduced habitat complexity that is taking place among major fishing grounds along the North American continental shelf. As trawl gear can crush, displace, expose and bury marine life on the sea floor, habitats that are trawled are far more likely to have reduced overall species diversity. Those organisms remaining after extensive periods of trawling tend to be "comprised of large numbers of a few opportunistic species" (Norse and Watling 1999). The study found that the extent of the disruption of a habitat's complexity is dependent upon how long the area has to recover between trawls, how extensive the damage is from the trawling gear, and whether the habitat is constituted primarily of quick-recovering short-lived species or of slow growing, long-lived species.

The National Research Council (2002) Report concludes that the impacts of trawling can lead to measurable changes in benthic habitats over time, with the greatest impact on those communities which are ecologically most complex. Extended trawling over the same habitat can lead to "a shift from communities dominated by species with relatively large adult body size towards dominance by high abundances of small-bodied organisms." More significantly, areas of intense trawling activities have the potential to be permanently affected and will lead to the emergence of short-lived organisms which are "readapted to conditions of frequent physical disturbance." (NRC 2002).

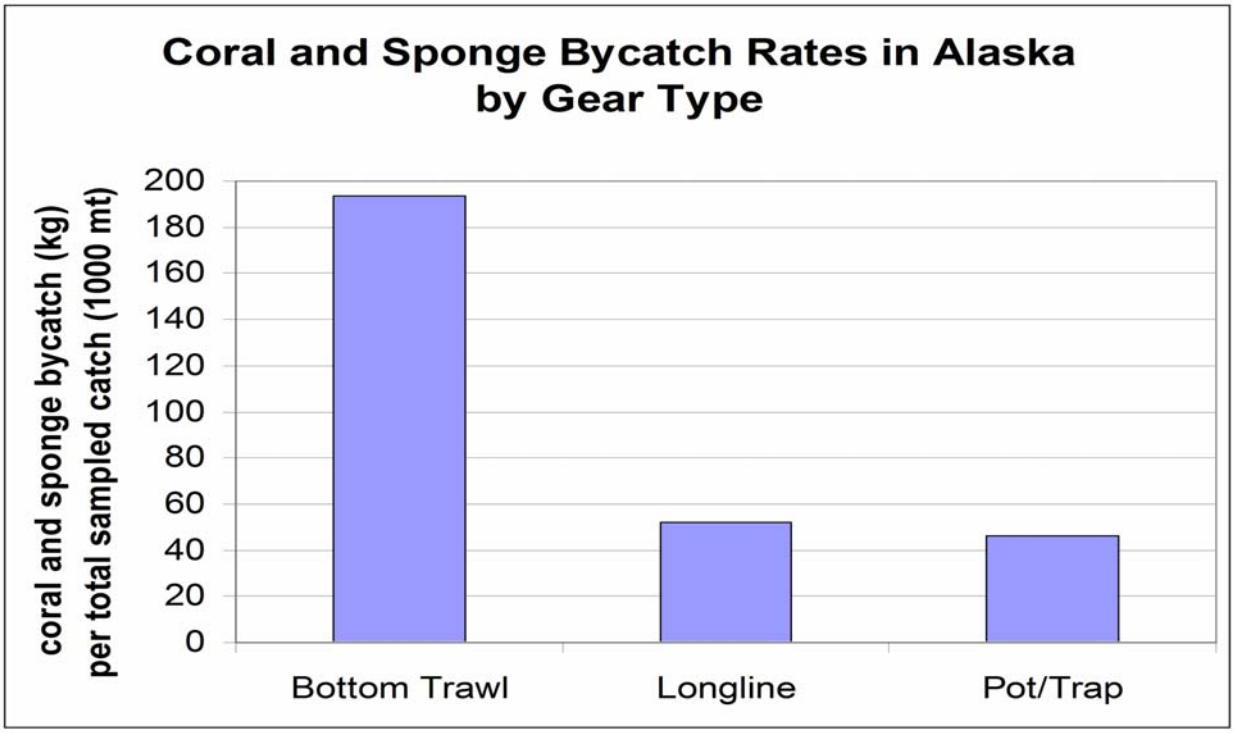

Figure 1: Bycatch rates for groundfish fishing gears in Alaska, based on data from 1990-2002. Bycatch rates are defined as the weight of reported bycatch divided by the weight of total sampled catch. These rates may not reflect actual damage to seafloor since fishing gears may not retain all corals and sponges that are impacted. However, they are useful for looking at relative impacts of different gears in a Benefit-Cost Analysis. Data source: NMFS (from Shester and Ayers 2005)

Bycatch of habitat-forming invertebrates constitutes direct evidence of adverse impacts of fishing to biogenic habitat (i.e. reduction in quality and quantity). The West Coast groundfish observer program (WCGOP) was established to obtain more precise estimates of fishery discards and total catch (NMFS 2003). For the same reasons that the data from the WCGOP improves the accuracy of catch estimates for overfished groundfish, observer data can and should be used to both evaluate the impacts of fishing on EFH and develop mitigation measures in the EFH EIS. In fact, a repeated criticism of the Alaska Region EFH DEIS by the Center for Independent Experts was that coral, sponge, and bryozoan bycatch from observer records were not analyzed, utilized, or incorporated (Drinkwater 2004).

Trawling will have the greatest impact upon marine flora and fauna that has adapted to exist in areas of low natural disturbance. Ecological disturbance theory suggests that the extent to which an organism within a habitat can recover from an anthropogenic disturbance (i.e. bottom trawling) is dependent upon the overall stability of the habitat prior to that disruption taking place. Organisms living in habitats that consist of easily dispersed sediments are far more likely to adapt more quickly to the new conditions following a trawl than would those organisms that normally do not experience extensive disruptions. Conversely, a habitat that consists of deep-water boulders or corals is far less likely to have extensive natural disruptions. Such “epifaunal communities that stabilize sediments, reef-forming species, or fauna in habitats that experience low rates of natural disturbance have been observed to be particularly vulnerable” to disruptive

activities such as commercial bottom trawling (NRC 2002). This is especially important given that confluence of various advances in fishing technology – such as larger boats with more powerful engines, more robust mobile fishing gear and fish-finding technologies – has allowed fishers to seek out groundfish in areas, such as the deepwater slopes of the continental shelf, that just decades ago would have been impossible to reach.

These findings, taken together, indicate that the effects of highly-destructive fishing gears such as trawls will have a disproportionate impact upon structurally complex, interconnected ecosystems as found in shallow and deep-water coral habitats. These habitats which have grown over the period of several hundred years or more and exhibit a low capability to adapt to increased levels of disruption. That is, as trawling tends "to eliminate competitively dominant, long-lived but disturbance-sensitive structure-forming benthic species" and frees "up food and space for shorter-lived, disturbance-insensitive opportunistic (weedy) species" it represents a critical threat to corals, sponges, and other biogenic seafloor habitats that are clearly Essential Fish Habitat within the Pacific Fishery Management Region based on the best available science. (quotations from Watling and Norse 1999).

Adverse Fishing Impacts on the U.S. West Coast

This section outlines the rational basis for the determination that the adverse impacts of bottom trawling on U.S. West Coast Essential Fish Habitat are "more than minimal and not temporary".

The EFH Final Rule includes "site-specific or habitat-wide impacts" in its definition of adverse impacts on EFH. (50 CFR 600.810(1)). The Risk Assessment conducted in Appendix A of the EFH DEIS contains an analysis of the effects of fishing on Essential Fish Habitat. The main document includes the various data sources that were used in the analysis (p. 73-74). The strength of the model in its current form is that it provides generalized comparisons of different habitat types and fishing gears. Page 77 of the Appendix A main document states that

In terms of major habitats, biogenic habitats are more sensitive than hard bottoms (although we note that the former may occur on the latter) and these are much more sensitive than soft bottoms.

In terms of the major gear types, dredges are most impacting, followed by bottom trawls, and these are much more impacting than nets which are more impacting than pots & traps and hook & line (including longlines).

Therefore, consistent with the global literature, the model successfully identifies biogenic habitats and hard substrates as focus areas for mitigation measures and bottom trawls and dredges as the gear types with the greatest effect. Where the model stops short is in its estimation of actual impacts caused by the current groundfish management regime.

While the analysis overall has some merits, Appendix A of the EFH DEIS claims that there are two main limitations to current understanding of the impacts of fishing on habitat: 1) the relationship between fishing effort and habitat modification, and 2) the relationship between habitat modification and ecosystem productivity (including fish productivity). (Appendix A Risk

Assessment Main Document p.74). The document claims that "[p]resently there are very little data to fill either of these gaps". These "gaps" are used to justify the used of relative indices rather than actual numbers. These statements are simply unreasonable in a document that is intended to provide the public with a detailed understanding of the environmental impacts of federally authorized actions. Further, the reference to fish productivity unlawfully limits the inquiry and analyses:

"It is not appropriate to require definitive proof of a link between fishing impacts to EFH and reduced stock productivity before Councils can take action to minimize adverse fishing impacts to the extent practicable. Such a requirement would raise the threshold for action above that set by the Magnuson-Stevens Act."
67 Fed. Reg. 2343, 2345 (Jan. 17, 2002).

The EFH DEIS provides no justification that the two main limitations described in the Risk Assessment are valid nor does it provide a rationale for using relative indices rather than best estimates from the literature. On the contrary, there have been numerous studies providing direct quantifications of the relationship between trawl effort and habitat modification. Further, even were productivity an appropriate measure, there are also many methodologies in the literature that can be used to estimate the relationship between productivity and habitat features even in cases of high uncertainty.

Swallow (1990) presented a dynamic model for assessing the impacts of a renewable resource, fish, as a result of reductions in a non-renewable resource, habitat. The model result is that if habitat impacts are not considered in the coupled resource management system, the adverse impacts to habitat are systematically higher than the economic "optimal". This confirms the theoretical result that fish habitat damage externalities systematically increase the habitat damage above the optimal outcome, reducing the productivity of the renewable resource. Thus the failure to account for the externality causes a market failure. Due to the long recovery times of corals and sponges (approaching consideration as a "non-renewable resource", this model is appropriate and applicable to answer the question about fisheries productivity. Another example is provided in Mangel (2000), which developed a model based on Beverton-Holt and Ricker-like recruitment functions showing that loss of spawning habitat is equivalent to additional fishing mortality of the adult stock; or in other words, productivity loss.

Mangel's (2000) model indicates that there may be a lag time in habitat-mediated changes in fish productivity between when habitat damage occurs and fish productivity declines. This may occur based on demographic features of fish stocks, such as long life spans and/or lag times in the effects of density dependence on mortality. Mangel (2000: p 672) states that "…neither catch nor stock is a good indicator of what is happening to the habitat: the decline lags behind habitat destruction and the recovery lags behind habitat restoration. Habitat itself must be monitored." Mangel (2000) backs this statement through a mathematical model based on modern fishery models used in fishery management.

The use of indices rather than expected values is the fundamental flaw in the impacts model. When indices are used, impacts can only be determined relative to each other. While this may be a useful way to identify the most harmful activities, relative indices eliminate the ability to assess or evaluate the absolute impacts. While it is clear that there may be uncertainty with expected values, the data exists to provide numerical best estimates and standard deviations from available

literature. In fact, the Alaska Region EFH DEIS contained an impacts model that compiled available information into "best estimates" of actual numerical figures based on literature on the impacts of trawling. While the ultimate conclusion in the Alaska EFH EIS was based on an unlawful definition and interpretation of the mitigation threshold, the model remains instructive. For example, Table B.2-4 in the Alaska EFH DEIS contains estimates of habitat sensitivity to each gear type as a percentage of the habitat in the affected area that is damaged with each unit of fishing effort. This clearly shows that it is not necessary to convert to an arbitrary relative scale of 0-3, as was done in the Pacific Region EFH DEIS. In particular, the use of a percentage in the Alaska model specifically allowed the analysts to develop absolute quantitative estimates of the loss of each habitat type as a result of current patterns of fishing effort, and eliminated the need to introduce an arbitrarily-defined "k-value" to estimate absolute impacts. This was precisely the problem pointed out by the PFMC Scientific and Statistical Committee which prevented the Pacific Region EFH DEIS impacts model. It is unclear why best estimates of percentages were not used in the Pacific Region model, when they were used successfully in the Alaska model based on the same literature.

In addition, another example of a quantitative model for incorporating sensitivity and recovery times is presented in DeAlteris et al. (1999). This study was aimed specifically at developing a methodology to identifying adverse impacts to EFH that are more than minimal and temporary and was not considered in the EFH DEIS. MacDonald et al. (1996) developed sensitivity indices for different benthic habitat types, and found that fragile, slow recruiting animals are most susceptible to fishing disturbance. Another study to add to the information on sponge sensitivity is Heifetz et al. (2003), which documented 50% damage to sponges in Eastern GOA one year after a trawl pass.

Furthermore, the EFH DEIS Risk Assessment (Appendix A) identifies category 3 Sensitivity Index score to be:

Major changes in bottom structure, such as re-arranged boulders; large losses of many organisms with differences between impact and control sites greater than 50% in most measured metrics.

Based on this statement alone, it would be unreasonable to claim that the "major changes" caused by gears that have a Sensitivity Score of 3 could be considered minimal.

Recovery rates for habitat types are the most important parameters to consider when determining whether known losses of habitats are "minimal and temporary". The Recovery Index used in the EFH DEIS omits several key studies and published information on the recovery of corals and sponges. The table on Page 16 in Appendix A-10 indicates the estimated recovery time for slope corals is "7.0+" years based on a study that showed no evidence of recovery for corals damaged by trawling in the Gulf of Alaska. However, it is clear that corals and sponges have growth rates on the order of millimeters per year, living to be hundreds of years old. In its Effects of Fishing model, the Alaska EFH DEIS used 100 years as its central estimate of the recovery time of hard corals (low estimate = 50 yrs; high estimate = 200 yrs) (Alaska Region EFH DEIS, 2004, Appendix B, Table B.2-5). In addition, the following studies justify a much higher estimate of coral and sponge recovery times (hence slower growth rates) than was presented in the Recovery Index, both on the continental slope and shelf.

1. Andrews et al. (2003) found growth rates of 1.74 cm/yr for Primnoa, 1 cm/yr for Corallium, and ages of 30 to over 200 years for deep-sea coral species of Davidson Seamount.
2. Cordes et al. (2001) found ages of 25-30 years for the deep sea coral *Anthomastus ritteri* in California's Monterey Bay, noting that the results agree with the general notion that growth rates are reduced and longevity increased in deep-sea species.
3. Roark et al. (2003) sampled corals from Hawaii and the Gulf of Alaska and dated a living *Gerardia* sp. to be 2700 years old and a black coral to be 2200 yrs old, using radiocarbon dating techniques.
4. Leys and Lauzon (1998) found large deep water Hexactinellid sponges to be 220 years old with average growth rates of 1.98 cm/year.
5. Probert et al. (1997) found recovery times greater than 100 years for deep sea corals.
6. Jones (1992) review of trawl impact literature revealed that recovery time for deep sea benthos with little natural disturbance is on the scale of decades.
7. Koslow et al. (2000) discusses the higher longevity and vulnerability of deepwater ecosystems to trawling, particularly on seamounts, which are known to have benthic fauna (i.e. corals) with high levels of endemism.
8. Risk et al. (2002) found ages of over 300 years for *Primnoa resedaeformis.*
9. Heikoop et al. (2002) found deep sea corals (*Primnoa*) in Alaska and elsewhere have lifespans of several centuries. The authors describe the potential of these corals to contain extended records of surface productivity, deep ocean temperature and chemistry of value to climatologists and fisheries managers.
10. Reed (2002) in a study of deep water Oculina reefs along eastern Florida, noted extensive areas of Oculina rubble in part as the result of bottom fishing and major declines in commercial fish populations in the reefs from 1970-1990. Coral growth rates averaged 16.1 mm/yr.

In addition, use of estimated ages of biogenic habitats as their recovery time is likely to be a significant underestimate of actual recovery because it omits the time necessary for recolonization. Specifically, if corals and sponges take a long time to settle and begin growth in damaged areas, overall recovery is much longer. Evidence for long recolonization times is presented in Koenig et al. (2003), which found no evidence of recolonization of Oculina deep sea corals into denuded areas and offered two explanations: continued trawling and the rubble areas do not provide suitable substrate for planular settlement of coral larvae. Additionally, the Krieger (2002) study cited in the EFH DEIS found no evidence for recolonization of corals seven years after trawling.

It is unclear why the recovery index distinguishes between gear types in its estimates of habitat recovery. Recovery should be based on the estimated time it takes for a fully damaged habitat to return to a pre-impacted state, independent from the source of damage. The differences between gears should be limited to the sensitivity of each habitat type to each unit of effort with different gear types. For example, whether a deep sea coral was removed by a bottom trawl or a researcher, the growth rate of each corals is the same. Furthermore, since age does not include recolonization time between impact and settlement of new biogenic structures, all recovery times used in the EFH DEIS that were derived from literature on ages are systematically underestimated.

It is also unfortunate that the Risk Assessment was not able to utilize the extensive trawl logbook data for the U.S. West Coast showing thousands of start and end points for recent years of trawl effort.

However, a simple calculation of habitat sensitivity and trawl effort illustrates that by any measure in the Pacific groundfish fishery, the more than minimal and not temporary threshold has been crossed. The following example represents a thought experiment to demonstrate the severity of habitat impacts using parameters from the Risk Assessment and scientific literature. The Risk Assessment states that the sensitivity of corals and sponges to one unit of bottom trawl effort is Sensitivity Level 3.0, which is defined on p. 75 to be a 50-100% loss of habitat-forming organisms. If we use the low value of 50%, this means that each area loses half of its habitat features every time it is trawled. Let's say an area containing corals is trawled once per year. This means in five years, the amount of available habitat will be reduced by $(0.50)^5$, which equals 3.1% of the original habitat. Even if we add in a rate of 1% recovery each year (which is equal to saying the recovery time for corals is 100 years), there is still only 5.1%. An optimistic (best case scenario), dynamic equation for this would be:

$$H_{t+1} = 0.5H_t + 0.01H_0, \qquad (1)$$

where H_0 is the initial amount of habitat and H_t is the amount of habitat after t years.

Note that this model contains a highly optimistic assumption that habitat recovers at a fixed rate regardless of how much is remaining. This ignores any potential delays in habitat recovery from recolonization, Allee effects, or ecological succession.

The following graph (Figure 2) shows 5 example trajectories of available habitat remaining in an area subject to one pass of a trawl per year and assuming a Sensitivity Rate of 50%. The first case, shown in pink is the trajectory for a habitat that does not recover from damage. The second case is shown in red (triangles) is the trajectory for a habitat with a recovery time of 100 years (1% recovery per year). If trawling stops at the end of year 4 due to a trawl closure, the habitat ceases to decrease and begins a slow trajectory toward total recovery (shown in green circles). For a case where habitat recovers in 10 years, the habitat is lost at a slower rate because it is compensated by recovery (shown in orange diamonds). If trawling continues, the habitat remaining at equilibrium is 20%. However, with a trawl closure enacted at the end of year 4, the habitat with a 10 year recovery time nears full recovery at year 14 (shown in blue squares).

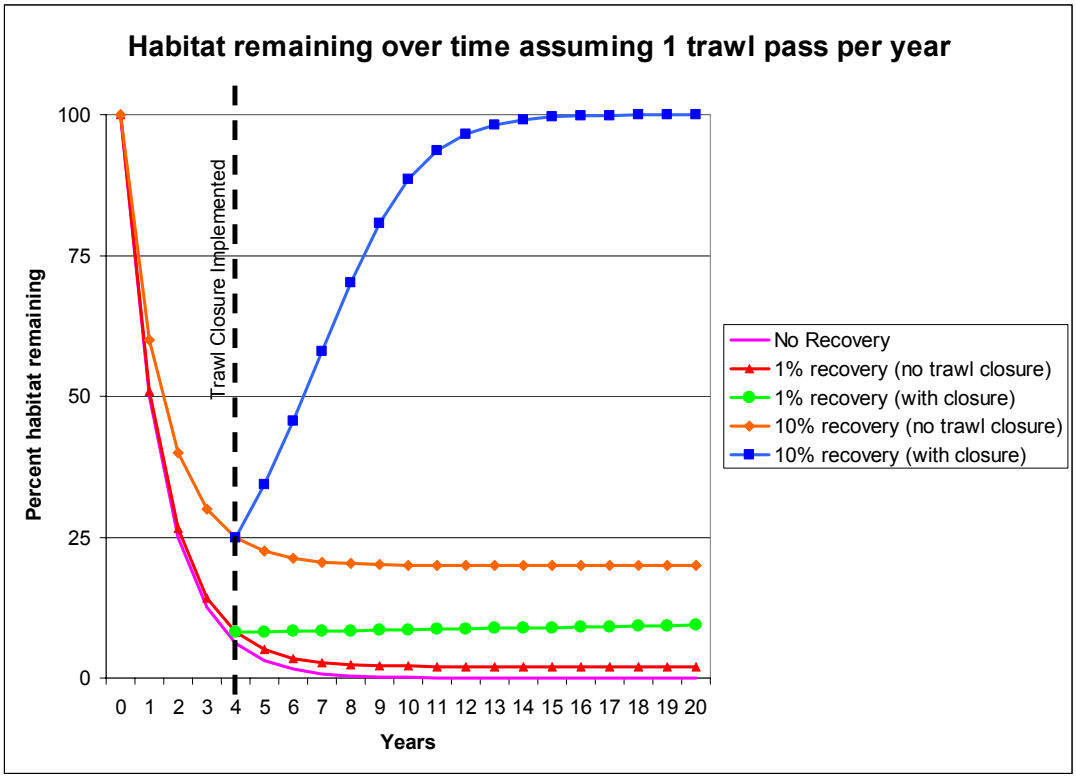

Figure 2: Results of hypothetical habitat damage model using actual parameters from the EFH DEIS and scientific literature on recovery rates. (Refer to text for further discussion).

For the case of many deep sea corals found off the U.S. West Coast, the recovery time is at least 100 years (see citations earlier in this Section). This recovery time (100 years) was used in the Alaska Region EFH DEIS "Effects of Fishing" habitat loss model. Using this estimate, all coral and sponge habitats where trawling occurs at least once per year with a 50% impact per pass, there will be less than 5% of this habitat type remaining after 5 years. (This is precisely the reason why the Alaska Region EFH DEIS showed long-term losses of corals on the order of 50-100% in all areas containing trawl effort. There is no reasonable way to justify that a 95% loss of corals and sponges at any specific biogenic habitat site is minimal (recall the EFH Final Rule's reference to "site-specific" adverse impacts and the CIE Report (Drinkwater 2004) reference to "localized impacts to corals and sponges"). Nor could any reasonable person justify that a 100 year recovery time is temporary from the standpoint of a fishery. Since there are many known areas of corals and sponges that are repeatedly trawled (i.e. observer bycatch data from WCGOP and overlay of trawl tracks on known records of corals and sponges documented in trawl surveys), these habitat features have been substantially reduced in both quantity and quality for the long-term. Therefore, it is clear based on the Sensitivity Level of >50% presented in the EFH DEIS for bottom trawling on corals and sponge and based on the published recovery times over 100 years that adverse impacts to biogenic coral and sponge habitats by bottom trawling authorized under the current Fishery Management Plan are occurring in a manner that is

more than minimal and not temporary. This conclusion triggers the legal requirement to minimize adverse impacts of bottom trawling to the extent practicable.

The results of this simple thought experiment indicate that the first few passes of a trawl account for the biggest fraction of the total damage to habitats with long recovery times. The EFH DEIS (Ch.3, p. 3-16) confirms this result in its statement that:

Corals, anemones, sponges, sea pens, and sea whips are a highly sensitive habitat that may be substantially modified with relatively little fishing effort (NRC 2002). It may be that initial contact (i.e., the first time gear is deployed) is the most important due to the high sensitivity of the habitat to impact.

Therefore, even a single pass of a bottom trawl in sensitive habitat areas constitutes adverse habitat impacts that are more than minimal. This suggests that the most effective trawl closures are located in areas that are lightly-trawled or have not yet been trawled. Therefore, the best available scientific understanding of biogenic habitat sensitivity and recovery provides strong justification for closing all areas outside the trawl footprint.

Additional considerations beyond the EFH legal mandate

This section discusses the current state of scientific theories regarding the linkage between marine habitat and fisheries productivity and is simply designed to illustrate the potential effects of the adverse impacts described in the previous section. It is not intended to imply that productivity should be a consideration in the determination of adverse impacts. In fact, the linkage between EFH and commercial fish productivity is irrelevant from the standpoint of the law (see 67 Fed. Reg. at 2354), and from a factual standpoint, since corals and sponges constitute a component of EFH and we are nowhere near EFH Information Level 4 for these habitats and most others. However, the potential effects of habitat loss on fish productivity may be useful to consider.

Several ways to conceptualize this linkage are presented in the scientific literature. Many studies assume a one-to-one linear relationship between habitat availability and fish production (i.e. Naylor and Drew 1998; Costanza et al. 1997). Under this logic, a loss of 95% of habitat would result in a 95% loss in production. Another way to consider the issue is to assume that the habitat type only accounts for a certain proportion of the productivity of a fishery, say 20% as an arbitrary example. Under this logic, the damage to habitat would result in a loss of 19% of the landings produced in the trawled area (assuming all other habitat features are not impacted by trawling). Whether this would be considered "minimal" is an open question, but it suggests that management measures to mitigate the loss of coral and sponge habitat would pass a simple Benefit-Cost test from the fishermen's point of view as long as they represent less than a 19% economic loss to the trawl fleet due to increased fishing cost. While this is a simplified example, it represents the basic logic justifying habitat protection measures in a fisheries management regime that aims to maximize the value of the fisheries harvest.

The basic theory underlying the need to protect habitat from the perspective of the fishermen is that habitat damage may reduce the productivity of fish that are associated with the habitat. One way to illustrate this effect is to consider a basic Schaefer logistic growth equation:

$$dN/dt = rN(1-N/K) \quad (2)$$

where dN/dt is the production, r is the intrinsic rate of increase, N is the stock size, and K is the carrying capacity. Most fishery models view the r and K parameters as exogenous, determined by environmental factors. However, if habitat damage caused by fishing reduces r or K, the overall production decreases for any given stock size. Figure 3 shows potential effects of harvest with a destructive gear on the logistic production of a fishery, where the the amount of fishing effort (or harvest) reduces K by (represented by different production functions at equilibrium). The basic effect is that fishing effort increases (destroying more habitat) the entire productivity curve becomes smaller, particularly the apex of the curve, which is the maximum sustainable yield (MSY). Depending on the degree to which the fishing gear destroys habitat (determined by Sensitivity and Recovery Rates), this framework suggests that there can be quite significant reductions in MSY as the result of destructive fishing. This demonstrates the general result that reducing habitat impacts of fishing leads to an increased fishery yields and/or prevents further decreases in productivity.

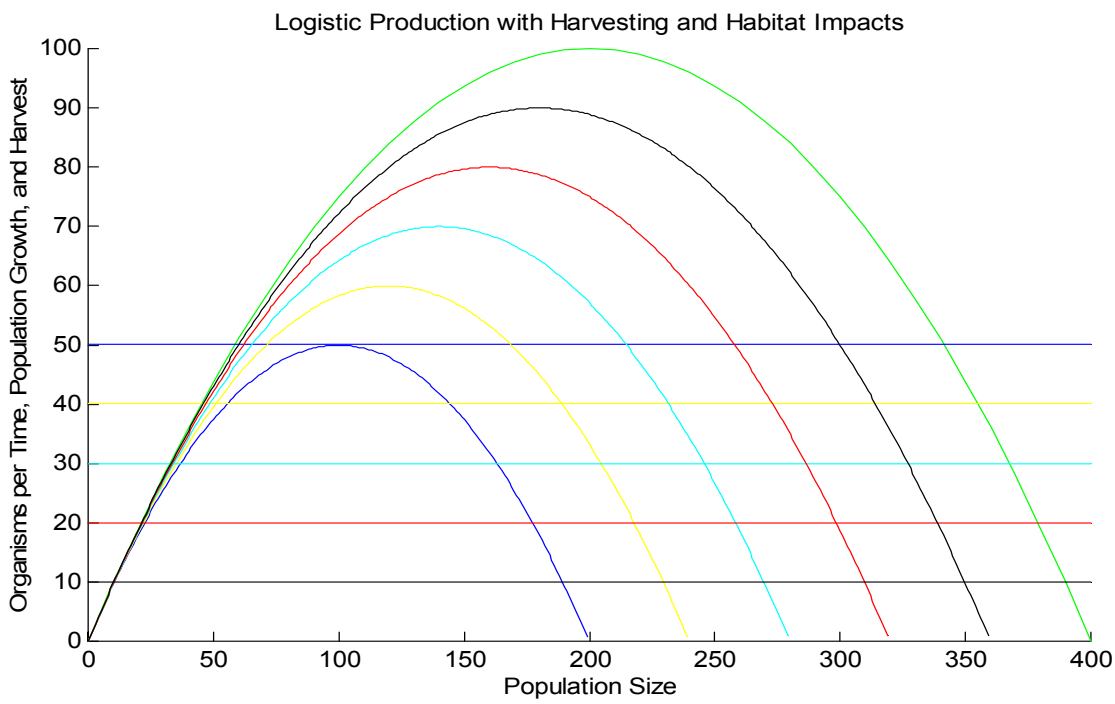

Figure 3. Effect of harvest on the logistic production function for the case where carrying capacity, K, is reduced by 4 times the level of harvest. Harvest rates (horizontal) correspond to production functions of the same color. The unfished carrying capacity is 400 with an potential MSY of 100 (green), while a harvest rate of 50 decreases the carrying capacity to 200 with an actual MSY of 50 (blue).

The time of managing fish stocks on a single-species basis without regard to their habitat is over. The inclusion of Essential Fish Habitat measures of the Sustainable Fisheries Act are a major step toward ecosystem-based fishery management. We now know that fish habitat is an essential driving force behind the production of commercial fish and maintenance of healthy ecosystems.

The "natural capital stock" of biogenic habitat must be managed explicitly. The Pacific Fishery Management Council has jurisdiction over which habitat areas are subjected to trawl impacts. From the standpoint of the Magnuson-Stevens Act and common sense, the Pacific Fishery Management Council must implement regulations that mitigate the adverse impacts of bottom trawling on Essential Fish Habitat in its final decision on this Environmental Impact Statement.

Mitigation Measures to Minimize Adverse Impacts to the Extent Practicable

The Sustainable Fisheries Act requires that if fishing activities are causing adverse impacts to EFH, Councils and NMFS must enact mitigation measures to minimize those adverse impacts to the extent practicable. It is clear from the above discussion that the adverse impacts of fishing on U.S. West Coast EFH are more than minimal and not temporary. Therefore, mitigation measures are required by law.

The US Commission on Ocean Policy, the PEW Oceans Commission, and many other scientists and administrative bodies have recognized the need to protect both the fish and the ecosystem in which the fish thrive. Current fishery management tools have largely focused on fishery conservation in its narrowest sense: avoid overfishing a species or a group of species. Gradually, the need to protect the fish *and* their associated habitat is being recognized. This need is imperative in Pacific Coast Groundfish management, given the legal mandate to minimize adverse impacts to the extent practicable.

As discussed in the Pew Oceans Commission Final Report, the goods and services from coastal and marine ecosystems, especially corals, sponges, and other biogenic habitats that are commonly damaged by benthic fishing gears are difficult, if not impossible, to replace. This suggests that if we destroy our nation's healthy ecosystems, we may well risk economic and social stability. In other words, there are costs associated with habitat destruction that go beyond the financial displacement of bottom trawlers, and eco-values beyond single species money fish. The value of a healthy ecosystem far outweighs the short-term economic gains of destructive bottom trawling.

Externalities in the Pacific Groundfish Trawl Fishery

An "externality" is generally defined as:

"An effect of one economic agent's actions on another, such that one agent's decisions make another better or worse off by changing their utility or cost. Beneficial effects are positive externalities; harmful ones are negative externalities."

(www-personal.umich.edu/~alandear/glossary/e.html)

Externalities are important in natural resource policy analysis because they cause market failures, justify policy intervention into markets, and suggest appropriate types of policy tools to correct market failures. Fish stocks and ocean habitats are subject to four distinct externalities from Pacific coast groundfish bottom trawl fisheries, largely as a result of their status as public goods. The first type is the ***stock externality***, which is the effect of an individual vessel's fish removals

on the catch per unit effort of the rest of the fleet. This negative externality arises because the lower the stock size, the more effort is required to obtain a specific amount of catch. If this externality is not regulated, overfishing will occur in any circumstance where the cost of fishing is low enough. The market failure caused by this externality can be corrected with policy instruments that limit catch, including trip limits and total allowable catch quotas, many of which are already in place as a result of PFMC management. However, due to the uncertainty of fisheries stock assessments and enforcement capabilities, the effectiveness of these limits on target species catch depends on the degree to which fishery managers are precautionary in their quota decisions. The current Pacific groundfish fishery management plan uses catch limits and quotas to limit this catch. However, overfishing has occurred for nine Pacific groundfish species and current plans for stock rebuilding are on the order of several decades, so it is doubtful that the stock externality has been fully corrected.

The second type of externality is the ***habitat externality***. This negative externality occurs when the habitat impacts of harvesting fish affect the intrinsic growth rate and/or the carrying capacity of a fish stock. In the case of trawling, this may occur in several ways. Trawling is known to reduce the structural complexity of seafloor habitats, which in turn reduces the shelters from predation for juvenile groundfish. Less shelter from predation leads to higher mortality rates for young life stages with the overall effect of reducing the intrinsic rate of growth. Furthermore, if vulnerable habitats such as sponges, kelp, deep sea corals, or other biogenic substrates support higher densities of adult fish then if they are damaged or removed, the carrying capacity of the fish stock will be reduced by the act of harvesting fish with destructive gear. Decreases in the carrying capacity and growth rate reduce both the maximum sustainable yield and the maximum economic yield proportionally. In a legal context, this externality reflects the reduction in fish habitat that is "necessary" or "essential" to "support a population adequate to maintain a sustainable fishery" (EFH Final Rule (50 CFR Part 600)).

Since the costs of such destructive activity are dispersed throughout the entire fleet, this externality prevents an incentive to reduce the damage. Conversely, if one fisherman reduced his rate of habitat damage, the benefit would be distributed throughout the entire fishery. This externality is inherently a "collective action problem" as described in Hardin's *Tragedy of the Commons* (1968), which to be corrected requires all vessels to collectively reduce their habitat damage rates. The most effective policy instruments available to reduce the habitat damage rates for the Pacific groundfish trawl fishery include permanent area closures and gear conversions which are the cornerstone mitigation measures of Alternative C.12.

The third externality in a destructive fishery is the ***ecosystem externality***, which results from reductions in the quality and/or quantity of habitat sufficient to support a healthy ecosystem. The consideration of this effect is mandated by the EFH Final Rule. This negative externality encompasses the various social and non-use costs of habitat damage. In practice, social costs may be expensive to quantify, but include reductions in existence value, biodiversity value, passive use value, option value, bequest value, scientific value, historical value, intrinsic value, or the value of the ecological services provided (other than the production of the target fishery). Brief descriptions and definitions of some of costs are provided in the EFH DEIS (Section 3.10.2 entitled "Non-Consumptive Non-Use Values"). Unfortunately, however, the EFH DEIS made no attempt to quantify these costs. However, these costs of habitat damage are real and

evidenced in part by the tens of thousands of public comments that NMFS and the PFMC have received on this EFH DEIS.

The fourth externality in a destructive fishery is the ***technology externality***. This is a positive externality associated with the appropriability of innovations or technological improvements that reduce the damage rate of a fishery. The fact that this is a positive externality means that the a market failure is occurring because the current system does not sufficiently encourage technological improvements to reduce the impacts of bottom trawling. These technological innovations include developing new low cost gear types that catch fish without destroying habitat. The externality arises because the costs of technological innovation are born by an individual fisherman, but the benefits of the innovation are enjoyed by the entire fishing fleet. Therefore, the market failure is that there will be less technological innovation to reduce habitat impacts than there would be at the optimum for the fleet as a whole. Since this is a distinct externality from the habitat damage (negative) externality described above, the technology externality requires a distinct set of policy instruments to increase expenditures on technological innovation to economically efficient levels. The bottom line is that we need the motivation and incentive to develop ways to catch fish without destroying the habitat the fish depend on for survival.

These four externalities each lead to systematic biases preventing fishing activity from reaching its privately and socially optimal outcomes. Correcting these market failures in the Pacific groundfish fishery requires policy intervention to address each externality (see Table 1).

Table 1: Externalities addressed by the management tools proposed in Alternative C.12.

Management Measures	Externalities			
	Stock	Habitat	Ecosystem	Technology
Catch limits	X			
Area closures (incl. freezing trawl footprint)		X	X	
Gear conversions and restrictions		X	X	X
Research and Monitoring				X

As the table indicates, no single management tool can address all four externalities, suggesting the need for a combination of management tools. While the table shows which externalities can be addressed with each tool, the extent to which each tool fully corrects each externality depends on its specific application. The purpose of the table is to show how the proposed mitigation measures address the externalities that create a market failure of excessive habitat destruction.

One general rule in environmental policy development is that when designed properly, a combination of multiple policy instruments is a more cost-effective way to address the market failures associated with multiple externalities than any one management measure alone. On the U.S. West Coast, there are four distinct externalities with regard to EFH. By addressing these externalities on multiple fronts, the Comprehensive Alternative is the most cost-effective, precautionary, and practicable alternative that sufficiently mitigates the adverse impacts of fishing on EFH as required by the Sustainable Fisheries Act.

The Economic and Ecological Benefits of Bottom Trawl Closures

There has been substantially more effort focused on the potential costs of the trawl closures proposed in Alternative C.12 (and in fact all mitigation alternatives) than on its potential benefits. However, when making important decisions affecting the future of U.S. West Coast fisheries, it is essential that attention be focused on using the best available information to understand not only the short and long term fisheries benefits of protecting habitat, but also the long-term ecological costs of failing to do so. With regard to the former, several major scientific efforts have quantified the benefits of previous area closures. The EFH EIS should include a review of these studies to provide the public with a more complete understanding of the current state of knowledge on expected benefits of bottom trawl closures. With regard to the latter, any analysis of practicability must include a discussion of the long-term ecological costs and benefits of habitat protection.

The EFH EIS should include a discussion and estimation of avoided costs. Several studies found reductions in commercial fish populations as a result of habitat damage caused by trawling and/or increased landings in areas with un-impacted coral and sponge habitats (i.e. Reed 2002; Rellini et al. 2000; Rothchild 1994; Sainsbury et al. 1993; Thrush and Dayton 2002; Vassilopoulou and Papaconstantinou 2000; Husebo et al. 2002; Bradstock & Gordon 1983). These studies corroborate the hypothesis that biogenic habitats act as a component of "natural capital" that produces fish. The economic loss of a capital stock of habitat is calculated using the discounted present value of all future fish production that will no longer occur when the habitat is not available. Since the recovery rates of biogenic habitats in particular are so slow, the present value of all future losses can be quite significant. Therefore, the benefits of avoiding the loss of the habitat stock are the exact converse of the costs of the lost productivity if the habitat is lost. As such, benefits of habitat protection can be calculated by the avoided cost of habitat damage. Rudd et al. (2003) states that "Fully accounting for the value of ecological services flowing from marine reserves requires consideration of increased size and abundance of focal species within reserve boundaries, emigration of target species from reserves to adjacent fishing grounds, changes in ecological resilience, and behavioral responses of fishers to spatially explicit closures."

Second, there are several models available to estimate these avoided costs in the scientific literature. Specifically, Rodwell et al. (2003) developed a model whose results indicate that habitat protection in reserves can underpin fish productivity and, depending on its effects on fish movements, augment catches. The authors state that "Marine reserves increase total fish biomass directly by providing refuge from exploitation and indirectly by improving fish habitat in the reserve". Although Revised Alternative C.12 does not propose marine reserves, this type of model could and should be used to evaluate the effects of management measures. Conover et al. (2000) discusses the potential benefits of marine reserves including protecting critical habitats that have been depleted, conserving marine biodiversity, and enhancing the harvest of stocks outside the reserve. Soh et al. (2001) used GIS analysis and found that marine reserves can greatly protect shortraker and rougheye rockfish populations from habitat impacts, discards, and serial overfishing of substocks without reducing catch levels. White et al. (2000) showed that

the costs of a marine reserve for tropical coral protection were greatly outweighed by the benefits from higher catches. Koslow et al. (2001) found that heavy trawling has completely removed the deep sea coral and sponge aggregations and that benthic biomass was 106% greater and species richness was 46% greater on unfished seamounts than fished seamounts. Wheeler et al. (2003) found broken coral rubble and dead coral in areas of higher trawl intensity, whereas untrawled areas had a much higher abundance of undisturbed upright coral colonies. The authors state that even small coral thickets provide "cover" for fish and that destructive removal of this cover may have major implications for local fish stocks and coral associated biodiversity. The authors recommend using the precautionary principle by implementing fisheries technical measures to prevent further damage to coral until more is known about the relationship between fish and corals.

In particular, a great deal of literature has attempted to quantify the economic value of the fishery production services provided by tropical mangrove habitats. While this specific habitat type does not occur on the U.S. West Coast, the valuation techniques provided by these studies are directly relevant to the valuation of all fish habitat types. The most common technique found in this literature is to identify all fisheries directly or indirectly associated with mangrove habitat and attribute the entire ex-vessel values of each fishery to the associated habitat (Naylor and Drew 1998, Ruitebeck 1988, Christensen 1982, Hamilton & Snedaker 1984, Gren & Soderqvist 1994, Ronnback 1999, Sathirathai & Barbier 2001, Ruitenbeck 1988; Costanza et al. 1997; Swallow 1990). For example, Naylor and Drew (1998) assumed one-to-one habitat fishery linkages for surgeonfish, rudderfish, jacks, parrotfish, grouper, squirrelfish, snapper, rabbitfish, mullet, emperorfish, goatfish, and octopus, based identifying either direct reliance of these fish species on mangroves for food, reproduction, or protection or indirect reliance on mangroves for nutrient supplies that flow into the near-shore zone. These studies establish the precedent that until higher levels of habitat-fishery linkages are known (i.e. EFH Level 4), the EFH EIS should assume a one-to-one relationship between fish productivity and associated habitats.

Adaptive Management and the Future of Pacific Coast EFH Protections

The Revised Alternative C.12 lays the groundwork for future improvements to the management of Essential Fish Habitat off the U.S. West Coast for generations to come. The following section discusses potential options and policy directions that NMFS and the PFMC will have the opportunity to take in the future as a result of implementing Alternative C.12 through the current EFH EIS process. The statements made in this section are not to be interpreted as additional components of Alternative C.12 for consideration in the current EFH EIS process, but rather as a long-term vision of the possibilities for future ecosystem-based fishery management actions that may be taken subsequent to the implementation of Alternative C.12.

Incentives to Minimize Trawl Impacts in Remaining Open Areas

With the proper incentives, fishermen can control many factors that determine the degree to which their activities impact the seafloor. The additional monitoring required as part of Alternative C.12 will provide baseline data with a tremendous potential to evaluate individual performance and enact performance standards to achieve additional conservation incentives in

the Groundfish Fishery Management Plan. The placement (physical location) of trawl set locations and the degree of impact on the seafloor are largely at the discretion of individual vessel captains. The various factors that play into this decision may include the likelihood of catching valuable target species and the likelihood that they will damage fishing gear. While some seafloor types cause major damage to trawl nets, such as large, sharp boulders, there is little evidence that biogenic habitat types such as living substrates damage trawl gear. Therefore, there exists no immediate incentive to avoid such habitats in the pursuit of fish, particularly if there are higher abundances of fish in these areas.

In addition to technology-based standards, such as gear restrictions, there are ways to create disincentives to fish in ways that cause damage to ocean habitats. By establishing performance standards that either mandate or reward more desirable fishing behavior, fishery managers can leave it to the experts, the fishermen, to determine the locations and gear types with which they fish. The benefit of such performance standards are that they give fishermen more flexibility in terms of the manner through which they meet a given conservation objective, and therefore, fishermen can determine for themselves the most cost-effective way of doing so. The disadvantage, conversely, is that performance standards generally cost more to monitor and enforce than command and control regulations such as gear restrictions.

One example of a performance standard that would create a disincentive to destroy vulnerable habitat features is a hard limit on habitat bycatch. Since trawl nets will retain a portion of structural living habitats, such as sponges, bryozoans, anemones, corals, and tunicates, the bycatch of these invertebrates can be used as an indicator of damage to vulnerable seafloor habitat. The limitation of these indicators is that they represent a limited set of habitat types and may not reflect structural damage to physical substrates such as rocks, boulders, sand, and the many small invertebrates that are too small to be retained in the net. Moreover, there have been few studies examining how much actual damage to seafloor invertebrates by bottom trawling is reflected in bycatch samples. However, structural invertebrate bycatch has the benefit of showing actual damage to the seafloor and may be a more direct indicator of damage than other approaches, such as effects of fishing models that assume homogenous distribution of habitat types.

Such bycatch limits should provide opportunities for fishermen, scientists and stakeholders to provide their input concerning setting appropriate bycatch limits, altering bycatch limits over time, whether to apply bycatch caps by fleet, sector, or individual vessel, the appropriate spatial scale at which to apply bycatch caps, consequences of exceeding bycatch caps, and rewards for avoiding bycatch. Table 2 (below at the end of this section) provides an example framework of decision points that could be considered in a future process to establish and implement habitat bycatch limits.

Conversely, rewarding “clean” fishing can provide a positive, and potentially profitable, incentive for habitat conservation. Such rewards must be based on accurate information about the performance of fishing vessels, which is precisely the rationale for enacting the monitoring regime described as part of Revised Alternative C.12.

Another idea for the future that may be considered after the implementation of the current EFH EIS is the concept of Spatially-Explicit Dedicated Access Privileges (SEDAPs). SEDAPs could be tradeable ***area-specific*** permits allocated to specific permit holders granting an exclusive privilege of a specified amount of annual trawl effort in a specified area. This SEDAP approach would be combined with effort reduction (buyout) and could include gear transfer considerations.

Potential Future Uses of VMS Data to Protect Essential Fish Habitat

In addition to providing monitoring of compliance, VMS data will also provide significant data to develop adaptive management measures in the future. VMS is a powerful tool that provides many additional management options to reduce habitat impacts. Once they are in place, fishery managers can better understand how fish habitats are being affected and can develop performance standards that create incentives to reduce the overall footprint of each trawl vessel. Habitat impact monitoring can be used to identify areas where bycatch rates are highest within areas that remain open. Additionally, they may also reveal more spatially explicit information on which areas have higher and lower relative effort. These data may be used to develop additional closed areas based on areas of higher bycatch rates and/or areas that are outside the future footprint of the bottom trawl fishery. As enforcement and monitoring capabilities improve with technological innovations, the scale of management, or the size of the grid blocks, should decrease so that management can take place at a resolution that better fits the patchiness of the seafloor habitat types and the spatial resolution of fishing effort.

Conclusion

In summary, these comments have outlined the clear evidence that Essential Fish Habitat on the U.S. West Coast is being adversely impacted by bottom trawling in a manner that is more than minimal and not temporary. Ecosystem-based fishery management and the Sustainable Fisheries Act demand that Essential Fish Habitat be explicitly managed and protected. The Revised Alternative C.12 is a compilation of over three years of an iterative, constructive process to develop a practicable and precautionary habitat management regime that meets the standards of the law. Oceana has gone to great lengths to conduct extensive literature reviews and obtain the highest quality data to develop a comprehensive policy solution. Revised Alternative C.12 is explicit regarding its use of the best available data given the uncertainties and most up-to-date understanding of this complex interdisciplinary challenge. Ideally, the selection and implementation of Revised Alternative C.12 will broaden the management scope of the Pacific Fishery Management Council to explicitly include considerations of Essential Fish Habitat in the overall ecosystem-based management of U.S. West Coast Groundfish Fisheries.

Oceana's Comprehensive Alternative has survived the scrutiny of the Council's Scientific and Statistical Committee, rigorous analysis by the state fishery management agencies, and has continually been improved as the direct result of constructive feedback from fishermen, fishery managers, scientists, and conservation interests. In implementing the Comprehensive Alternative, NMFS and the Council can rest assured that the Alternative offers substantial protection to known seafloor habitats that are vulnerable to bottom trawl fishing gear. In fact, based on the strong scientific evidence presented in these comments, protecting these areas will

maintain and enhance the productivity of U.S. West Coast fisheries and the health of our ocean ecosystems. At the same time, Revised Alternative C.12 legitimates the economic needs of coastal communities and has been significantly refined based on comments from the SSC and trawl fishermen to improve its practicability. Revised Alternative C.12 shows that we can indeed conduct healthy, sustainable fisheries while adequately protecting the very habitats and ecosystems that are responsible for the high productivity and biodiversity of U.S. West Coast marine environments. Please adopt the Revised Alternative C.12 presented in these comments as the Preferred EFH Mitigation Alternative in the EFH Final EIS.

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Scientists' Statement on Protecting the World's Deep-sea Coral and Sponge Ecosystems

As marine scientists and conservation biologists, we are profoundly concerned that human activities, particularly bottom trawling, are causing unprecedented damage to the deep-sea coral and sponge communities on continental plateaus and slopes, and on seamounts and mid-ocean ridges.

Shallow-water coral reefs are sometimes called "the rainforests of the sea" for their extraordinary biological diversity, perhaps the highest anywhere on Earth. However, until quite recently, few people - even marine scientists - knew that the majority of coral species live in colder, darker depths, or that some of these form coral reefs and forests similar to those of shallow waters in appearance, species richness and importance to fisheries. Lophelia coral reefs in cold waters of the Northeast Atlantic have over 1,300 species of invertebrates, and over 850 species of macro- and megafauna were recently found on seamounts in the Tasman and Coral Seas, as many as in a shallow-water coral reef. Because seamounts are essentially undersea islands, many seamount species are endemics - species that occur nowhere else - and are therefore exceptionally vulnerable to extinction. Moreover, marine scientists have observed large numbers of commercially important but increasingly uncommon groupers and redfish among the sheltering structures of deep-sea coral reefs. Finally, because of their longevity, some deep-sea corals can serve as archives of past climate conditions that are important to understanding global climate change. In short, based on current knowledge, deep-sea coral and sponge communities appear to be as important to the biodiversity of the oceans and the sustainability of fisheries as their analogues in shallow tropical seas.

In recent years scientists have discovered deep-sea corals and/or coral reefs in Japan, Tasmania, New Zealand, Alaska, California, Nova Scotia, Maine, North Carolina, Florida, Colombia, Brazil, Norway, Sweden, UK, Ireland and Mauritania. Because research submarines and remotely operated vehicles suitable for studying the deep sea are few and expensive to operate, scientific investigation of these remarkable communities is in its very early stages. But it is increasingly clear that deep-sea corals usually inhabit places where natural disturbance is rare, and where growth and reproduction appear to be exceedingly slow. Deep-sea corals and sponges may live for centuries, making them and the myriad species that depend on them extremely slow to recover from disturbance.

Unfortunately, just as scientists have begun to understand the diversity, importance and vulnerability of deep-sea coral forests and reefs, humans have developed technologies that profoundly disturb them. There is reason for concern about deep-sea oil and gas development, deep-sea mining and global

warming, but, at present, the greatest human threat to coral and sponge communities is commercial fishing, especially bottom trawling. Trawlers are vessels that drag large, heavily weighted nets across the seafloor to catch fishes and shrimps. Scientific studies around the world have shown that trawling is devastating to corals and sponges. As trawlers become more technologically sophisticated, and as fishes disappear from shallower areas, trawling is increasingly occurring at depths exceeding 1,000 meters.

It is not too late to save most of the world's deep-sea coral and sponge ecosystems. We commend nations including Australia, New Zealand, Canada and Norway, which have already taken initial steps towards protecting some coral and sponge ecosystems under their jurisdiction. We urge the United Nations and appropriate international bodies to establish a moratorium on bottom trawling on the High Seas. Similarly, we urge individual nations and states to ban bottom trawling to protect deep-sea ecosystems wherever coral forests and reefs are known to occur within their Exclusive Economic Zones. We urge them to prohibit roller and rockhopper trawls and any similar technologies that allow fishermen to trawl on the rough bottoms where deep-sea coral and sponge communities are most likely to occur. We urge them to support research and mapping of vulnerable deep-sea coral and sponge communities. And we urge them to establish effective, representative networks of marine protected areas that include deep-sea coral and sponge communities.

The following 1,136 scientists have signed the *Scientists' Statement on Protecting the World's Deep-Sea Coral and Sponge Ecosystems*. Affiliations are for identification only, and do not imply endorsement by the signers' institutions.

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April 15, 2004

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Dear Dr. Balsiger and Ms. Madsen:

Corals, sponges, and other living seafloor communities are important to the health of our oceans. The current Essential Fish Habitat Environmental Impact Statement process for the North Pacific provides the opportunity for the National Marine Fisheries Service (NMFS) and the North Pacific Fishery Management Council (NPFMC) to conserve corals, sponges, and other living seafloor communities that provide habitat for fishes from destructive fishing practices. We, the undersigned marine scientists and marine conservation biologists are concerned by the actions and rationale of the NMFS and NPFMC that fail to protect deep sea corals and sponges in North Pacific waters.

Presence of living benthic structure increases habitat complexity and sustains patterns of biodiversity in our ocean ecosystems. Cold water corals are among the most vulnerable and oldest seafloor habitats in Alaska. Many marine species, including commercially important species, utilize the vertical and three-dimensional structure provided by corals and sponges. Widely distributed in the Aleutians, Bering Sea, and Gulf of Alaska, these long-lived animals can protect fishes from strong currents and predators, as well as serve as nurseries for juveniles, and focal sites for feeding and reproduction.

Gorgonian corals, such as the red tree coral *Primnoa* spp. and the bubblegum coral *Paragorgia arborea,* are one of the most prominent groups of corals in Alaska. Both grow slowly, but can reach large sizes (3 m tall) and great ages (200+ years) if left undisturbed. Rockfish, Atka mackerel, walleye pollock, Pacific cod, sablefish, flatfish, crabs, and other economically important species in the North Pacific are found around red tree coral in the Gulf of Alaska (Krieger and Wing 2002). Among fish caught around corals during trawl surveys from 1975-1998, rockfish and Atka mackerel were most commonly caught around gorgonian, cup, and hydro- corals (Heifetz 2000). Eighty three percent of the rockfish observed during one study were associated with red tree coral (Krieger and Wing 2002). The removal or damage of red tree corals in Alaskan waters could have long term effects on associated faunal communities (Krieger and Wing 2002).

Video observation indicates that some managed fish species in the Aleutian Islands are highly associated with corals, sponges and other structure-forming invertebrates. One hundred percent of juvenile rockfish and eighty seven percent of all managed species counted in video from dives around the Aleutian Islands in 2002 were found within or very near these organisms (Stone, unpublished data). In recognition of their ecological importance and vulnerability to the adverse effects of fishing, coral, sponges, and other structure-forming seafloor communities have been identified as habitat areas of particular concern in Alaskan waters (Amendment 55/55/8/5/5 to the Fishery Management Plans for

BSAI Groundfish, GOA Groundfish, BSAI Crab, Alaska Scallop, and Salmon in the EEZ, pg 362-364, Jan.1999).

Bottom trawling destroys far more ocean habitat than any other fishing practice on the West Coast. The NMFS estimates about one million pounds of corals and sponges were removed from the seafloor of the Aleutian Islands and the Bering Sea annually between 1997 and 1999 by commercial fishing – over 90% by bottom trawlers (NMFS 2003). The impacts of this kind of destruction are neither minimal nor temporary. Both hard corals and soft corals can be extremely slow growing and sensitive to disturbance (*eg* Krieger 2001, Witherell and Coon 2000). For some species, it could take hundreds of years, if ever, for these animals to recover from the destruction of bottom trawling (*eg* Witherell and Coon 2000, Risk *et al.* 1998, Andrews *et al.* 2002). Vase sponges, morel sponges, and seawhips in deep, cold water habitats such as those in the Gulf of Alaska are also very vulnerable and slow to recover from bottom trawling (Freese *et al.* 1999, Freese 2001).

As documented in the National Academy of Sciences, National Research Council report of 2002, "Effects of Trawling & Dredging on Seafloor Habitat," bottom trawling reduces the complexity and biological diversity of seafloor habitats. The Academy recommends closures, gear modifications, and fishing effort reductions to mitigate the detrimental impacts of bottom trawling. Further, in February 2004, more than 1,100 of the world's foremost biologists signed a consensus statement calling for governments and the United Nations to protect imperiled deep sea coral and sponge ecosystems.

Currently in the North Pacific, NMFS is using the argument that bottom trawling in Alaska has no more than a "minimal" impact on habitat. The agency is using the rationale that in order to be more than minimal, habitat degradation must be so severe as to cause commercial fish stocks to collapse below sustainable levels. NMFS is measuring habitat effects by gauging the stock status of commercial fish, an inappropriate proxy as fisheries scientists cannot separate the effects of overfishing from those of habitat destruction on the status of fish populations. Rather, the effects on habitat should be directly measured, using observation and experiment.

NOAA scientists have said that the deep-sea corals in the Aleutians in particular are likely unparalleled in the world and that they have observed areas of damaged corals and associated organisms. Further, NMFS' own analysis shows that habitat-structuring organisms like corals, sponges, bryozoans, tunicates, crinoids, and anemones will be reduced 70-90% in thousands of square kilometers of habitat if current fishing practices continue. These losses are not inconsequential. Ecosystems are naturally resilient, but only to a point. Waiting to cross that threshold is dangerous. If the resiliency of a system is exceeded, the change can be irrevocable.

The time is now to protect Alaska's corals. We strongly urge the Council and NMFS to protect sensitive benthic habitat from destructive fishing practices.

Sincerely,

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CARE
California Artificial Reef Enhancement PROGRAM

May 11, 2005

Mr. D. Robert Lohn, Regional Administrator
c/o Maryann Nickerson
National Oceanic and Atmospheric Administration
7600 Sand Point Way, NE, Building 1
Seattle WA 98115-0700

Re: Comments on 2005 Draft EIS for Pacific Coast Groundfish Essential Fish Habitat

Dear Mr. Lohn:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for Essential Fish Habitat Designation for the Pacific Coast Groundfish Fishery Management Plan. This letter contains comments on the DEIS from the California Artificial Reef Enhancement Program (CARE). CARE is a nonprofit organization which, through public education and scientific research, promotes awareness and understanding of the potential value to be derived from artificial reef ecosystems in offshore California, and supports the preservation and enhancement of artificial reefs when recognized as beneficial to the marine environment.

As stated in our comments submitted on October 5, 2004, CARE supports the designation of the oil and gas platforms offshore of southern California as "Habitat Areas of Particular Concern" (HAPC) under the Magnuson-Stevens Fishery Conservation and Management Act. For the reasons stated in our previous comments and in these comments, we believe that Alternative B.8 in the DEIS, which would designate the oil and gas platforms off of the California coast as Habitat Areas of Particular Concern (HAPC), should be adopted as part of the comprehensive strategy to conserve and enhance essential fish habitat for fish species managed under the Pacific Coast Groundfish Fishery Management Plan. With these comments, we are providing additional scientific information that should be included and evaluated in the Final EIS for the purpose of selecting the final preferred alternative. Please contact me at (805) 320-8456 if you have any questions or would like any further information that CARE may be able to provide.

Sincerely,

George Steinbach
Executive Director

May 11, 2005

Comments of CARE on the February 2005
Draft EIS for Pacific Coast Groundfish EFH

General Comments:

General Comment 1:

CARE supports Alternative B.8 in the Draft Environmental Impact Statement ("DEIS"), the designation of oil and gas platforms offshore of southern California as "Habitat Areas of Particular Concern" ("HAPC") under the Magnuson-Stevens Fishery Conservation and Management Act ("Magnuson-Stevens Act"). The information submitted with these comments and with our comments dated October 5, 2004 strongly supports this designation.

General Comment 2:

In these comments, we use the term "platform reefs" to refer to the valuable groundfish habitat that oil and gas platforms provide. This term is meant to emphasize that scientific research demonstrates that the underwater portions of oil and gas platforms serve as de facto reef habitat. In addition, the term emphasizes that only the underwater portion of the platform is relevant to the discussion of groundfish Essential Fish Habitat ("EFH") and HAPC. We use "platform reefs" to emphasize the need for decision-makers to consider the habitat value of the underwater portion of the platform structure, and that both future groundfish fishery management and platform decommissioning decisions should consider their potential impact on the habitat that the platform reefs provide.

General Comment 3:

As the DEIS notes (p. 4-12), designation of HAPC "may result in indirect effects greater than those associated with EFH because resource managers and regulators are likely to place a high priority on protecting areas that have been designated as HAPCs." With respect to Alternative B.8, the DEIS (p. 4-13) acknowledges that: "Designation of the areas surrounding oil platforms would enhance NMFS' opportunity to fully consider their potential contribution to rebuilding overfished species before they are removed" on decommissioning. For these reasons, a careful, thorough and balanced analysis of potential positive and negative consequences associated with this alternative is essential to enable decision-makers to make informed decisions among the alternatives. However, the DEIS does not contain such an analysis. The Final EIS should acknowledge and evaluate the environmental consequences of the decision whether or not to adopt Alternative B.8 based on the information discussed in these comments.

General Comment 4:

The discussion of environmental consequences for the proposed preferred alternative and other alternatives addresses the protection of habitat for groundfish species and includes conservative

assumptions that habitat used by groundfish has positive value.[1] By contrast, the analysis of Alternative B.8 on p. 4-13 states only that: "One view holds that scientific research indicating an abundance of fish species located near oil rig platforms is a benefit to the ecosystem." No citations are given and the unidentified "scientific research" is not described at all beyond that single summary sentence. The remainder of the discussion consists of arguments against the designation of platform reefs as HAPC, based on one outdated citation and unsupported speculation cited as "personal communications" (as discussed in specific comments below). We are very disappointed with the lack of attention in the "Environmental Consequences" analysis to the scientific evidence supporting the important ecological role of platform reefs and the need for their protection. This one-sided presentation does not provide decision-makers or the public with the information necessary to make an informed comparison among alternatives. The Final EIS must be revised to take into account the information presented in our prior comments and in these comments in order to present an unbiased basis for decision-making.

General Comment 5:

Some information on groundfish populations at platform reefs is described under the heading of "Alternatives" (DEIS, p. 2-10) and "Affected Environment" (DEIS, pp. 3-8 – 3-10). However, this information is disregarded — and is not even cross-referenced — in the "Environmental Consequences" analysis (DEIS, p. 4-13). With all respect to those who read this large document and attempt to digest and utilize the massive amount of information it contains, inclusion of this material in the "Alternatives" and "Affected Environment" sections is not an adequate substitute for full and fair consideration of this information in the evaluation of environmental consequences as required by the National Environmental Policy Act ("NEPA").

General Comment 6:

EFH decisions must be based on "the best available scientific information" (50 CFR § 600.815(a)(1)(ii)), and this information must be interpreted "in a risk-averse fashion" (*id.* at § 600.815(a)(1)(iv)). On that point, it is critical to note that ***the designation of platform reefs as HAPC will not have any adverse environmental consequences***. Rather, as the DEIS itself acknowledges, this designation would "enhance NMFS' opportunity to fully consider their potential contribution to rebuilding overfished species before they are removed." (DEIS, p. 4-13) Whatever scientific uncertainties may yet remain can be considered when NMFS consults regarding decommissioning plans for particular platforms. CARE believes that the increasing accumulation of evidence clearly supports the benefits of platform reefs. Nevertheless, should substantive scientific evidence be presented to document the speculative suggestions raised in the DEIS (*id.*), that evidence can be taken into account in the EFH consultation process. The HAPC designation itself would not prevent NMFS from conducting a thorough evaluation of each decommissioning proposal in order to minimize any adverse consequences. On the other hand, once the structures are removed, NMFS will have no opportunity for further evaluation because the platform reef habitat and thriving ecological communities will be destroyed. Moreover, since the removal of oil and gas platforms is typically

[1] For example, see DEIS pp 4-3 ("Each alternative is analyzed for the extent to which it protects habitat for individual species/life stages of groundfish") and 4-4 ("in the absence of definitive research, the analysis concludes that it is beneficial to protect some portion of each habitat type. . .") .

carried out by using explosives to sever the jacket, removing the platform reefs will kill the marine animals and fishes in the vicinity when the explosives are detonated. (Gitschlag et al., 2000.) As a result, large numbers of juvenile and adult individuals from slow-growing, slow-reproducing and long-lived species will be killed. This is a serious adverse consequence for the program of rebuilding these overfished stocks, especially since some of the highest observed populations of some rockfish species are associated with platform reefs. (Love 2003.) Yet the DEIS entirely ignores this issue. The cursory analysis presented of environmental consequences on p. 4-13 is wholly inadequate in failing to take into account the "one-way" nature of those consequences: If HAPC designation indirectly leads to any adverse consequences from the presence of the platform reefs, those consequences can be addressed in future decisions. If lack of HAPC designation indirectly leads to adverse consequences from elimination of the platform reefs, they and their existing groundfish populations cannot be restored.

General Comment 7:

In addition, the information submitted with our prior comments and these comments supports the decision not to select Alternative A.6, the most geographically restricted EFH designation, as the final preferred alternative. Were Alternative A.6 to be adopted, some platform reefs would be excluded from the area designated as EFH. In that event, the substantial existing groundfish populations at those platform reefs would be deprived of the benefits of the overall EFH conservation strategy, as well as the protection of the EFH consultation process in future decisions regarding the decommissioning of the platforms. In addition, such exclusion would necessarily preclude designating excluded platform reefs as HAPC. The Final EIS should acknowledge and evaluate these environmental consequences of Alternative A.6. Should the Council wish to narrow the designation of EFH as proposed in this alternative, it should be modified to retain EFH status for platform reefs that are outside the current range of Alternative A.6.

Specific Comments

1. DEIS, pp. i, 1-3

The DEIS states that: "*The purpose of the proposed action* is: first, to provide the Council and NMFS with the information they need to better account for the function of Pacific Coast groundfish EFH when making fishery management decisions; …" In order to fulfill this purpose, the DEIS must provide the Pacific Fisheries Management Council ("Council") and National Marine Fisheries Service ("NMFS") with all of the available scientific information regarding the habitat value of platform reefs. The duty to consider all available scientific information is enshrined in NEPA and in the Magnuson-Stevens Act. An EIS must "provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." 40 CFR § 1502.1. Fishery Management Plans ("FMPs") must demonstrate that "the best available scientific information was used in the description and identification of EFH." 50 CFR § 600.815(a)(1)(ii). In addition, Fishery Management Councils are directed to "interpret this information in a risk-averse fashion to ensure adequate areas are

identified as EFH for managed species." *Id.* at § 600.815(a)(1)(iv). The one-sided discussion on DEIS p. 4-13 fails to achieve this purpose.

2. DEIS, pp. i to ii, 1-3

The DEIS states that "the Council and NMFS have not had the tools to consider habitat and ecosystem function, and their relation to other biological and socioeconomic conditions affecting the groundfish fishery, in management decisionmaking. . . . *An overriding problem has been the challenge of managing fisheries with limited scientific data.* This increases the risk that decisions exacerbate the kinds of fishery- and stock-related problems just identified" (emphasis added). Thus, the DEIS recognizes the risk inherent in managing the Pacific groundfish fishery with limited data, and relies on conservative assumptions throughout the document to address this uncertainty. This approach is consistent with the requirement that identification of EFH must be based on "the best available scientific information" (50 CFR § 600.815(a)(1)(ii)), and that this information must be interpreted "in a risk-averse fashion" (*id.* at § 600.815(a)(1)(iv)). The document fails to take this approach in only one case – the analysis of alternative B.8. In that case alone, the "lack of conclusive research" is cited as an objection to HAPC designation (DEIS, p. 4-13). On the contrary, under the risk-averse analytical approach used in the rest of the document and required by EFH regulations, any scientific uncertainties should be a basis for conservative assumptions in favor of protecting platform reefs that provide existing habitat utilized by groundfish species.

3. DEIS, p. 2-1

The DEIS states that:

> In order to satisfy this requirement [to identify a preferred alternative or alternatives] in a way that fosters public input and informed decisionmaking, the Council chose preliminary preferred alternatives for EFH identification and description, HAPCs, and fishing impact minimization measures at their November 2004 meeting. They explicitly construed this choice as preliminary—they intend to revisit their decision at the June 2005 meeting, after the public comment on the DEIS has been received, to further refine their choice of a comprehensive preferred alternative. After the June 2005 Council meeting, NMFS will publish a final EIS (FEIS), which will identify these final preferred alternatives.

The DEIS does not explain why certain alternatives were designated as preferred. The Final EIS must describe the criteria used to identify preferred alternatives and must explain how the final preferred alternatives meet the criteria, as well as why rejected alternatives are rejected As noted above, one criterion that should be used to identify preferred alternatives is to interpret the best scientific available information "in a risk-averse fashion to ensure adequate areas are identified as EFH for managed species." 50 CFR § 600.815(a)(1)(iv).

4. DEIS, p. 2-1

During the November 2004 Council meeting, Council members raised some concerns which appeared to bear on the decision whether to designate Alternative B.8 as a preferred alternative. To the extent that those concerns may be considered in evaluating the alternative, they should be disclosed to the public readers of the EIS and addressed in its analysis. First, a concern was raised by one Council member about the "questionable motives" of those who advocate designating platform reefs as HAPC. It is unclear what motives the Council member was referring to. As a general matter, however, the Magnuson-Stevens Act balances a variety of interests, including commercial, recreational and environmental interests, in the management of U.S. fisheries. Commenters are entitled to present their views in order to inform fisheries management decisions and the analysis of environmental consequences. Moreover, under NEPA, the "motives" of any commenter on an EIS are irrelevant. The only relevant issue is whether a suggested course of action conserves and enhances EFH and assists in the recovery of fish populations.

5. DEIS, p. 2-1

Second, concerns were raised during the Council meeting that designating platform reefs as HAPC would set a precedent that would allow discarded articles, such as furniture, oil cans and sunken boats to be left in the ocean as artificial reefs. This is not the case. In the past, some artificial reef projects may have been used to justify solid waste disposal with harmful environmental consequences. However, such actions would not be permissible today under the extensive laws and regulations that govern the construction, siting and placement of artificial reefs. Congress passed the National Fishing Enhancement Act ("NFEA") (33 U.S.C. §§ 2101 *et seq.*) in 1984. The NFEA established national standards for artificial reef development, one of which is to "minimize environmental risks and risks to personal health and property." *Id.* at § 2102(4). The NFEA directed NOAA to create a National Artificial Reef Plan ("NARP") (*id.* at § 2103) and authorized the U.S. Army Corps of Engineers ("Corps") to issue permits for artificial reefs (*id*. at § 2104; *see also* 33 CFR § 322.5(b)). The NARP and the Corps' regulations establish guidelines for siting, materials, design, construction, management and liability, among others. In particular, the NARP provides that materials proposed for artificial reefs must be of proven stable design. Furthermore, the proposed revision of the NARP (Feb. 2002) states that secondary use materials that have generally been found to be unsuitable artificial reef materials include light vehicle bodies, fiberglass boats and boat molds and light gauge metal items such as refrigerators, washing machines, and clothes dryers. Both of these guidelines would prohibit designating discarded junk as artificial reefs. Moreover, state and federal natural resource agencies, the Council, NMFS, and the public all participate in the artificial reef permitting process, which ensures that only appropriate materials will be utilized. Finally, artificial reef permits issued by the Corps are subject to environmental review under NEPA, which further ensures that the concerns about the suitability of a particular material will be addressed.[2]

[2] California also has an artificial reef program. Cal. Fish & Game Code §§ 6420-6425. Under California's program, the Department of Fish and Game has authority over the design, placement and monitoring of artificial reefs within state waters. Approximately 34 artificial reefs have been constructed along the California coast under

6. DEIS, p. 2-1

A third concern raised during the Council's consideration of Alternative B.8 was whether "man-made" habitat should be preferred over "natural" habitat in EFH and HAPC designations. The EFH regulations do not draw this distinction. EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." 50 CFR § 600.10. Substrate "includes sediment, hard bottom, **structures underlying the waters**, and associated biological communities." *Id.* (emphasis added). "Structures underlying the waters" means artificial (i.e., man-made) structures. NMFS added artificial structures to the definition of substrate in 1997. *See* Magnuson-Stevens Act Provisions: Essential Fish Habitat (EFH), 62 Fed. Reg. 66531 (Dec. 19, 1997) (interim final rule). In response to commenters that objected to the inclusion of artificial structures in the definition of substrate, NMFS stated that it:

> included "structures underlying the waters" in its interpretation of substrate to clarify that structures such as artificial reefs, jetties and shipwrecks may be considered EFH if they provide essential habitat for a managed species.

Id. at 66534. In 2002, when NMFS revised the EFH regulations, similar objections regarding the inclusion of artificial structures in the definition of EFH were raised, to which NMFS responded that it was "not modifying the interpretation of 'substrate' to exclude human made structures, because in some cases such structures can provide valuable habitat for managed species." Magnuson-Stevens Act Provisions: Essential Fish Habitat (EFH), 67 Fed. Reg. 2343, 2347 (Jan. 17, 2002) (preamble to final rule). Accordingly, NMFS has made it clear that artificial structures qualify as EFH. Nothing in the definition of HAPC is to the contrary. To the extent that the habitat characteristics of platform reefs qualify them as HAPC, the fact that they are artificial in origin must be considered irrelevant. Conversely, to reject platform reefs as HAPC for the reason that they are artificial would be inconsistent with the EFH regulations and the purposes of the Magnuson-Stevens Act. If the Council finds it necessary to prioritize, it should place the highest priority on those alternatives with the highest probability of achieving the fisheries management goals of the Act.

7. DEIS, p. iv, 2-6

It appears, based on Figure 2-6, that Alternative A.6, which would identify EFH as the upper 30 percent of the area where the Habitat Suitability Probability ("HSP") is greater than zero for all species, would exclude some of the 27 platform reefs off the California coast from the EFH area. However, there is not enough information in the text of the DEIS or in Figure 2-6 to determine whether or which platform reefs may be excluded from the area identified as EFH under Alternative A.6. In order to fully inform the decisionmakers and the public of the alternatives being considered, the DEIS should clearly state which platform reefs would be included in and excluded from the area identified as EFH under Alternative A.6. If the result of Alternative A.6 would be to eliminate some platform reefs from the EFH category – some of which support dense populations of groundfish as even the DEIS acknowledges (pp. 2-10, 3-8 to 3-10) – this

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the state program. Some of these artificial reefs were built before the NARP was adopted, however the recently constructed artificial reefs were built in accordance with NARP guidelines.

consequence should be recognized in the DEIS analysis as an adverse environmental consequence of Alternative A.6.

For this reason, as noted above, CARE urges that Alternative A.6 should not be adopted in its present form. Should the Council wish to narrow the designation of EFH as proposed in this alternative, it should be modified to retain platform reefs as EFH that are outside the current range of Alternative A.6.

8. DEIS, p. 2-10.

In the description of Alternative B.8, the DEIS notes that: "High concentrations of groundfish have been observed in association with many of the platforms off the California coast, including overfished species such as bocaccio and cowcod." For this reason, and as discussed below, identifying platform reefs as EFH and designating them as HAPC should be part of the comprehensive strategy to conserve and enhance EFH.

9. DEIS, p. 2-10

In the description of Alternative B.8, the DEIS states that: "In addition to providing suitable habitat, most of these structures are not fished and act as de facto reserves." The scientific literature cited in Chapter 3 of the DEIS that supports this statement has been confirmed by more recent research. Love et al. (2003) (Exhibit 1) found that fishing pressure around most platforms has been minimal, in part due to U.S. Coast Guard regulations that restrict access of large fishing boats to the waters near platforms. The same fact is documented by the U.S. Environmental Protection Agency ("USEPA") Essential Fish Habitat Assessment for NPDES Permit No. CA 2800000 (2000, pp. 5-2 to 5-3) (Exhibit 2). Further, the physical structure of oil platforms significantly restricts the use of both commercial and recreational gear to fish the resident fish populations.

10. DEIS, p. 2-10

In the description of Alternative B.8, the DEIS briefly acknowledges that: "The platforms rise steeply from the bottom and provide unique high relief habitat." The "uniqueness" of the platform reef habitat should be emphasized, given that "rarity of the habitat type" is one of the factors to be considered in designating HAPC. 50 CFR § 600.815(a)(8)(iv). As the DEIS acknowledges, the latticework of footers and crossbars that comprise the underwater features of platform reefs provide unique high relief habitat. Pinnacle reefs are the only natural formations that provide a similar type of high relief habitat. However, natural pinnacle reefs are very rare off of the California coast, with only one such reef located in the Santa Barbara Channel (Love, personal communication). The DEIS (p. 3-9) also notes that pinnacles are only found on the outer continental shelf, well away from the mainland. Consequently, the majority of this rare type of habitat is provided by platform reefs. In addition, as discussed in these comments, platform reefs provide hard bottom habitat that is rare in the areas in which the platform reefs are located. These facts must be considered in evaluating the environmental consequences of designating platform reefs as HAPC and provide support for the environmental benefits of Alternative B.8.

11. DEIS, p. 2-10

The DEIS states that Alternative B.8 was developed to be consistent with 50 CFR § 600.815(a)(8)(i), but does not explain the reasoning behind this statement. Section 600.815(a)(8)(i) provides that one criterion for designating HAPC is the importance of the ecological function provided by the habitat. The DEIS correctly notes on page 2-10 that high concentrations of groundfish species, including overfished bocaccio and cowcod, have been observed associated with many platform reefs. However, this brief statement fails to adequately address and inform the reader of the variety and importance of the ecological functions that platform reefs provide. As discussed in section 3.2.2.2.4 of the DEIS (pp. 3-8 to 3-10) and in the additional scientific information discussed and cited in these comments:

(i) platform reefs provide habitat for different life stages of rockfish (i.e., larvae, juveniles, adults) (Love 2000) (Exhibit 3), (Love 2001) (Exhibit 4), (Love 2003), (Love 2005) (Exhibit 5);
(ii) different life stages of the same species inhabit different depths along the platform reef (i.e., adults inhabit the deep waters and juveniles inhabit the midwaters), thereby reducing predation by adults on juveniles (Love 2003);
(iii) platform reefs create hard bottom habitat (via the lattice-work of legs and cross members) in areas that are primarily soft bottom habitat (Love 2003);
(iv) each platform reef creates a variety of habitat (again, via the lattice-work of legs and cross members) (Love 2003);
(v) because platform reefs have more adults in higher densities than natural reefs, they produce a disproportionate share of larvae in the region (Love 2003; Love 2005);
(vi) platform reefs recruit larval fish, which grow into juveniles that live in the midwaters and are found in greater densities than at natural reefs (Love 2003; Love 2005);
(vii) platform reefs recruit larval fish that would otherwise have perished in the absence of the platform reef (Love 2005);
(viii) juveniles living at platform reefs may grow to adulthood and remain there throughout their lives (Love 2003); and
(ix) a survey of six platform reefs revealed that approximately 20 percent of all bocaccio young-of-the-year in the Pacific Coast Groundfish fishery are found there (Love 2005).

Clearly, the platform reefs provide important ecological functions that must be addressed in the environmental consequences analysis of the Final EIS, and provide support for the environmental benefits of Alternative B.8.

12. DEIS, p. 2-10.

The DEIS states that Alternative B.8 was developed to be consistent with 50 CFR § 600.815(a)(8)(iii), but does not explain the reasoning behind this statement. Section 600.815(a)(8)(iii) provides that another criterion for designating HAPC is whether and to what extent development activities are, or will be, stressing the habitat type. The brief discussion on

page 2-10 of the DEIS does not mention the fact that the current platform decommissioning regulations require complete removal of the platforms. However, as the DEIS correctly notes in section 4.3.3 (p. 4-13), "Oil platforms are subject to removal from the ocean as they are decommissioned." In fact, Gebauer et al. (2004) (Exhibit 6) estimates that removal of the oil platforms located in federal waters along the California coast will begin in 2010 and be completed by 2025. Complete removal of the oil and gas platforms will eliminate the groundfish habitat that the underwater platform reef portions provide. The Final EIS should consider the environmental consequences of this fact, which provides support for the environmental benefits of Alternative B.8, consistent with the HAPC criteria in section 600.815(a)(8)(iii).

13. DEIS, p. 2-10

The Final EIS should also explain that Alternative B.8 is consistent with the HAPC criterion in 50 CFR § 600.815(a)(8)(ii) ("The extent to which the habitat is sensitive to human-induced environmental degradation"). The habitat created by the platform reefs off of the coast of California is dependent on the platforms' presence and subject to elimination if they are removed under platform decommissioning regulations. As such, the platform reefs are sensitive to human-induced environmental degradation by removal of the structures. The Final EIS should consider the environmental consequences of this fact, which provides support for the environmental benefits of Alternative B.8, consistent with the HAPC criteria in section 600.815(a)(8)(ii).

14. DEIS, p. 3-8

The DEIS states that: "Managed species known to use offshore artificial structures include black rockfish, black-and-yellow rockfish, blue rockfish, bocaccio, brown rockfish, cabezon, calico rockfish, California scorpionfish, canary rockfish, copper rockfish, cowcod, darkblotched rockfish, flag rockfish, gopher rockfish, grass rockfish, greenblotched rockfish, greenspotted rockfish, greenstriped rockfish, kelp rockfish, leopard shark, Mexican rockfish, olive rockfish, quillback rockfish, rosy rockfish, sharpchin rockfish, starry rockfish, stripetail rockfish, treefish, vermilion rockfish, yelloweye rockfish, and yellowtail rockfish."

This list of 31 managed species understates the number of rockfish that use platform reefs as habitat. Based on annual surveys dating back to 1995, 42 species of rockfish have been identified as living around platform reefs. (Love et al. 2003; M. Love, personal communication.) The DEIS's understatement of the number of managed species that utilize platform reefs as habitat reflects the failure to rely on the best available scientific information on the habitat value of platform reefs.

15. DEIS, p. 3-8

The DEIS's discussion of the habitat value of platform reefs is based exclusively on *The Ecological Role of Natural Reefs and Oil and Gas Production Platforms on Rocky Reef Fishes in Southern California* (OCS Study MMS 99-0015) ("1999 MMS Report").[3] Several important scientific studies of the habitat value provided by platform reefs located off of California have

[3] The 1999 MMS Report is not listed as a reference in Chapter 10, "Literature Cited." It should be added.

been published since the 1999 MMS Report, including: Love et al. (1999) (Exhibit 7); Love et al. (2000); Love et al. (2001); Love et al. (2003). In addition, Love (2005) summarizes several articles that are based on his latest research, which have been submitted for publication in scientific journals.

In particular, in September 2004, Love (2005) surveyed the largest number of platform reefs since 1999. Love conducted complete surveys of platforms Irene, Hidalgo, Harvest, Hermosa, Hondo (first time), Heritage (first time), Holly, Gail, Grace, and Gilda. In addition, Love conducted midwater surveys at platforms C, B, A, Hillhouse, Henry, and Habitat (complete surveys were hindered due to poor water visibility). Love also surveyed a number of natural reefs (some first mapped in spring 2004) in the Santa Barbara Channel and around the northern Channel Islands. Love's research confirms that many platform reefs harbor higher densities of both juvenile and adult fishes than do most natural reefs. Moreover, new seafloor maps produced in 2004 by the U.S. Geological Survey demonstrate that the seafloor of much of the Santa Barbara Channel is composed of mud and sand. These studies corroborate the 1999 MMS Study and provide important additional evidence that platform reefs provide EFH for rockfish, and that platform reefs should be designated as HAPC. Love's research continues to demonstrate the importance of the Santa Barbara Channel platform reefs as providers of habitat for reef fishes. The DEIS again fails to present the best available scientific information on pp. 3-8 to 3-10, and disregards the breadth and depth of this research in concluding that there is a "lack of conclusive research regarding these issues specifically for the West Coast. . ." (p. 4-13).

16. DEIS, p. 4-13

The DEIS states that:

> One view holds that scientific research indicating an abundance of fish species located at oil rig platforms is a benefit to the ecosystem. Others refer to Holbrook et al. (2000) to stress that this research is inconclusive with regard to whether the observed fish abundance and densities indicate increased fish productivity or attraction of fish populations away from natural reef systems (Chabot, personal communication: Charter, personal communications).

The citation of Holbrook et al. (2000) is out of date. More recent research has addressed a number of the uncertainties that existed at the time that the Holbrook paper was written. The Final EIS must present a more up-to-date and accurate picture of the available scientific evidence. Moreover, the manner in which the DEIS frames the issue — i.e., platform reefs either increase fish productivity **or** attract fish populations away from natural reef systems — misleads the public and decisionmakers. Current research (summarized in the following comment) demonstrates that platform reefs have both effects — i.e., that platform reefs are important habitat for rockfish and function just as natural reefs do, in that they both produce and attract fish depending on species, site, season and ocean conditions. The DEIS, relying on the outdated reference to Holbrook et al., wholly fails to take into account these crucial findings in discussing the environmental consequences of Alternative B.8.

17. DEIS, p. 4-13

The Final EIS must consider the following current research results:

17(a). Love et al. (2003) found young-of-the-year rockfishes around platform reefs and around natural outcrops. His research indicated that the recruitment of juvenile fishes to platform reefs that are far from shore or in deep waters, such as Platforms Gail and Grace, is from maternal sources rather than attraction from natural outcrops. Platform reefs located nearer to shore or in shallow waters may attract juveniles from natural habitats because these platform reefs are located in areas in which it is relatively easier for juveniles to move between habitats. However, the converse is also true: juveniles may be attracted from platform reefs to natural habitats. One important difference, however, is the higher densities of young-of-the-year rockfishes found at platform reefs. Love et al. (2003) concluded that platform reefs provide a more optimal habitat than found on natural outcrops, making platform reefs functionally more important as nurseries.

17(b). Love et al. (2003) also found adult rockfishes around platform reefs and around natural outcrops. As with juveniles, adult rockfish found at platform reefs located far offshore or in deep waters likely arrived through recruitment rather than attraction. This research suggests that rockfishes may live their entire benthic lives around a single platform reef. Thus, the adult rockfishes at platform reefs result from maturation of resident fish rather than through the attraction of adults from natural outcrops. One important difference, however, is the higher densities of adult rockfishes found at platform reefs. The difference is so pronounced that, in some locations, platform reefs provide much or all of the adult fishes of some heavily fished species and thus contribute disproportionately to those species' larval production. (Love et al., 2003).

17(c). More recent research on the growth rate of young blue rockfish living around platform reefs demonstrates that they grow faster than fishes living around natural reefs in the same area (Love, 2005). Related research by Love (2005) indicates that platform reefs are more important producers of bocaccio and cowcod larva than natural habitat. Love's research demonstrates that mean densities for both species are higher at platform reefs than at natural reefs, and in some cases, the adult fishes at platform reefs are larger than those found at natural reefs. In particular, Platform Gail had the highest densities of mature bocaccio and cowcod of any natural or man-made habitat surveyed. Thus, the potential larval production at Platform Gail was much higher than any other site surveyed. Love estimated that for bocaccio one hectare of sea floor at that platform reef was equivalent to 68 hectares at an average natural reef, and for cowcod one platform reef hectare was equivalent to 26 hectares at an average natural reef.

17(d). Love (2005) also found that the number of juvenile bocaccio found around six platforms in the Santa Barbara Channel constituted 20 percent of the average number of juvenile bocaccio that survive in a year for the species' entire range. He determined that, when adults, these bocaccio will contribute about one percent of the additional amount of fish needed to rebuild the Pacific Coast population. His research demonstrates that,

although platform reefs provide a relatively small amount of habitat area, this habitat can be crucial for rebuilding an overfished species.

17(e). Furthermore, recent research by Love (2005) indicates that platform reefs recruit larva that would not have survived were the platform reefs not there. By simulating surface currents in 1999 and 2002 originating at Platform Irene to model juvenile bocaccio distribution patterns, Love estimated the proportion of fish recruited to a platform reef that would have arrived at natural juvenile fish habitat in the absence of the platform. Love's results indicated that that seven percent and 23 percent, respectively, of young bocaccio would have survived to reach natural nursery habitat. In other words, the vast majority of young bocaccio would not have survived if they had been unable to settle on the platform reef during the recruitment season.

17(f). The research discussed above demonstrates that platform reefs perform much like natural outcrops, in that both produce and attract rockfishes. However, there is a difference in scale favoring platform reefs, which indicates that some platform reefs are important to regional rockfish production. (Love et al., 2003; Love, 2005.) This ecological role is of significant value especially to the recovery of the many overfished rockfish species that populate the platform reefs, such as bocaccio and cowcod.

17(g) Removal of oil and gas platforms is typically carried out by using explosives to sever the jacket, removing the platform reefs will kill the marine animals and fishes in the vicinity when the explosives are detonated. (Gitschlag et al., 2000) (Exhibit 8). As a result, large numbers of juvenile and adult individuals from slow-growing, slow-reproducing and long-lived species will be killed. This is a serious adverse consequence for the program of rebuilding these overfished stocks, especially since some of the highest observed populations of some rockfish species are associated with platform reefs. (Love 2003; Love 2005.)

In sum, the uncertainty as to the habitat value of platform reefs discussed in Holbrook (2000) has been rebutted by more recent research. Given the directive by the EFH regulations to interpret the best available scientific information in a risk-averse manner (50 CFR § 600.815(a)(1)(i) & (iv)), the Final EIS should rely on the most up-to-date research in order to evaluate environmental consequences, and should consider each of the above findings.

18. DEIS, p. 4-13

The DEIS states that: "Others refer to Holbrook et al. (2000) to stress that this research is inconclusive with regard to whether the observed fish abundance and densities indicate increased fish productivity or attraction of fish populations away from natural reef systems (Chabot, personal communication: Charter, personal communications)." The sources of these personal communications are identified in the "Literature Cited" section (DEIS p. 10-3) as Warner Chabot, affiliated with the Ocean Conservancy, and Richard Charter, affiliated with Environmental Defense. It appears that these personal communications relied solely on Holbrook (2000) which, as explained above, is out of date, to support their assertions. To the

extent that the Final EIS relies on these personal communications, it should explain the qualifications of the persons cited and identify any supporting evidence for their statements.

19. DEIS, p. 4-13

The DEIS states that: "Other noted drawbacks to oil platforms HAPC designation include avoidance of returning the area under and around the platform to natural habitat that provide hiding places for rockfish, the potential for these sites to attract increased effort by fishermen and increased predators resulting in increased net mortality, and the potential for the oil platforms to be a hazard to navigation (Charter 2004, personal communication). No scientific evidence is cited as a basis for these assertions, which appear to be unsupported speculations. To the extent that the Final EIS relies on his assertions, it should explain Mr. Charter's qualifications and any supporting evidence for his statement.

20. DEIS, p. 4-13

The speculation that HAPC designation would prevent the restoration of soft-bottom hiding places for rockfish is contradicted by the best available scientific evidence. The soft-bottom habitat under and around the platform reefs is virtually devoid of hiding places. (Love 2005.) The only hiding places that exist are provided by the latticework of beams and cross members that make up the platform reef structure. Moreover, returning the area under and around platform reefs to soft-bottom habitat will require the destruction of existing hiding places and thriving habitat and kill large numbers of the resident fish. (Gitschlag et al., 2000.) The alternative that would enhance hiding places for rockfish is designating platform reefs as HAPC.

21. DEIS, p. 4-13

Regarding the claim that platform reefs could "attract increased effort by fishermen. . . resulting in increased net mortality (DEIS, p. 4-13): As the DEIS acknowledges, and as corroborated by Love (2003) and USEPA (2000), platform reefs are not currently heavily fished and, in fact, act as de facto marine refuges. This is due in part to U.S. Coast Guard regulations that restrict access of large fishing boats to the waters near platforms. In addition, the physical structure significantly restricts the use of both commercial and recreational fishing gear to fish the resident species. Designation of platform reefs as HAPC will not change the Coast Guard's regulation of navigation near the platform reefs nor will the designation alter the physical structure of platform reefs (i.e., large fishing boats will still find it difficult to navigate near them). Accordingly, designation of platform reefs as HAPC will not result in increased effort by fishermen.

22. DEIS, p. 4-13

Regarding the claim that platform reefs could attract "increased predators resulting in increased net mortality" (DEIS, p. 4-13), available scientific evidence suggests that the predation of young fishes on platform reefs is probably lower than that on natural outcrops. This is due to the fact that platform reefs occupy the entire water column and that the fish assemblages are distributed differently than on most natural outcrops. Natural outcrops in the area of platform reefs are typically 5 to 15 feet in height, putting all fish, both young and adults in close proximity. Adults

prey on young fish. On platform reefs, the adult fishes are found near the bottom while young fishes occupy the midwaters. This separation implies lower mortality rates for young fishes residing at platform reefs. (Love 2003.) Further, other natural predators, such as pinnipeds, do not appear to be attracted to platform reefs. (Love 2005, personal communication.) The DEIS identifies no evidence to the contradict these observations.

23. DEIS, p. 4-13

Finally, regarding the claim that platform reefs have "the potential to be a hazard to navigation" (DEIS, p. 4-13), the U.S. Coast Guard is responsible for maritime safety in the navigable waters of the U.S. where the platform reefs are located. It has established requirements for all oil and gas platforms regarding the operation and maintenance of aids to navigation and other measures to insure marine safety. No vessel operator has lodged a formal complaint that any oil and gas platforms off of California created a navigation hazard (Boyes, personal communication). Similarly, no hazard complaints have been lodged by vessel operators regarding oil and gas platforms or artificial reefs in the Gulf of Mexico, where many platforms have been turned into artificial reefs. (Kasprzak 2005, personal communication; Boyes 2005, personal communication.) Mr. Kasprzak (Artificial Reef Coordinator, Louisiana Department of Fish and Wildlife, Baton Rouge, Louisiana) and Mr. Boyes (Waterways Management Officer, U.S. Coast Guard, District Eleven) are well-qualified to attest to these facts. The U.S. Coast Guard's regulatory oversight will not be affected by the designation of these platform reefs as HAPC. Thus, there is no basis to the claim that HAPC designation will cause the platform reefs to become a hazard to navigation or adversely affect marine safety.

24. DEIS, p. 4-13

The DEIS states that:

> Another potential drawback that has been of particular concern in the Gulf of Mexico is the relatively high levels of mercury contamination around oil platforms. The disposal of drilling fluids containing mercury from operational oil rigs has resulted in concerns that mercury levels in fish caught near oil platforms, even years after the oil rig is no longer operational, are substantially higher than those caught elsewhere and could be a hazard to humans (Charter 2004, personal communication).

No scientific evidence is cited as a basis for these assertions. To the extent that the Final EIS relies on his assertions, it should explain Mr. Charter's qualifications and any supporting evidence for his statement. The Department of the Interior, Minerals Management Service ("MMS"), has studied the issue of mercury contamination from drilling muds in the Gulf of Mexico and reached the opposite conclusion. As the MMS states on its website: "While the issue of mercury in seafood in the Gulf of Mexico is the subject of an increasing amount of research particularly because of global and regional inputs, the results of research to date generally supports the conclusion that oil and gas platforms do not play a significant role in elevating levels of mercury in fish and other seafood." (See:

http://www.gomr.mms.gov/homepg/regulate/environ/mercury.html). The MMS bases its conclusion, in part, on the following studies:

> 24(a). In 1995, a study of three OCS oil and gas platforms included the analyses of over 700 sediment samples and over 800 tissue samples from shrimp, crabs, marine worms, clams, fish livers, and fish stomach contents. Results of the analyses documented that total mercury is not concentrated to any greater extent in organisms living near the oil and gas platforms (less than 100 meters away) when compared to those living far away from the oil and gas platforms (over 3000 meters). From these results the scientists concluded that oil and gas platforms do not contribute to higher mercury levels in marine organisms. (Kennicutt, 1996) (Exhibit 9).
>
> 24(b). In 2002, a total of 196 sediment samples were taken from six drilling sites in the Gulf of Mexico and analyzed to determine if methyl mercury (MeHg) was being produced in the sediment around drilling platforms. The results showed that concentrations of MeHg in sediments around drilling platforms do not vary significantly with concentrations found at sites that were far from drilling. The report concluded that elevated levels of MeHg around oil and gas platforms are not a widespread phenomenon in the Gulf of Mexico. (Trefry, 2002) (Exhibit 10).
>
> 24(c). The MMS Subcommittee on Mercury in the Gulf of Mexico ("MMS Subcommittee") corroborated these findings. (Creselius et al., 2002) (Exhibit 11). The MMS Subcommittee was established to independently evaluate existing scientific literature on whether OCS oil and gas activities were causing mercury pollution in the Gulf, and provide guidance as to what actions MMS should take. The MMS Subcommittee determined that high levels of total mercury around oil and gas drilling sites was directly correlated with the drilling mud weighting agent barite. However, the increase in sediment concentrations of MeHg at or adjacent to OCS oil and gas drilling sites is not directly attributable to mercury introduced with barite. Further, the MMS Subcommittee determined that the discharges at OCS oil and gas drilling sites do not create conditions that enhance the conversion of mercury to MeHg.
>
> 24(d). An additional study is currently being conducted by the Battelle Marine Sciences Laboratory to determine if barite (the source of mercury in drilling muds) is soluble in the stomach of marine animals and if trace metals are released. Preliminary results indicate that barite is only minimally soluble and that mercury is not bioavailable to marine animals. (Cimato 2005, personal communication.)

Accordingly, the available scientific evidence does not support a high level of concern regarding mercury levels. In order to provide complete and accurate information to the public and decision-makers, each of these studies should be considered in the discussion of mercury issue in the Final EIS.

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Exhibit 1

Love, M. S., D. Schroeder and M. Nishimoto. 2003. The ecological role of oil and gas platforms and natural outcrops on fishes in southern and central California: a synthesis of information. U. S. Department of the Interior, U. S. Geological Survey, Biological Resources Division, Seattle, Washington. OCS Study MMS 2003-032.

Exhibit 2

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Exhibit 3

Love, M. S., J. Caselle and L. Snook. 2000. Fish assemblages around seven oil platforms in the Santa Barbara Channel area. Fish Bull. 98:96-117.

Exhibit 4

Love, M. S., M. Nishimoto, and D. Schroeder. 2001. The ecological role of natural reefs and oil and gas production platforms on rocky reef fishes in southern California: 1998-1999 Survey Report. OCS Study MMS 2001-028.

Exhibit 5

Love, M.S. 2005. The ecological role of natural reefs and oil and gas production platforms on rocky reef fishes in southern California. Summary of research and project proposal. Santa Barbara, California.

Exhibit 6

Gebauer, D., et. al. 2004. Offshore Facility Decommissioning Costs, Pacific OCS Region. Department of Interior, Minerals Management Service, Pacific OCS Region.

Exhibit 7

Love, M. S., J. Caselle and L. Snook. 1999. Fish assemblages on mussel mounds surrounding seven oil platforms in the Santa Barbara Channel and Santa Maria Basin. Bull. Mar. Sci. 65:497-513.

Exhibit 8

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Exhibit 9

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Exhibit 10

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Exhibit 11

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May 9, 2005

Mr. D. Robert Lohn, Regional Administrator
National Marine Fisheries Service
C/o Maryann Nickerson
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Seattle, WA 98115-0070

RE: Comments on Pacific Coast Essential Fish Habitat Draft EIS

Dear Mr. Lohn,

Our Association represents a small boat fleet of trap fishermen in the California Bight that fish for Spiny Lobster, Crab, Spot Prawn and Nearshore Rock fish with traps. The area of the Santa Barbara Channel and Channel Islands are the focus of my comments.

California Bight Shellfish trap fisheries.
There are several factors that characterize our fisheries in general as being conducted with no detectable impact to the seabed.

1. We fish the perimeters of essential fishery habitat due too the crustaceans we targets foraging behavior we are fishing in sand gravel or mud bottom.
2. Our fisheries have limited entry programs and are conducted seasonally or in very discreet areas they are temporal or spatially limited
3. The traps themselves have evolved to be highly selective by design and placement. The majority of the trapping takes place within state waters with minimum bycatch. A high percentage of that incidental bycatch is released alive. It is composed of nearshore rockfish.
4. The exception is Spot prawn trapping which does take place in federal waters and has had an observer program for the last three years.
5. Our fish-trapping fishery has been restricted by the state based on a data low stock assessment to the point that it is not an economically viable fishery any more.
6. In the Northern Channel Islands where we have the highest diversity of groundfish. This is due to the transition of California and Oregonian biological provinces and the extensive reef systems. In this area we have an extensive MPA system designed as a precautionary buffer that covers well over 30% of the high quality reef inside 25 fathoms. This is really a small-scale EFH no-take MPA system complemented by the existing federal stock rebuilding programs.
7. In reality the extreme weather combined with the extreme and rapid harvest controls have made a large portion of the traditional groundfish fisheries economically unviable for the dominant sport charter fleet and small scale fixed gear rockfish fleet.
8. There has been a natural oceanographic regime shift that has triggered a trend in overall kelp canopy regrowth and successful rockfish recruitment as this is documented by our MPA monitoring

program. These favorable conditions for recruitment are now supported by very strict harvest control in both catch limits and spatial management that restricts gear and harvest by area.

General Comments on Draft EIS.

We believe that the document needs to provide a better framework for regional assessment of fishery habitats in connection to the fishing ports as economic units that are characterized by diversity of fishing enterprise. The most significant omission is that there does not seem to be a human dimension to what is essential fishery habitat.
That would be the area that is essential to maintaining harvest and the working fishing port as a Cultural Resource for the Coastal Communities. There should be a defined alternative for insuring the fishing heritage of each port by adaptively managing the fisheries with experimental zonal harvest policies conducted with no-take representative habitat heritage reserves as monitoring control sites.

The key elements of this would be

1. Creating a policy for expanding the federal observer programs into fishing for data programs that develop a scientific protocol for incorporating research into traditional fishing practice.
2. Developing regional GIS support by expanding the NMFS port liaison program to directed fishery and habitat mapping
3. Regional development of joint fishery and scientists survey design forum supported by NOAA fisheries labs and the above geo-referenced mapping project.
4. Social and economic profiles of the ports and the spatial documentation of harvest control as baseline for EFH assessment.
5. A variety of monitoring programs by scale and region to calibrate monitoring of stock rebuilding objectives by area. Focusing the development of a representative sample of habitat and fishing as a bio-economic model for the various bioregions habitat types.
6. Achievable monitoring that has realistic goals so we will not be subject to more lawsuits.
7. Modeling of EFH experimental harvest policies with real stock data to quantify scenarios that would mitigate mandatory stock rebuilding timelines with an exponential level of precaution Harvest and habitat control.

Comments on California Bight Spatial Management.

As a commercial fisherman fishing in the California Bight we have witnessed the ad-hoc nature of spatial closures initiated in the California Bight. We recommend building adaptive management of the California Bight as a management unit for planning habitat quality based MPA systems. Restricting harvest by habitat is essentially creating a MPA.

We recommend an alternative reconfiguring the CINMS reserves taking into account the cumulative harvest control and fleet reduction in our region. That creates a monitoring reserve as a federal addition to CINMS through the council process adding slope fisheries.

This would be followed by adjusting the Existing Cow Cod Closure to open area for slope fisheries and creating a more scientifically based MPA network spatially designed by habitats that are high quality diversity areas.

This process would form the analytic basis for coordinating the federal and state MPA design to provide as a framework for adaptive harvest policy based in regulatory flexibility spatially utilizing the

California Bight as an experimental regional management unit on a scale for habitat based community based spatial management systems.

We still do not have a definitive spatial baseline of cumulative spatial harvest control to address a monitoring plan design. The DEIS alternatives for monitoring cannot be adequately analyzed with out the definition of a baseline in habitat protection.

We provide attachments design examples in GIS image files.

1. Joint Scientist Fishery Straw-man designs for CINMS reconfiguration
2. Industry supported reconfigurations with state zoning changes for specific reserves from no-take to MPA status.
3. Ground fish Habitat maps and value distribution surveys from CINMS process

Habitats of particular concern.

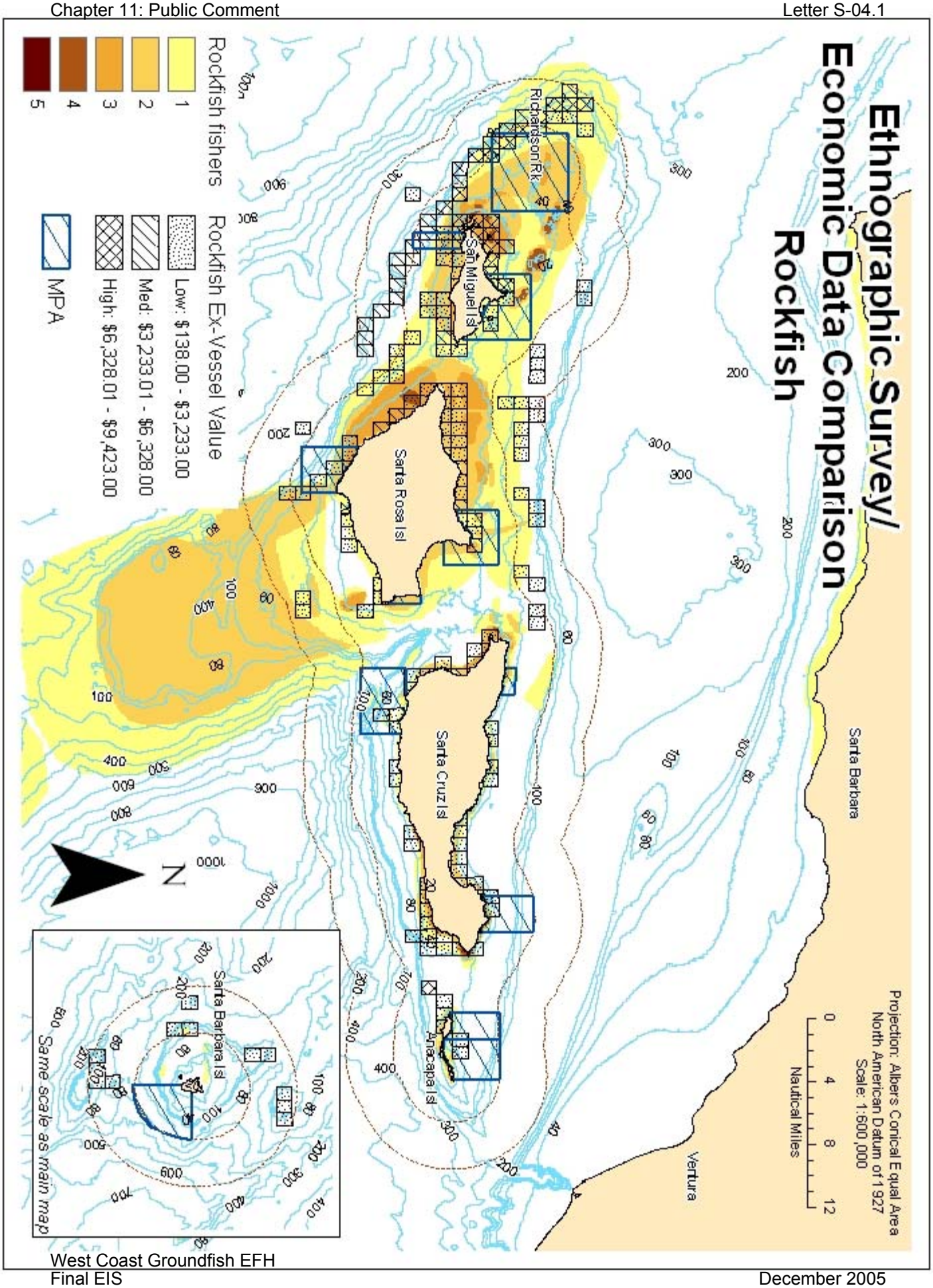
The DEIS supports an alternative of Surf Grass habitat as essential fishery habitat. This habitat is protected by the California State Water Quality Control board under the Coastal management act. The primary threat to this habitat is from sedimentation of nearshore low relief reefs associated with dredging and the developing reliance of coastal property owners on opportunistic beech replenishment programs. We support the need for comprehensive mapping of surf grass habitats in regions where beech replenishment programs are being initiated by coastal city governments. It is critical to be able to assess cumulative impacts from coastal beech replenishment permits and a monitoring program to insure minimum impacts of these programs to surf grass.

Our organization is very willing to work with NMFS in the development of proposals to assist in funding habitat analysis and the development of infrastructure for a collaborative process with NMFS and the Pacific Fisheries Management Council. We recommend initiating a pilot regional strategic plan for habitat mapping in the California bight under a partnership with NMFS and Sea Grant Fisheries extension. This should be conducted in collaboration with support from local academic institutions such as the Bren School of Ecology and Management at UCSB Santa Barbara, the Channel Islands State College at Camarillo and the NOAA fisheries labs.

We request that the Northwest region designate a point person to serve as liaison to our organization and the NMFS Southwest region to insure we have the best level of communication possible on developing the EFH analysis for our area over the next year. We would like to maximize our ability to assist in this process

Sincerely

Chris Miller VP CLTFA


Ethnographic Survey/
Economic Data Comparison
Rockfish
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Rockfish Ex-Vessel Value
Low: $138.00 - $3,233.00
Med: $3,233.01 - $6,328.00
High: $6,328.01 - $9,423.00
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Richardson Rk
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Anacapa Isl
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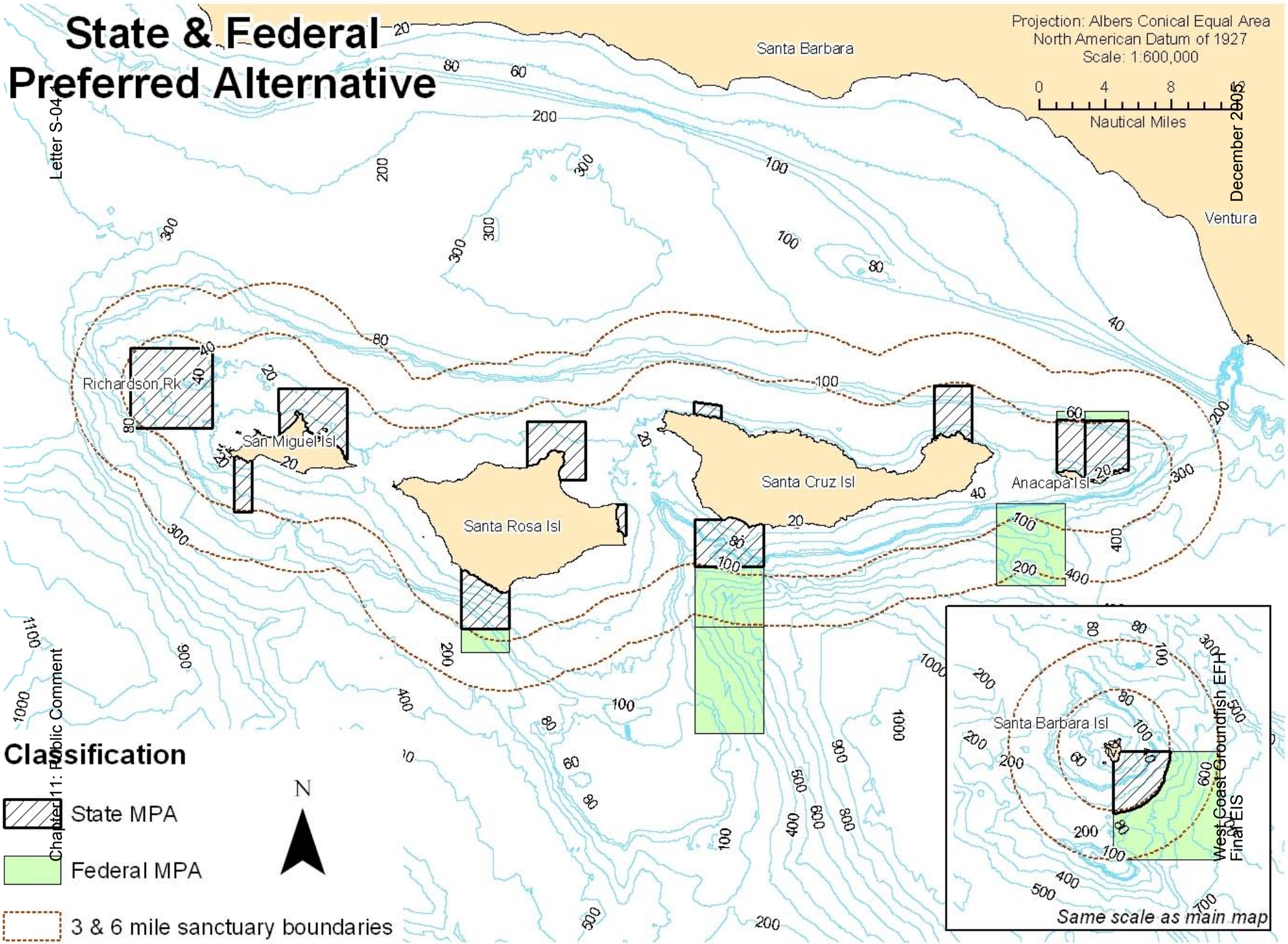
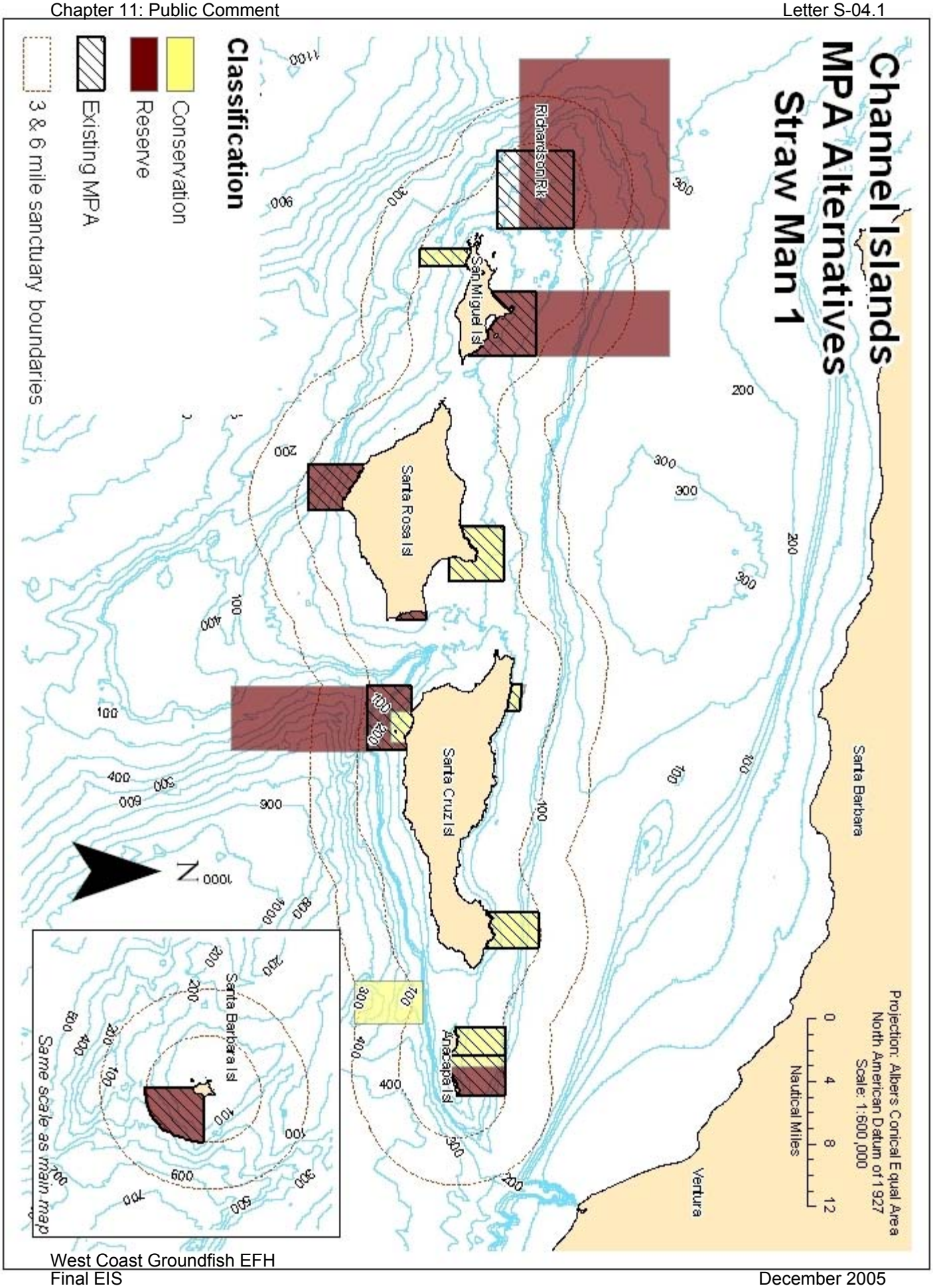
State & Federal Preferred Alternative




Channel Islands
MPA Alternatives
Straw Man 1
Classification
Conservation
Reserve
Existing MPA
3 & 6 mile sanctuary boundaries
Richardson Rk
San Miguel Isl
Santa Rosa Isl
Santa Cruz Isl
Anacapa Isl
Santa Barbara
Ventura
Projection: Albers Conical Equal Area
North American Datum of 1927
Scale: 1:600,000
Nautical Miles
Santa Barbara Isl
Same scale as main map

Natural Resources Defense Council
Oceana
The Ocean Conservancy

May 11, 2005

VIA FACSIMILE: (206) 526-6426
VIA EMAIL: GroundfishEFHDEIS.nwr@noaa.gov

Mr. D. Robert Lohn, Regional Administrator
c/o Maryann Nickerson
National Marine Fisheries Service
7600 Sand Point Way NE
BIN C15700, Bldg. 1
Seattle, WA 98115-0070

Re: Comments on Pacific Coast Groundfish Fishery Management Plan Essential Fish Habitat Designation and Minimization of Adverse Impacts Draft Environmental Impact Statement

Dear Mr. Lohn:

The undersigned organizations submit these comments concerning the Draft Environmental Impact Statement for Pacific Coast groundfish ("DEIS") for consideration by the National Marine Fisheries Service.[1] While flawed, the analyses provided in the DEIS establish that current fishing practices and patterns cause significant long-term damage to essential fish habitat ("EFH"). Accordingly, the Fisheries Service and Pacific Fishery Management Council ("Council") are required to minimize these effects. Status quo measures are neither sufficient to meet the mandates of the Magnuson-Stevens Act nor responsive to the best available information.

These comments focus on some of the legal and analytical deficiencies of the DEIS. We believe that these deficiencies can be remedied between the draft and final Environmental Impact Statements, and most importantly that selection of a broad designation alternative and comprehensive minimization alternative is warranted by the facts, science, and the law.

The DEIS Does Not Satisfy the Requirements of the National Environmental Policy Act

I. The Statement of Purpose and Need is Impermissibly Narrow.

The Fisheries Service's statement of purpose and need in this DEIS is improperly narrow and vague. See City of Carmel-By-The-Sea v. U.S. Dep't. of Transp., 123 F.3d 1142, 1155 (9th Cir. 1997) (" . . an agency cannot define its objectives in unreasonably narrow terms."). The Fisheries Service states that the objectives for the Environmental Impact Statement ("EIS" or

[1] Some of the undersigned organizations have submitted additional independent comments, to be considered in conjunction with these comments.

"DEIS") are to consider alternatives for the designation of EFH and Habitat Areas of Particular Concern ("HAPCs"), to consider alternatives for the minimization of adverse effects of fishing on EFH, and to address gaps in the available data. DEIS at 1-4. The Magnuson-Stevens Fishery Conservation and Management Act ("MSA"), Fisheries Service's regulations, and the joint stipulation from AOC v. Daley require the Fisheries Service to do more than merely propose alternatives and identify gaps in the data. The Fisheries Service must implement all practicable measures to minimize adverse effects on EFH and must fully explore and evaluate those options in its EIS. Failure to include this fundamental objective within the purview of the DEIS violates NEPA, the MSA, and the agency's regulations and obligations under AOC v. Daley.

The MSA requires that the Fisheries Service minimize the adverse effects of fishing on EFH to the extent practicable. 16 U.S.C. § 1853(a)(7). The DEIS falls far short of analyzing the relative efficacy of the alternatives on minimizing adverse effects to EFH, not to mention recommending to the Council which measures the agency believes would be most practicable in achieving those goals. Instead, the reader is left with nothing more than a vague suggestion that the analysis contained within the DEIS might, someday, be incorporated into a decision that results in "on the water" EFH protections.

Additionally, the Joint Stipulation and Order from AOC v. Evans require that "NMFS will determine either that action is necessary or that action is not necessary to comply with the requirements of Section 303(a)(7) of the Magnuson-Stevens Act [16 U.S.C. § 1853(a)(7)]." AOC v. Daley, Joint Stipulation and Order at 5. This determination is one of the primary purposes of the DEIS and must be included in the statement of purpose and need, yet the DEIS is devoid of such a determination. The Fisheries Service must do more than merely consider and rate the alternatives under consideration and point out gaps in the available data; it must also decide which alternatives best satisfy its mandate to minimize adverse effects on EFH. The DEIS utterly fails to do so. The closest the agency gets to committing to whether it will take action (or require the Pacific Council to do so) is when it states that it will identify final preferred alternatives following the June 2005 Council meeting. DEIS at 2-1. By failing to include a determination of whether the findings contained within the DEIS merit action by the Pacific Council, NMFS has violated its obligations under AOC v. Daley to conduct full NEPA review of its efforts to minimize adverse effects to EFH. Joint Stipulation at 3-5. NMFS may not delay consideration of this decision until it issues its Record of Decision because the analysis that leads to the determination must be incorporated into the NEPA process. Failure to evaluate the environmental effects of the decision of whether or not NMFS will require action to be taken "would frustrate the fundamental purpose of NEPA, which is to ensure that federal agencies take a hard look at the environmental consequences of their actions early enough so that it can serve as an important contribution to the decision making process." California v. Norton, 311 F.3d 1162, 1175 (9th Cir. 2002) (internal citations and quotation marks omitted). We believe that conservation action is appropriate and required for the reasons stated below.

II. The Range and Quality of Alternatives Considered is Inadequate.

NEPA requires the Fisheries Service to consider "alternatives to the proposed action." 42 U.S.C. § 4332(2)(C)(iii). The alternatives analysis is the "heart" of the environmental review process. 40 C.F.R. § 1502.14. As such, agencies must "rigorously explore and objectively evaluate all

reasonable alternatives." Id. As explained above, "an agency cannot define its objectives in unreasonably narrow terms," City of Carmel-By-The-Sea v. United States Dep't. of Transp., 123 F.3d 1142, 1155 (9th Cir. 1997), in order to limit the range of alternatives that it must consider. Alaska Wilderness Recreation & Tourism Ass'n v. Morrison, 67 F.3d 723, 729 (9th Cir. 1995) (quoting Idaho Conservation League v. Mumma, 956 F.2d 1508, 1520 (9th Cir. 1992)). The Fisheries Service is obligated to consider all reasonable alternatives that fit squarely within the scope of identifying and describing EFH and HAPC, as well as identifying and recommending which minimization measures the Pacific Council should implement and when they will be implemented. While the agency and Council clearly may consider alternatives refined in response to public comment, and refine or combine alternatives in response to public comments, the Fisheries Service may not consider or adopt any alternate proposals not included within the range of alternatives presented within the DEIS absent full NEPA review. Doing so would violate NEPA's express purpose of informed decision making and public participation. Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989); Metcalf v. Daley, 214 F.3d 1135, 1141 (9th Cir. 2000).

Before commenting on the issues raised by the EFH, HAPC, and minimization alternatives, we would like to voice a universal critique of the methodological approach taken by the Fisheries Service. By considering alternatives for EFH, HAPC, and minimization separately, the agency has greatly limited the number of alternatives available for consideration and adoption. This leads to arbitrary and illogical results. As the agency readily acknowledges in the section entitled "The Implications of the EFH Identification and Description Alternatives on HAPC and Affects Minimization," the choice of EFH alternative limits which HAPC and minimization alternatives remain available for implementation. DEIS at 4-11 – 4.12. Thus, the Fisheries Service could choose EFH, HAPC, and minimization alternatives that do not work together. As a result, the number and range of HAPC and minimization alternatives considered in this DEIS are far fewer and less broad than the agency would like the reader to believe. This approach violates NEPA's express requirement that the Fisheries Service consider a reasonable range of alternatives. To correct this methodological problem, the agency should either consider a range of HAPC and minimization alternatives within each EFH alternative so that the steps ultimately taken to minimize adverse impacts correspond to the EFH identified, or permit selection and implementation of any combination of alternatives.

A. The Fisheries Service Relies Too Heavily on HSP to Define EFH and Fails to Identify a Threshold for Determining Whether Habitat is Essential Under its HSP Alternatives.

The Fisheries Service relies exclusively on the Habitat Suitability Probability ("HSP") model in all but two of the alternatives considered for EFH identification and designation. DEIS at 2.3. As described further below, this raises great concerns about the adequacy of the range of EFH designation and identification alternatives. In addition, the HSP model does not include all relevant information, such as data layers concerning coral and sponge. The range of data used to select EFH also is truncated impermissibly by the overly-quantitative nature of the analysis and the focus on the abundance of managed species to the exclusion of other necessary components of EFH, such as prey species and their habitats. The Fisheries Service should include more information in its analysis in order to improve the precision of its EFH model.

Additionally, the agency explains that the HSP scores are used as a proxy for determining whether habitat is "essential," but fails to define the threshold level for making such a determination. DEIS at 2-3. Instead, the Fisheries Service asserts that "the higher the HSP, the more likely the habitat area should be identified as EFH." DEIS at 2-3. Applying this logic to the alternatives presented leaves the Council and the general public to guess whether essential habitat equates to 100% of the area with HSP above zero (Alternatives A.2 and A.3), the top 70% (Alternative A.5), or the top 30% (Alternative A.6), and whether distinctions should be made for overfished and precautionary zone species. The Fisheries Service's approach here is inadequate. See Morongo Band of Mission Indians v. F.A.A., 161 F.3d 569, 575 (9th Cir. 1998) ("The touchstone for our inquiry is whether an EIS's selection and discussion of alternatives fosters informed decision-making and informed public participation.") (citation and internal quotations omitted).

The very purpose of the DEIS – to provide a management tool for developing conservation efforts and stewardship of EFH – is rendered meaningless if the tool relied upon fails to identify the point at which habitat should be considered "essential" within the meaning of the law. The Fisheries Service must provide more reasoning in its analysis and guidance to the Council than it has chosen to provide in the DEIS. Additionally, the nearly exclusive reliance on HSP as a means of describing and identifying EFH greatly limits the quality and range of EFH alternatives considered.

B. Considering HAPC as a Subset of EFH Leads to Illogical and Arbitrary Results.

Designation of HAPC should identify areas based on one or more of the following criteria: (i) the importance of the habitat's ecological function provided by the habitat; (ii) the extent to which the habitat is sensitive to environmental degradation; and (iii) whether development activities are, or will be, stressing the habitat type. 60 C.F.R. § 600.815(a)(8). The Fisheries Service's decision to consider HAPC as a subset of EFH could lead to illogical and arbitrary results. The Council's designation of HAPC could be circumscribed by its contemporaneous designation of EFH if the HAPC alternative selected does not fit within the chosen EFH. Alternatively, the Council could choose to avoid this inconsistency by only considering HAPC alternatives that fit within certain EFH alternatives, or vice versa. Either way, the number of HAPC alternatives that can be considered fully is limited by the agency's insistence that HAPC be a subset of EFH.

III. The Fisheries Service's Environmental Effects Analysis is Inadequate.

NEPA requires that agencies discuss "the environmental impacts of the proposed action and alternatives." 40 C.F.R. § 1508.9(b). Environmental impacts are defined to include "both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial." 40 C.F.R. § 1508.8(b). The fundamental purpose of the DEIS is the detailed consideration of the environmental effects of implementing all practicable minimization measures. The DEIS fails to accomplish this. Indeed, the Fisheries Service admits that "[i]t is not possible to analyze the degree to which the function of habitat within the ecosystem or for groundfish will be affected by the alternatives." DEIS at 4-1. Although NEPA does not require agencies to "foresee the unforeseeable," it does require agencies to predict potential consequences of their actions before those consequences are fully known. Methow Valley

Citizens Council v. Regional Forester, 833 F.2d 810, 816-817 (9th Cir. 1987), rev'd on other grounds, Robertson v. Methow Valley Citizens Council, 490 U.S. 332 (1989) (quoting City of Davis v. Coleman, 521 F.2d 661, 676 (9th Cir. 1975). The Fisheries Service may not shirk its responsibilities to consider environmental effects merely due to limitations in the available data. "Reasonable forecasting and speculation is . . . implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as crystal ball inquiry." Kern v. U.S. Bureau of Land Management, 284 F.3d 1062, 1073 (9th Cir. 2002) (internal quotations and citations omitted).

NEPA also requires that the Fisheries Service fully consider the cumulative impacts of its decisions together with "other past, present and reasonably foreseeable future actions." 40 C.F.R. § 1508.7; see Klamath-Siskiyou Wildlands Center v. Bureau of Land Management, 387 F.3d 989, 993-94 (9th Cir. 2004) ("Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."). Accordingly, the agency is required to analyze all past, present, and reasonably foreseeable fishing efforts in terms of their cumulative impact to EFH. The Fisheries Service does not appear to have done so, especially with regard to a cumulative analysis of all past fishing activities within EFH.

The DEIS Does Not Satisfy the Requirements of the Magnuson-Stevens Act

One of the primary purposes of the 1996 Sustainable Fisheries Act amendments to the Magnuson-Stevens Act is to protect habitat. Accordingly, Congress imposes on the Fisheries Service the duties to describe and identify Essential Fish Habitat, and to minimize the adverse effects of fishing on EFH to the extent practicable.

The statute makes clear that the duty to minimize adverse effects focuses on the effects of fishing on habitat. See 16 U.S.C. § 1853(a)(7) (duty to "minimize…adverse effects on such habitat caused by fishing). The regulations similarly make clear that the inquiry regarding whether there are adverse effects to EFH focuses on whether a fishing activity has any affect on the quality or quantity of EFH:

> Adverse effect means any impact that reduces quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

50 C.F.R. § 600.810(a). Thus, in order to determine the universe of adverse effects that may require measures to minimize, the Fisheries Service must examine any and all impacts that reduce the quality or quantity of the habitat itself. These impacts include considerations of benthic organisms, prey species and their habitat, and other ecosystem components. In other words, the adverse effects inquiry is a broad one, focused on the effects of fishing on habitat and elements of the ecosystem, and not limited to the effects of fishing on fish stocks themselves.

In addition, the agency must perform a cumulative impacts analysis, which is to consider impacts on the environment. 50 C.F.R. § 600.815(a)(5).

Based on the adverse effects evaluation and the cumulative impacts analysis, the "Council must prevent, mitigate, or minimize any adverse effects from fishing, to the extent practicable, if there is evidence that a fishing activity adversely affects EFH in a manner that is more than minimal and not temporary in nature… ." 50 C.F.R. § 600.815(a)(2)(ii).

I. NMFS Cannot Limit Its Analysis of Adverse Impacts to Managed Species Alone and Fails to Evaluate Properly MMNT.

The MSA requires that the Fisheries Service and the Fishery Management Councils "minimize to the extent practicable adverse effects on [EFH] caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat." 16 U.S.C. § 1853(a)(7). The EFH rule requires that the Fisheries Service and the Councils "must act to prevent, mitigate, or minimize any adverse effects from fishing, to the extent practicable, if there is evidence that a fishing activity adversely affects EFH in a manner that is more than minimal and not temporary ["MMNT"]." 50 C.F.R. § 600.815(a)(2)(ii). The agency acknowledges that "[p]racticable Council action is triggered by adverse effects that are more than minimal and not temporary in nature." DEIS at 2-15. The agency goes to great lengths in both the DEIS and the appended Risk Assessment to create a sensitivity and recovery index ("SRI") to value the impact to habitat by gear type. While this helpful first step provides ample justification for implementing a minimization alternative, the SRI model itself does not consider all relevant factors.

First, the SRI that forms the basis of all but three of the minimization alternatives limits its consideration of habitat primarily to benthic habitat. The EFH rule requires consideration of a much broader definition of habitat when considering adverse effects. 50 C.F.R. § 600.810(a) ("Adverse effects may include direct or indirect physical, chemical, or biological alternations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH."). The agency must include qualitative analysis in addition to its SRI index that considers all of the best available science pertaining to prey species and their habitat and other important ecosystem components not captured by the SRI model.

Second, the DEIS provides no guidance to the public, the Council, or the decision maker about which adverse effects of fishing on EFH must be minimized. The Fisheries Service asserts that the Risk Assessment was intended to define when impacts from fishing exceed the MMNT threshold, but "due to data and time constraints it was not possible . . . to create an analytical tool capable of identifying areas of impacted habitat and demonstrating the effects of minimization alternatives." DEIS at 2-12 – 2-13. In other words, the main tool relied upon to create the minimization alternatives is incapable of accomplishing the very thing it was designed to do. Nevertheless, it is clear from the analyses currently described in the EIS that there are effects of fishing that reduce the quality and quantity of EFH in a manner that is both more than minimal and not temporary and therefore, that minimization is required.

In addition, the Fisheries Service regulations recognize three categories of tools to address

adverse effects on fishing: fishing equipment; time/area closures; and harvest limits. 50 C.F.R. § 600.815(a)(2)(iii)(A)-(B). None of the alternatives considered in the DEIS even considers the use of reduced harvest limits as a way of minimizing adverse effects to EFH. The DEIS also fails to explain the basis of the decision to omit this tool from consideration under any of the alternatives. This decision not only contravenes the agency's regulations, but also ignores the conclusion of the National Research Council that "[e]ffort reduction is the cornerstone of managing the effects of fishing, including, but not limited to, the effects on habitat." NRC, 2002. In addition to being contrary to law, the decision violates NEPA for failing to consider a reasonable range of minimization alternatives and violates the APA for failing to articulate a reasoned basis for its decisions. Effort reduction is a reasonable management tool that NMFS must add to its suite of minimization measures under consideration.

II. The DEIS Fails to Consider the Best Scientific Information Available.

As described further below, the DEIS fails to consider the best scientific information available. This failure violates not only NEPA's mandates, but also the MSA and National Standard 2. 16 U.S.C. § 1851(a)(2); 50 C.F.R. § 600.315.

The DEIS Analysis is Deficient

In addition to the legal failures outlined above, the DEIS's analyses and conclusions are substantively and analytically flawed. While the DEIS contains valuable information that provides ample basis for a broad EFH designation and demonstrates clearly that minimization measures are necessary, the analyses should be improved to meet relevant legal and scientific standards.

I. EFH Identification: Description of the Alternatives

The rationale for Alternative A.1 should be revised to include more than simply a description of the status quo EFH identification alternative to describe fully why this alternative was chosen in the initial EFH identification decision. The discussion should pay special attention to depths greater than 3400 meters which are part of the status quo but not included in Alternatives A.2-A.6. Furthermore, as Alternative A.1 is the only alternative not based on the HSP model, it must be fully compared and contrasted with the HSP model-based alternatives, including the number of uncertainties in the HSP model output and how this alternative addresses these uncertainties.

Similarly, the description of Alternative A.2 should be enhanced to include a more explicit description of how this alternative provides better assurance that groundfish essential fish habitat is properly identified. The description of this alternative in its current form notes only that the addition of 100 meter depth provides a precautionary adjustment in case of non-observed species. This description should also clearly convey that the extra 100 meter depth helps buffer the uncertainties surrounding the HSP modeling effort and major prey species habitat requirements that are noted below.

A. The Shortcomings of the HSP Models Should be Clearly Stated in the Description of Alternatives and Environmental Analysis.

Only two of the six EFH identification alternatives are not solely based on the Habitat Suitability Probability (HSP) model. It is therefore imperative that the description of the alternatives and the environmental analysis provide the public with a clear understanding of the limitations and uncertainties involved in this modeling effort.[2] The following major uncertainties should be clearly defined in an accessible format to aid the decision maker and public in understanding the differences between alternatives:

1. The HSP modeling effort only includes depths out to 3000 meters. The discussion in Alternative A.2 and information from the groundfish life history appendix clearly illustrate that groundfish have been observed at depths up to 3400 meters;
2. Of the possible 328 maps of groundfish species and their life stages, only 160 HSP maps can be produced resulting in roughly half of the maps needed to adequately identify EFH by life stage for each of the eighty-two groundfish species.[3] The primary life stage where little information is available is larvae and eggs. This is particularly important for overfished species;
3. The trawl surveys utilized in the HSP model provide limited information concerning the function of habitat for a species for the following reasons. First, temporal aspects of the survey data may omit important habitats (for example, winter breeding grounds for lingcod using summer trawl surveys). Second, trawl surveys are of limited value for identifying EFH for juvenile stages (evident by a review of the HSP model outputs). Third, there is a strong bias towards habitats that can be trawled which can result in under representation of species that associate with untrawlable substrates for purposes of modeling the effects of depth and latitude[4]; and
4. The limited mapping of organisms that form biogenic habitats, which are particularly vulnerable to impacts and may have long recovery times, may result in these areas not being identified as EFH.

B. The Treatment of Groundfish Prey Species is Improperly Limited.

The EFH final rule states that:

> Loss of prey species may be an adverse effect on EFH and managed species because the presence of prey makes waters and substrate function as feeding habitat, and the definition of EFH includes waters and substrate necessary to fish for feeding. Therefore, actions that reduce the availability of major prey species, either through direct harm or capture, or through adverse impacts to the prey species' habitat that are known to cause a reduction in the population of the prey species, may be considered adverse effects on EFH if such actions reduce the quality of EFH. FMPs should list the major prey species for the species in the

[2] We note that Appendix A, the Risk Assessment provides a fuller discussion of the HSP modeling process and applicable limitations and uncertainties. However, this information should be stated clearly in the main body of the EIS to help ensure the public and decision makers can make an informed decision.
[3] 50 CFR 600.815(a)(1)(iv).
[4] Appendix A at 91.

> fishery management unit and discuss the location of prey species' habitat. Adverse effects on prey species and their habitats may result from fishing and non-fishing activities.

50 C.F.R. 600.815 (a)(7). Accordingly, the groundfish FMP must include a list of major prey species for groundfish and discuss the location of prey species' habitat. The discussion of prey species in the main text of the EIS is currently limited to one section[5] describing primary prey species and a general statement that prey species utilize the same habitats as groundfish. The EIS currently includes only one alternative focused on protection of a prey species. The EIS should be revised to include a better discussion of the habitat requirements of major prey species to be included in the range of alternatives to aid the public in fully analyzing these alternatives. If information does not exist, this must be stated clearly in the EIS.

C. Habitat Areas of Particular Concern Should not be Limited to Essential Fish Habitat Alternatives.

The EIS should make clear that the identification of HAPCs for groundfish should not be limited by alternatives for identifying and describing EFH. If an area is identified as a HAPC but is located outside of an area included in a EFH identification alternative, this area can be identified as both EFH and a HAPC. For example, if the PFMC or public identifies an area that meets the requirements for designation of a HAPC but this area is located deeper than preliminary preferred Alternative A.2 (3400 meter depth designation for EFH), this area can still be designated as both a HAPC and EFH.

II. Effects of Fishing on Essential Fish Habitat: Description of Alternatives

The description of the development of alternatives to minimize adverse impacts of fishing on essential fish habitat gives the public a misguided understanding of the proper management standard of the MSA and EFH regulations.[6] While the EIS provides the definition of adverse impacts from the final rule, it then goes on to provide a different standard for assessing adverse effects centered around the link between EFH and groundfish production, resulting in a "precautionary" label being applied to development of the alternatives.

The EIS bases this on the following rationale. First, the EIS discusses the purpose of the impacts model and its inability to model the relationship between the intensity of fishing effort and effects on habitat due to a lack of data. Next it states that the current state of habitats effects research only makes it possible to construct alternatives that are targeted at physical alteration of habitat and changes in biodiversity from the impact. It therefore concludes that alternatives cannot be quantitatively constructed to increase production of groundfish or enhance ecosystem function, leading to a precautionary approach being taken by NMFS and the Council in developing the alternatives. The EIS further elaborates on this point by stating:

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[5] EIS at 3-30.

[6] EIS at 2-15; this same rationale is also presented in a summarized form at 4-1.

> [A]lthough the alternatives cannot be specifically targeted to promote sustainable fisheries with predictable population level results, the alternatives were developed to reduce adverse impacts in terms of physical modification to habitat and biodiversity. The paucity of quantified, spatially explicit data on adverse impacts, and the extent which adverse impacts have reduced the ability of groundfish to sustain themselves, functioned as the problem statement around which the alternatives were constructed. The alternatives were deliberately developed to reflect the broad range of available data and present the full spectrum of precautionary choices for decision makers to meet the purpose and need of action to minimize the adverse effects of fishing.[7]

The MSA obligation to minimize the adverse impacts of fishing on EFH is not based on a production standard. Rather, it is based on the definition of adverse impact or effect:

> Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences or actions.[8]

The EIS seems to put too much emphasis on the failure of the EFH impacts model to model the relationship between the intensity of fishing effort and effects on habitat. The model is not the only way (and not even the proper way considering available data) to assess adverse effects as defined by the MSA and EFH regulations. Studies analyzing the impacts of fishing gears on EFH can provide information to show an adverse effect necessary for developing a range of mitigation alternatives. Furthermore, the current state of the art habitat research, as defined by the EIS, provides the appropriate type of information to assess adverse effects. Quantitative studies linking gear impacts to production are not needed to meet MSA requirements.

Therefore, the proper standard and the one that guided development of these alternatives by the PFMC's EFH EIS Committee, is based on minimizing adverse impacts as defined in the EFH regulations using the best scientific information available. In this case, a review of the literature, the development of a sensitivity and recovery index (SRI) and guidance provided by the National Research Council ("NRC") are utilized to identify fishing operations that have adverse effects on habitat. Therefore, the description of the development of the alternatives should be revised to clearly state the definition of adverse impacts and that the tools necessary to identify and minimize the adverse effects of fishing gears on EFH are contained within the EIS as opposed to couching the alternatives as "precautionary" by using a groundfish production and quantifiable impacts standard.

The presentation of the sensitivity and recovery indices in the EIS discusses the decision to interpret global literature to help understand the effects of fishing on habitat. The EIS should cite the NRC report to support this choice and better inform the public on the basis of this

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[7] Id.
[8] 50 C.F.R. 600.810.

recommendation.[9] To do this the EIS should include a general discussion on the NRC report, as well as the Auster and Langton paper and others, by incorporating the discussion in Appendix A to help better inform the decision maker as to how the adverse impacts were identified and a range of alternatives for minimizing them was developed.

The description of Alternative C.1 includes the potential mitigative effect of the rockfish conservation area ("RCA"). The description must also include the fact that the RCA is in place as a bycatch reduction management tool to help maximize fishing opportunities and that the RCA changes in size and shape frequently. This section of the EIS should make this clear by incorporating discussion of the use of the RCA contained in section 4[10] to help better inform the public about this alternative.

Finally, the EIS incorrectly states that Alternatives C.12-C.14 are mutually exclusive and that only one could be contained in a final preferred alternative.[11] This statement is misleading. While the areas identified in C.12, C.13, and C.14 are identical, the levels of protection afforded these areas could range from no bottom trawling to no fishing. Therefore, the mitigation strategies identified in the different alternatives can be mixed and matched for the specific areas contained in alternatives C.12-14.

III. Effects of Fishing on Essential Fish Habitat: Analysis of Adverse Impacts

The alternatives for minimizing the adverse impacts of fishing gear on EFH rely almost exclusively on a the SRI that displays in a numerical fashion the impact of a gear on a specific habitat in terms of how sensitive the habitat is to a particular gear type and the expected time needed for the habitat to recover from an impact. The main body of the EIS must include a discussion of the methodology utilized to develop this index in order to inform the public of key information that was not included. For example, it is our understanding that only literature that included quantifiable before and after differences of gear effects was included. There is ample literature on growth, age, biology, re-settlement and other relevant factors that should have been included. It is important that all available studies and sources of information are included in the EIS, regardless of whether or not they are considered useful for the SRI, to provide the public and the decision maker with the information necessary to make an informed choice.

The information presented in the SRI is treated as a range with standard errors based on the number of studies for each category. This methodology may result in certain values having a greater range of impact based on the number of applicable studies, not necessarily on the basis of the certainty provided in the original study. For example, only one study on the effects of bottom trawling on hard slope biogenic habitat showing major changes in bottom structure was considered. The sensitivity value for this category is given as 1.5-3 solely for the reason that it is one study as opposed to the impacts found.

[9] We recognize that the NRC report is cited in various places in the document and should also be cited here for the reasons discussed.
[10] EIS at 4-14.
[11] EIS at 2-12.

The sensitivity index provides a relative measure of the likely changes to habitat caused by interactions with various fishing gears and therefore provides little information on subsequent impacts.[12] This makes the cumulative impacts analysis (see below) critical in determining adverse impacts. Furthermore, the sensitivity values do not incorporate the relationship between fishing impacts and depth. The gear impacts analysis notes that benthic communities in deeper waters are probably less adapted to resisting and recovering from physical disturbances generally.[13] Considering that over the last few years fishing effort has been redirected into deeper waters, this factor is a significant one and must be stated clearly in the environmental analysis discussion to ensure the public makes an informed decision. Finally, the SRI does not consider the issue of fishing intensity or frequency of disturbance of the bottom by fishing gear.

IV. Effects of Fishing on Essential Fish Habitat: Prey Species

The EFH final rule states that:

> Loss of prey species may be an adverse effect on EFH and managed species because the presence of prey makes waters and substrate function as feeding habitat, and the definition of EFH includes waters and substrate necessary to fish for feeding. Therefore, actions that reduce the availability of major prey species, either through direct harm or capture, or through adverse impacts to the prey species' habitat that are known to cause a reduction in the population of the prey species, may be considered adverse effects on EFH if such actions reduce the quality of EFH. FMPs should list the major prey species for the species in the fishery management unit and discuss the location of prey species' habitat. Adverse effects on prey species and their habitats may result from fishing and non-fishing activities.

50 C.F.R. 600.815 (a)(7). While the EIS describes major prey species and identifies their habitat requirements generally, it provides no information on direct harm or capture with the exception of krill. The EIS should utilize information in the Bycatch EIS and groundfish observer data to identify direct removal of prey species by fishing and incorporate discussion of adverse impacts to prey species and their habitats into the description and environmental consequences of alternatives to minimize adverse impacts of fishing on EFH.

V. Effects of Fishing on Essential Fish Habitat: More than Minimal and Not Temporary Threshold

The EFH Rule states that:

> Councils must act to prevent, mitigate, or minimize any adverse effects from fishing, to the extent practicable, if there is evidence that a fishing activity adversely affects EFH in a manner that is more than minimal and not temporary in nature, based on the evaluation conducted pursuant to paragraph (a)(5) of this section.

[12] Appendix A Risk assessment at 124.
[13] Appendix A, Gear impacts analysis at 27.

50 CFR 600.815 (a)(2)(ii). In Section 2 of the EIS there is a discussion of the "minimal and temporary threshold" and how the risk assessment process sought to delineate where impacts exceeded this threshold.[14] At the conclusion of the discussion, the EIS does not define the "minimal and temporary threshold". Yet in Section 4 of the EIS a de facto "minimal and temporary threshold" is established for gear types with no rationale other than to "simplify the large amount of information for the analyses of individual alternatives".[15] These minimal and temporary thresholds are arbitrary. In the absence of evidence that can demonstrate that these values do in fact equate to minimal and temporary, the proper standard should be values of 0 for sensitivity and recovery in the SRI. In addition to being precautionary, an approach the EIS touts often to describe the range of alternatives to minimize adverse impacts of fishing on EFH, there is precedence for this approach in another region. In the EIS for EFH in the Gulf of Mexico NMFS and the Council utilized a similar metrics tool for assessing impacts of fishing gears on different habitat types based on a global literature search. In that EIS, anything above a value of 0 (no impacts) was considered to have crossed the minimal and temporary threshold unless proven otherwise. Furthermore, it is abundantly clear from the data presented in the EIS that by any rational measure, the more than minimal and not temporary threshold has been crossed, and that measures must be taken to minimize the adverse effects of fishing on essential fish habitat.

VII. Cumulative Effects Analysis

The EFH final rule states that:

> Cumulative impacts are impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of who undertakes such actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. To the extent feasible and practicable, FMPs should analyze how the cumulative impacts of fishing and non-fishing activities influence the function of EFH on an ecosystem or watershed scale. An assessment of the cumulative and synergistic effects of multiple threats, including the effects of multiple threats, including the effects of natural stresses (such as storm damage or climate-based environmental shifts) and an assessment of the ecological risks resulting from the impact of those threats on EFH, also should be included.

50 CFR 600.815 (a)(5). To analyze cumulative impacts the EIS provides a brief discussion for each of the alternatives and a methodology to rank the cumulative impacts of the specific alternative. Section 3 of the EIS should provide an analysis of the past, present and reasonable foreseeable future actions on EFH and discuss the ecological risks posed by the cumulative impacts of these actions. Relevant discussions would include past, present and reasonably foreseeable future temporal and spatial patterns and trends of fishing in conjunction with the same considerations for spatial and temporal trends of non-fishing activities contained in the section 3.10. This analysis will better inform the decision maker as to the true status of groundfish EFH and the implications of impacts minimization alternatives in section 4.

[14] EIS at 2-13.
[15] EIS at 4-2.

VIII. Economic Analysis

Any viable economic analysis of minimization measures should include not only the short-term direct costs of management measures, but also the long-term costs of continued habitat damage, as well as the long-term benefits of habitat protection. In addition, the economic impact analysis of section 4 must be revised to include the expected future economic gains by groundfish trawl vessels due to the buyback program. This program was established based on the premise that by reducing the number of fishing vessels in the trawl fishery, the remaining vessels would become more profitable. The EIS should consult the appropriate analysis from the groundfish trawl vessel buyback program to include in the EIS.

Conclusion

Industrial fishing off the West Coast causes serious impacts to habitat. Adverse effects to habitat are occurring in West Coast waters that are long-term and substantial. The Fisheries Service is legally required to minimize these effects. A comprehensive regulatory system specifically designed to protect habitat is necessary for the agency to live up to its legal mandates and its responsibility as steward of our public resources.

Sincerely,

David Newman
Attorney
Natural Resources Defense Council

Chris Dorsett
Director, Regional Fish Conservation
The Ocean Conservancy

Jim Ayers
Pacific Regional Director
Oceana

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May 11, 2005

D. Robert Lohn,
NOAA Fisheries Regional Administrator
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GroundfishEFHDEIS.nwr@noaa.gov

Re: Comment on 2005 Pacific Coast Groundfish EFH DEIS

Dear Adminstrator Lohn:

This letter submits comments of the Natural Resources Defense Council and The Ocean Conservancy on the above referenced topic, supplementing the comments we sent jointly with Oceana under separate cover analyzing the legal and technical adequacy of the Essential Fish Habitat Draft Environmental Impact Statement (DEIS). The purpose of this letter is to express the support of our organizations and our more than 2 million members, volunteers and activists for specific alternatives analyzed in the DEIS. In summary, we support EFH Identification Alternative A.2 (depths less than 3,500m) plus seamounts and Impact Miminization Alternatives C.5 (prohibit a krill fishery) and C.12, revised version (close ecologically important areas to bottom trawl), combined with closures to bottom-contacting gear, per Alternative C. 13, at Cordell and Daisy Banks and seamounts. We also support Research and Monitoring Alternatives D.2.1, D.3 and D.4, combined with a systematic research and monitoring program aimed at providing relevant information on habitat quality and impacts to decision makers and the public, and fostering adaptive management of habitat measures (an alternative omitted from the DEIS). We urge you to remedy the deficiencies in the document, described in our joint comments with Oceana, and to take action as quickly as possible to implement the alternatives described herein.

Background and Principles

Fishery managers and scientists have called habitat damage the most significant long term threat to the health of fisheries. Extensive research, including a National Academy of Sciences (NAS) report,[1] documents the adverse impacts of bottom trawling on a variety of habitats. A number of studies identify bottom trawling as one of the most disruptive disturbances to seabed communities, decreasing habitat complexity and potentially altering productivity. The NAS study emphasizes that lack of area-specific

[1] National Research Council, 2002. Effects of Trawling and Dredging on Seafloor Habitat, National Academy of Sciences.

studies on trawling effects does not justify postponing action to address fishing effects on seafloor habitat.

Over the last two years, two national blue ribbon ocean commissions have made recommendations for improving fishery management and the health of the oceans. Those reports embrace a number of principles that are consistent with the NAS approach and that we believe should underlie the National Marine Fisheries Service's (NMFS's) decisions regarding protection of groundfish essential fish habitat (EFH). They include the precautionary approach, which errs on the side of conservation in the face of uncertainty and limited information; ecosystem-based management, which reflects the relationships between ecosystem components, including humans; adaptive management, in which management measures are designed to continually provide new information and improve the basis for future management decisions. The alternatives we support incorporate these principles. They take important steps to reduce the adverse effects of fishing on Pacific groundfish habitat, provide protection to diverse and vulnerable habitats, and proactively prevent new potential impacts in the future.

Rationale

Alternative A2: Depths less than 3,500 meters plus seamounts. Alternative A.2, selected by the Pacific Fishery Management Council (PFMC) as a preliminary preferred alternative, is the only EFH-identification alternative that utilizes both the habitat suitability probability (HSP) modeling outputs and other data sources, yet is not so broad as to be meaningless. This alternative addresses the uncertainties involved with the HSP modeling outputs by including other data sources plus a 100 meter-depth buffer. Alternatives A.3 through A.6 rely exclusively on the HSP model outputs and therefore fail in several ways to utilize the best scientific information available. First, the HSP modeling outputs are limited to depths less than 3000 meters. That limitation results in identification of EFH out to a maximum of 3000 meters despite information that groundfish occur at depths of 3400 meters. Second, the HSP modeling effort only produced EFH requirements for about half of the species by life stage. Thus, that modeling effort did not identify EFH for a number of life stages for key groundfish species. Alternative A.2 takes these uncertainties into account by incorporating other data sources and adding a 100-meter buffer to acknowledge our information is likely to be incomplete. Finally, the HSP modeling process excluded major prey species. Considering that the EFH rule requires that councils interpret information for designating EFH in a "risk averse fashion to ensure adequate areas are identified as EFH for managed species," Alternative A.2 is also the best choice because it provides a greater degree of certainty that the habitat needs of prey species are incorporated into EFH designation.

We support inclusion of seamounts for the following reasons. First, though seamounts may rise to a depth level above 3500 meters, the EFH identification methodology in the EIS utilizes the 3500-meter depth line on the continental slope to exclude areas beyond that line, including seamounts occurring outside it. Second, given what is known about the potential biological productivity, degree of endemism, occurrence of fragile habitats including coral and sponge, and other ecological functions of seamounts, the most

prudent course of action would be to include seamounts in Alternative A.2 for EFH designation.

Alternative C.5: Prohibit a Krill Fishery. We support Alternative C.5 as a proactive measure to protect a crucial part of groundfish habitat: an abundant prey species at the base of the food web, nourishing groundfish directly and indirectly as food for other prey species. Food availability is a critical prerequisite for groundfish growth and recruitment. Protecting krill, currently an unfished species, as habitat is consistent with the EFH rule[2] and provides a zero-cost way to ensure that a major prey species remains available. Adopting Alternative C.5 is a smart step in a complex multi-species fishery with many uncertainties about how fishing is currently altering food-web relationships, productivity and rebuilding potential.

Revised Alternative C.12: Close Ecologically Important Areas to Bottom Trawl, combined with specified features of C. 13. The Council adopted the suite of C.12 through C.14 as preliminary preferred alternatives, and we support a combination of these options that provides higher levels of protection for habitats that are unique, particularly vulnerable, and/or important sources of productivity. Specifically we propose C.12 plus the greater protection level provided by C.13 (Close Bottom-Contacting Gear) for at least Cordell Bank, Daisy Bank (based on a proposal for a habitat area of particular concern submitted by Dr. Mark Hixon for consideration of the Pacific Fishery Management Council's EFH EIS Committee) and to all seamounts, as unique habitats with a high degree of endemism and vulnerability. We believe greater protection is warranted for these habitats because they are rich in fragile structure-forming invertebrates and likely to be slow to recover.

C.12 combines closure of identified areas to bottom trawling, freezing the trawl footprint, restricting catch, restricting gear, monitoring via observer data and expanded use of VMS, and benthic research and mapping. It thus incorporates the key measures recommended by the National Academy of Sciences to address the long-term adverse impacts of bottom trawling on fish habitat. The selection of these areas is based on the overlap of three or more habitat-related data sets, including the results of the risk assessment conducted by NMFS consultants to evaluate the sensitivity and recovery time of various habitats. This use of multiple data sets makes it the spatial alternative that most systematically uses available scientific information. As noted by the PFMC's Scientific and Statistical Committee, it is the only set of alternatives that deals explicitly with protection of habitat-forming invertebrates such as deep-water corals and sponges, in addition to encompassing a broad range of other groundfish habitat types.

Alternative C.12 has been revised recently, based on trawl track data, to reduce its potential economic displacement and increase protection in areas where displacement is unlikely to be a factor. The SSC found economic assessment methodology used by its proponents likely to be more accurate than that used in the DEIS.[3]

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[2] 50 C.F.R. 600.815 (a)(7).
[3] SSC Notes Nov. 1, 2, 2004

Alternatives D.2.1: Expanded Logbook; D.3: Expanded Vessel Monitoring System; and D.4: Research Reserve System. The DEIS identified a number of data needs that, if satisfied, can improve our knowledge about gear impacts (particularly those of the non-trawl groundfish fleet), assess habitat quality, minimize adverse impacts on groundfish habitat, mitigate economic displacement, and adaptively manage this fishery. We therefore support collection of data through expanded logbooks and VMS, the creation of research reserves that will facilitate studies of habitat impacts and better protection for essential groundfish habitat, and a research and monitoring program that utilizes this data to inform decision makers and the public and improve management.

Trawl logbook information has repeatedly proved useful for management purposes, from its supporting role in developing the first depth-based bycatch model to its use in revising the C.12-C.14 suite of alternatives to reduce economic displacement while maintaining protection for habitat. It makes sense to expand logbooks to other vessels in the groundfish fleet. Likewise, the kind of spatially specific information VMS provides is vital to improving habitat protection over time, managing adaptively, and mitigating economic impacts of management measures to fishing communities. Finally, we support creation of a research reserve system designed to improve our understanding of the impacts of fishing gear and for other management purposes. The DEIS finds that such a system may increase knowledge relating habitat to living marine resources, thereby resulting in improved stock status, higher fishery yields and improved education resources. To minimize economic displacement of such a system, we expect it could be designed within a subset of the areas identified in Alternatives C.12-C.14.

Summary

We believe NMFS and the Pacific Council have a historic opportunity to take a more ecosystem-based approach to managing the groundfish fishery by moving forward with a combination of Alternative C.12 and C.13, alternatives already designated as preliminary preferred by the Council. We appreciate the opportunity to comment, and urge you to take action now to address the flaws in the DEIS and provide the long-term habitat protection needed to sustain Pacific groundfish.

Sincerely,

Karen Garrison
NRDC

Chris Dorsett
The Ocean Conservancy

Cc: Don Hansen, Chair, PFMC
Dr. Don McIsaac, Executive Director, PFMC
Susan A. Kennedy, NOAA Strategic Planning Office nepa.comments@noaa.gov.

Oregon
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May 11, 2005

Mr. D. Robert Lohn, Regional Administrator
National Marine Fisheries Service
c/o Maryann Nickerson
7600 Sand Point Way, NE
Bin C15700
Seattle, WA 98115-0070

Dear Mr. Lohn:

The Oregon Department of Fish and Wildlife has reviewed the draft Groundfish Essential Fish Habitat (EFH) Environmental Impact Statement (EIS) for the Pacific Coast Groundfish Fishery Management Plan. We are supportive of habitat protection as a complementary and necessary component of management measures to ensure the continued productivity of marine fishery stocks managed by the Pacific Fishery Management Council. Increasing attention to habitat values in the management and conservation of marine fishes moves fishery management into a broader ecological context, and well beyond the traditional demographic and population approaches that have been employed historically.

We also appreciate the opportunity to provide information included in the document and to participate in the process of reviewing the document in its developmental stages. We have a number of general comments to offer.

- The preparation of the draft Environmental Impact Statement to support the Pacific Fishery Management Council's upcoming decisions on Essential Fish Habitat has focused a great deal of effort and has brought information together that would not otherwise have been available to managers in a usable format. There are significant gaps and uncertainties in the EIS data and there is also a focus on trawl impacts due to gaps in our understanding of marine fisheries, particularly non-trawl fisheries. In particular, more research and monitoring is needed to understand the specific linkages between marine habitat condition and fishery resource productivity.

- Because of the limitations to our understanding of habitat, fisheries, and fishery impacts, the Council will be forced to make significant decisions in June 2005 between various alternatives which have been analyzed with the best available but still significantly limited databases. It will not be possible for the Council to

address the tradeoffs between the benefits of habitat protection, and the impacts of restricting fisheries on other than the most general and qualitative basis.

- A significant shortcoming of the analyses to date is the limited amount of economic impact analysis for most of the alternatives under consideration. The Council will be considering alternatives, in many cases, without specific or adequate understanding of the economic impacts to the fisheries or communities subject to various management alternatives. There is essentially no data on alternatives related to non-trawl fishery economic impacts.

- There is an unfortunate mismatch of scale and detail between the analyses of bottom-trawl fishing activity in potentially closed areas (based on 10 minute x 10 minute blocks) and the geographic scale of habitat features and potential closures. While the analyses are based on the best information available, and in some cases are constrained by confidentiality requirements, it is unfortunate that we are unable to more closely match the scales of habitat feature distribution and fishery activity.

- There is a comparable mismatch between the general text description of areas potentially closed to fishing by one or more gear types, the depiction of these areas in the figures of EIS Chapter 2, and the very detailed estimates of proportion of substrate type or habitat area protected in the habitat tables of Chapter 4. The document would have been more helpful to the affected public if approximate coordinate points for the potential closed areas had been provided, especially for the highly complex impacts minimization alternatives C.12, C.13 and C.14.

- The absence of spatial data on fisheries other than bottom-trawl puts the Council in a very difficult position of deciding on areas to protect without adequately understanding the potential impacts to non-trawl fisheries. The best information available cannot provide the Council or the public with the necessary understanding of the need for protection, nor the distribution of likely economic impacts on non-trawl fishing (an estimate of practicability).

- There are three prominent, high-priority areas for improved information to support future decision-making by the Council in this arena. One is spatial data on effort and harvest in commercial fixed gear, hook-and-line and recreational fisheries. The second is ecological research to better understand the location of critical habitats, in particular biogenic habitat features (e.g. corals, sponges, sea pens) and other dynamic habitats such as kelp and seagrass beds. More research is necessary on the impacts of fishing activities to benthic habitat features, and the recovery of these habitats when fishery impacts are reduced or removed. A third is a retrospective evaluation of the efficacy of measures to protect EFH adopted by the PFMC at its upcoming meeting in June 2005. The National Marine Fisheries Service and the state agencies that participate in the Pacific Fishery Management Council process will be charged with providing these additional data and analyses when the EFH process undergoes its mandated five year review. It

is essential that NMFS support funding requests that will make provision of this information possible.

- A significant deficiency in this process has been the lack of federally sponsored public education on these alternatives. The states tried to address this priority need by redirecting limited resources from other priority program areas to attempt to address this gap. Federal outreach and communication on this process continues as a paramount need.

- The preparers of the EIS have done a remarkable job assembling and depicting alternatives and supporting information with very limited time and resources. It is through their efforts that the uncertainties and data gaps that we discuss above have come to light. We believe that the EIS represents a comprehensive compilation of the best information currently available.

Thank you for the opportunity to comment on the draft EIS.

Sincerely,

Patricia M. Burke

Patricia M. Burke, Manager
Marine Resources Program

Northwest Indian Fish Commission Comments on the Draft EIS

Chapter 2

Section 2.5.2, Alternative C.12, "Tribal Fisheries" (p.2-27). Language should be made consistent with Section 2.2 or removed altogether as section 2.2. would provide the necessary exemption.

Chapter 3

Section 3.7.2, "Tribal Fisheries" (p.3-164 to 168):

Paragraph 2, 2nd sentence reads, " . . .the tribes annually . . .". For groundfish this is now biennially.

Paragraph 2, 3rd sentence reads, " . . .occurs primarily with hook and line and pots. . .". This should be changed to, " . . .hook and line and trawl . . .". Pots are for crab only (see tables 3-55 and 3-56).

Paragraph 3, 1st sentence begins, "Twelve western Washington. . .". This should be changed to "Thirteen".

Paragraph 11, 2nd sentence reads, "In developing these trawl fisheries, the tribes . . .". It should read, "In developing these trawl fisheries, the Makah . . ." as they are the only tribe with trawl fisheries.

Paragraph 14, change "Tribe's" or "the Tribe" to tribes as this philosophy of sustainability is shared by all coastal tribes.

Oregon Anglers

Mr. D. Robert Lohn
Regional Administrator, National Marine Fisheries Service
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Re: Comment on 2005 Pacific Coast Groundfish DEIS

Dear Mr. Lohn,

These comments are submitted on behalf of Oregon Anglers and the Recreational Fishing Alliance (Oregon Group). We represent recreational fisherman in Oregon (Oregon Anglers) as well as at the national level (RFA). We appreciate the opportunity to present our views and concerns relating to Groundfish EFH

In the Magnuson-Stevens Fishery Conservation and Management Act we find a guideline for analyzing, and then choosing or suggesting alternatives relating to EFH. We are referring to the national standards, (Sec.301.)(a)(2) [*Conservation and management measures shall be based on the best scientific information available.*] (Sec.301)(a)(8) [*Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.*]

We find that many of the alternatives in the EFH DEIS do not comply with the standards mentioned above. Many are based on assumptions rather than applicable scientific information. Many have large economic impacts to the downside on fishing sectors and communities. The prevalent data sets come from one fishing sector while several alternatives affect all fishing sectors. All habitat interactions due to fishing are assumed to be detrimental to the marine ecosystem in this DEIS. While we support a precautionary approach to fishery management, we cannot support a zero human impact one.

Upon reviewing the EFH DEIS we find existing or modified alternatives that we do support. Our listing with modifications and explanations are as follows:

<u>Essential Fish Habitat Identification and Description</u>

Alternative A.2: Depths less than 3500m

We choose this alternative because it includes all habitat where groundfish have been observed. It would be, by default, the most accurate description of EFH based on current data.

<u>Habitat Areas of Particular Concern Designation</u>

Alternatives B.2 through B.8

Many of these alternatives have enough data to support designation. The rest relate to structural features which we can support on a precautionary management basis.

Alternative B.9 (modified) Process for new HAPC designation

It is our recommendation that this alternative be modified to include a process to remove a HAPC designation from an area. If the science used to support the original designation is no longer valid, then there should be an equivalent process to remove designation.

Minimize Adverse Fishing Impacts to EFH

Alternative C.8.1 (modified) Zoning Fishing Activities

Our support would be for this alternative with some changes. We believe that this alternative would be most in compliance with national standard; M-S Act(301)(a)(8). This alternative allows outcome-based management involving area closures. It allows fishers and management a process and some time to develop alternative gear to lessen EFH impacts. An incentive is offered to develop "clean" gear. Our suggested change concerns funding of gear development. *We recommend that funding for implementation of this alternative not be taken from that which is dedicated to any other fishing sector, nor cause a lowering of the percentage normally allocated to another sector.*

Research and Monitoring Activities

Alternative D.4 (modified) Research Reserve System

In our assessment of this alternative we believe that there is great value in a system of research reserves. They should encompass all habitat types designated as HAPC. All three zones of the EEZ should be included, nearshore, slope, and shelf. Reserves would need to be no larger in area than necessary to study the representative HAPC areas contained within. An allowance on shape would need to be made to comply with enforcement issues. Our addition to this alternative would be in the area of reserve management. *Management of research reserves shall be done only by NOAA Fisheries. All funding of reserve activities must be through federal tax revenues and/or fees. No private funding, as for instance grants from resource user organizations or from environmental organizations, may be used. Reserves must be reauthorized every 5 years through the Council process. No extractive activities will be allowed in a reserve except those necessary to conduct fisheries research.*
This alternative would allow for baseline and experimental data to be obtained in a controlled environment. Studies over time could help determine which habitat features are most important to a productive environment.

Summary:

Oregon Anglers and RFA believe that common sense can be used on this issue of EFH. We support an approach which relies on objective science and compliance with MSA national standards.

Thank you for considering these comments.

Regards,

John Holloway
Oregon Anglers
Recreational Fishing Alliance

Cc: PFMC
ODFW Marine Program

Coastside Fishing Club
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28 March 2005

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Subject: Comment on 2005 Pacific Coast Groundfish EFH DEIS

Recreational fishermen have long been the stewards of ocean and fishery conservation. We support a healthy ocean environment, since without it we would not enjoy a meaningful recreational experience, either now or in the future.

The Coastside Fishing Club supports measures that will protect our Essential Fish Habitat (EFH). Our priorities are 1) public access and utilization of this public resource for recreational purposes before any commercial extraction. 2) That any fishing gear and techniques allowed in such an area must pose no threat to the environment. 3) That recreational fishing, and in particular mid-water and surface trolling for game species (e.g. salmon, tuna, etc), not be impacted by EFH restrictions except where there is strong scientific evidence that it would be harmful. We have consistently advocated that vertical hook and line fishing methods pose no threat to EFH. However, we acknowledge that essential bottom habitat is directly threatened by the commercial groundfish trawl industry, and that EFH protection must address the impacts caused by such destructive fishing practices.

The Coastside Fishing Club has reviewed the Essential Fish Habitat (EFH) DRAFT Environmental Impact Statement, and evaluated the various alternatives adopted by the PFMC. Of all the alternatives considered, only Alternative 12 represents a comprehensive approach towards protecting EFH, while preserving the publics right to access and utilize this public resource. Developed by Oceana and others, this alternative addresses all three objectives of the Sustainable Fisheries Act, is easy to comprehend, and is an effective response to the federally mandated protection of essential fish habitat. Our assessment of the alternative finds that the Oceana plan accurately identifies habitat areas sensitive to fishing impacts, and that the included maps and descriptions are complete. The Oceana plan, in accordance with findings from the NRC (National Academy of Sciences, National Research Council 2002: *The Effects of Trawling and Dredging on*

Seafloor Habitat) correctly identifies that ground trawl gear, practices, and operations are the primary threat to essential fish habitat; and proposes to mitigate those effects through closures, gear modification, and effort reduction. Finally, Alternative 12 proposes other reasonable and effective actions to encourage the conservation and enhancement of essential habitat areas.

The two variations to Alternative 12, Alternatives 13 and 14, unnecessarily restrict recreational fishing, without demonstrating a need for such restrictions or indicating how such restrictions would actually enhance EFH protection. While Alternative 13 does not specifically address recreational fishing, the language might be construed as doing so. Because of these restrictions we do not support either Alternative 13 or 14. The other 11 alternatives are not comprehensive and are therefore difficult to evaluate without knowing how they might be combined into an overall EFH protection package. Additionally, instead of doing a scientific analysis of biogenic habitat these other alternatives rely too heavily on identification of sites where fish are currently found, rather than embracing a broader ecosystem management approach. The Oceana analysis is habitat-based: they looked for places were corals, sponges, or other animal life exist and then drew lines around those areas – a more comprehensive ecosystem approach than found in the other 11 original alternatives.

The Coastside Fishing Club endorses the findings and proposed actions contained in Alternative 12. We encourage its adoption by the Council and by NMFS; either as the single preferred alternative, or fully incorporated into a new alternative that eliminates bottom trawling in EFH designated areas. Bottom trawling is the primary threat to essential fish habitat, and Alternative 12 specifically mitigates this threat while preserving recreational mid water, surface, and bottom fishing utilizing vertical hook and line gear.

Dan Wolford, Science Director

orig /s/ D L Wolford

Coastside Fishing Club

Copies to
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Ben Sleeter
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Pacific Marine Conservation Council

May 10, 2005

Mr. D. Robert Lohn, Regional Administrator
National Marine Fisheries Service
c/o Maryann Nickerson
7600 Sand Point Way, NE
Bin C15700
Seattle, WA 98115-007

Re: Comment on 2005 Pacific Coast Groundfish DEIS for Essential Fish Habitat

Dear Mr. Lohn,

Pacific Marine Conservation Council (PMCC) is pleased to take this opportunity to offer comments on the Draft Environmental Impact Statement (DEIS) on Essential Fish Habitat for Pacific Coast Groundfish. PMCC is a west coast regional non-profit organization that works with commercial and sport fishermen, marine scientists, environmentalists and others. We operate with a mission dedicated to sustaining healthy and diverse marine ecosystems and fishing communities. It is from this perspective that we offer these comments.

The Northwest Region of NOAA Fisheries and the Pacific Fishery Management Council (Council) are to be congratulated for the work that has been accomplished on the DEIS, given the limited resources available. While we will offer constructive criticism of aspects of this document and associated processes, we do so with accompanying respect for the efforts of your staff.

PMCC has long engaged in habitat issues regarding Pacific groundfish, including several years' service by Science Director Jennifer Bloeser on the Council's Habitat Advisory Committee. We have carefully monitored the development of the DEIS, and Senior Policy Director Peter Huhtala helped development draft alternatives on the Council's EIS Oversight Committee.

During this comment period PMCC has conducted extensive outreach to attempt to engage more members of the fishing industry and residents of coastal communities in this important process. We will describe some of this outreach in this comment letter, partly because we feel compelled to let you know that we believe that the limited outreach conducted by the federal government was inadequate. The decisions that will emerge from this DEIS will likely have significant short and long-term impacts on fisheries and coastal communities, and extraordinary efforts should have been

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chance to communicate with this portion of the public as well as with all citizens interested in the future of marine habitat.

PMCC also facilitated the work of an Independent Scientific Review Panel. This group conducted their own examination of the DEIS and their conclusions and recommendations are submitted separately from these comments. Neither PMCC staff nor board members participated in the Panel's deliberations. PMCC was solely interested in bringing the additional, independent insight of well-respected scientists to this process.

PMCC Outreach: Essential Fish Habitat Draft Environmental Impact Statement

On February 23, 2005, PMCC distributed a letter stating the need for public comment on the DEIS to Pacific groundfish permit holders, fishing groups and associations, and others who we identified as being involved or interested in the fishery. We also contacted senior personnel with natural resource agencies, including Sea Grant, in Washington, Oregon and California; and all members of the Pacific Fishery Management Council and groundfish-related advisory bodies.

The response was significant. We received inquiries almost daily in the following weeks, and during March and April met with more than 40 sport and commercial fishermen in 24 Washington, Oregon and California coastal communities. Over 100 copies of the DEIS on CD, provided to PMCC by NOAA Fisheries, were handed out with written background materials on the DEIS process and how to comment. We also distributed these materials to interested National Marine Sanctuary managers and staff, and instructors and graduate students at the University of Washington and Oregon State University.

Many fishermen with whom we spoke did not know about or understand the DEIS nor know how to comment. Several raised concern over whether regulations that affect nearshore fishing efforts, particularly sport fisheries for salmon, rockfish and halibut, will result. PMCC's outreach efforts in Washington and California fueled those in Oregon, where town meetings were held by OSU Sea Grant Extension and the Oregon Department of Fish and Wildlife.

PMCC believes that NOAA Fisheries' outreach in coastal communities with regard to the DEIS should have been more extensive. Additional constructive input from people who make their living on and near the water would have resulted in a more comprehensive EFH EIS, and in superior protection of sensitive marine habitats with minimal impact on fishing communities.

PMCC Recommendations on the DEIS Alternatives:

EFH Designation

PMCC recommends adopting *Alternative A.3, Depths less than 3,500 m* as Essential Fish Habitat (EFH) for Pacific groundfish. This alternative encompasses all of the known Habitat Suitability Probability (HSP) information and adds a precautionary spatial extent by depth. This allows for species for which HSP is not known for all life stages and provides a buffer for uncertainty. A reasonably broad designation of EFH, but short of the entire EEZ, reduces potential conflicts with HAPC designation as well as defining an adequate area where actions by other federal agencies should be subject to EFH consultation with NOAA Fisheries.

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HAPC Designation

PMCC encourages the Council and NOAA Fisheries to designate Habitat Areas of Particular Concern (HAPC). The designation would, we believe, add a layer of focus that may inspire more attention to be paid to Conservation Recommendations made to other federal agencies during EFH consultation. This could have a positive impact on fisheries and coastal communities.

We understand the challenges in defining specific areas as HAPCs, but attention should be paid to the Areas of Interest in *Alternative B.7.* One challenge we foresee in geographically-defined HAPC designation based on "ecological function" is the lack of robust data regarding specific functions throughout the areas. This might be overcome by defining a process to modify the boundaries of the HAPCs as new data becomes available. PMCC supports *Alternative B.9 Process for New HAPC Designations*, and we suggest that procedures for modifying or removing HAPC designation might be implemented within a refined version of this alternative.

The Council's preliminary preferred alternatives, *B.2: Estuaries, B.3: Canopy Kelp, B.4: Seagrass,* and, *B.6: Rocky Reefs* all describe habitat types observed to serve important ecological functions. PMCC supports final adoption of these alternatives.

Minimize Adverse Fishing Impacts to EFH

This is the most challenging and controversial of the suites of alternatives. It is also where decisions can be made that result in real protection of the most sensitive or slow to recover marine habitats within EFH.

In general, PMCC supports use of fishing gear and techniques that are appropriate to the environment being fished. Incentives should be offered to encourage use of gear that least damages habitat. Considerable investment should be made in cooperative research that offers opportunity for fishermen to design and participate in studies to demonstrate the effective use of gear that minimizes damage to sensitive habitat.

PMCC acknowledges the limited amount of research that has been conducted on the West Coast to demonstrate specific impacts of a variety of gear on habitat. In addition, reliable fishing effort information relative to location is minimal, except in the case of the groundfish trawl fishery.

There has been a great deal of research conducted worldwide that documents the negative habitat impacts of mobile, bottom-contact gear. *Alternative C.12: Close Ecologically Important Areas to Bottom Trawl* focuses on this gear. PMCC generally supports the approach used in this alternative. The concept of using multiple data sources to define sensitive and slow to recover habitat in a precautionary manner, and then to close these areas to bottom trawling, while minimizing the economic impact makes a lot of sense. This should be the starting point in crafting a comprehensive alternative that works for both the marine environment and the fishery.

Alternative C.12 freezes the trawl footprint based on areas trawled 2000-2003, providing a reasonable basis for protecting potentially pristine habitat without affecting economic activity. *Alternative C.4: Prohibit the Geographic Expansion of Fishing* utilizes a similar approach with 2000-2002 as the qualifying years. This provides a measure of precaution but is not adequate in itself for minimizing adverse impacts of fishing gear on habitat.

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Alternative C.12 also identifies areas where trawling has occurred in recent years that would be off limits to the gears. The basis for closing these areas to trawling needs to be based on the best scientific information available, with a reasonable measure of precaution. In defining these areas, including buffers around the most sensitive habitat, consideration should be given to where any displaced fishing effort may move. Increased effort in nearby areas that remain open may have unintended consequences.

While the intent of *Alternative C.12* is to minimize gear impacts to the extent *practicable*, this requires some ground-truthing. PMCC has consistently testified to the Council that we believe that it is important to assess whether disparate adverse economic impacts may accrue to individual communities if important opportunities are lost due to restricted access. NOAA Fisheries can determine this to some degree using economic and spatial effort data regarding the trawl fishery, but it remains essential to engage fishermen in this process.

It is encouraging to hear that members of the trawl fishery have been working with *Alternative C.12* to reconfigure some of the closed areas so that the impact on the industry would be minimal even as important habitat is protected. There will probably be some give and take, but if NOAA Fisheries and the Council work closely with the fishermen and states to verify to the extent possible both biological and economic data, the outcome seems promising. Using trawl track data, logbooks and landings reports should help to refine the maps in order to minimize displacement of effort while still achieving significant habitat protection.

PMCC is supportive of *Alternative C.9: Gear Restrictions,* but only including those restrictions that very likely will protect habitat, such as *C.9.5: Prohibit dredge gear* and *C.9.6: Prohibit beam-trawl gear*. *C.9.1: Prohibit roller gear larger than 15 inches on bottom trawls* might be considered if, in the total package of alternatives, roller gear larger than 8 inches is only prohibited on the shelf.

PMCC is also supportive of a modification of *Alternative C.11: Relax Gear Endorsement Requirements,* if trawl-endorsed permit holders are allowed to switch to longline or pot gear, but not vice versa.

Research and Monitoring

PMCC strongly recommends that the final Research and Monitoring EFH EIS Alternative combine elements of *Alternatives D.2, D.3, and D.4*. The management tools outlined in the Alternatives are complimentary to each other and would provide information critical to improving our understanding on the location and impacts on EFH. Selected individually, none of the proposed Alternatives is extensive enough to gather the information needed for adequate protection of EFH. An Alternative developed from elements of all of the proposed Alternatives would provide the balance of fishery dependent and fishery independent information sources we require in other areas of fishery management.

We recommend that the Council and NOAA Fisheries develop a research plan specific to the EFH research needs identified through the process of developing this EIS. While we recognize the need for improved information around groundfish habitat and strongly support the development of a research plan for this purpose, inaction (Alternative D.1) is not an acceptable response to lack of information. We recommend that the Council move forward with the identification and designation of sensitive habitat areas for protection and research purposes using the best available science.

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The National Research Council report on Improving the Use of the "Best Scientific Information Available" Standard in Fisheries Management makes the following recommendation in terms of developing plans to improve available science.

> *"NOAA Fisheries should develop and implement a plan to systematically improve the quality of the "best scientific information available" that includes regular assessments of the outcomes of management actions and evaluation of the predictive quality of the scientific information supporting those actions."*

To accomplish this we strongly recommend and support the development of a research program that uses local area knowledge and collaborative research with members of the fishing industry as information gathering mechanisms.

Our specific recommendations on the proposed Alternatives are outlined below.

Alternative D.2: Expanded Logbook Program
PMCC strongly supports the use of an expanded logbook program designed to gather information on habitat. In recognition of the cost of such a program we would support Option D.2.2, where a random sample of fishing vessels is required to maintain logbooks as long as there is explicit buy-in at the onset of the program for adequate design, allowing for extrapolation of the information to the nonparticipating portion of the fleet.

Alternative D.3: Expanded Vessel Monitoring Program
PMCC supports the use of vessel monitoring programs for the purposes of increased safety and application of spatial management that allows for continued fishing opportunities while rebuilding overfished stocks. We encourage and support the use of technology in VMS systems that allows for the distinction between a vessel fishing and a vessel transiting. This would allow vessels to transit through closed areas for safety purposes. To the extent possible the cost of VMS units and associated transmission costs should be paid by the federal government.

Alternative D.4: Research Reserve System
PMCC strongly supports an Alternative that includes the development and use of a research reserve system. The EFH DEIS explicitly acknowledges the constraint placed on our knowledge of the effects of fishing on habitat resulting from the lack of unaffected control sites. The information gathered from control sites is a critical piece of the information puzzle and will not be accomplished through Alternatives D.2 or D.3. We recommend a collaborative process be developed with the fishing industry for the purposes of identification and design of this system.

Thank you for this opportunity to comment on the DEIS. We will be happy to discuss our recommendations

Sincerely

Jennifer Bloeser
Science Director

Peter Huhtala
Senior Policy Director

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Pacific Marine Conservation Council

May 11, 2005

Mr. D. Robert Lohn, Regional Administrator
National Marine Fisheries Service
c/o Maryann Nickerson
7600 Sand Point Way, NE
Bin C15700
Seattle, WA 98115-007

Re: Comment on 2005 Pacific Coast Groundfish DEIS for Essential Fish Habitat
Independent Scientific Review Panel

Dear Mr. Lohn,

Pacific Marine Conservation Council (PMCC) has facilitated the work of an Independent Scientific Review Panel (Panel) to review the Pacific Coast Groundfish DEIS for Essential Fish Habitat during the public comment period. We are pleased to provide you the report from this Panel.

It is PMCC's belief that the thorough, scientific assessment of the DEIS "Purpose and Need" and proposed alternatives is a valuable contribution to this important process, and we encourage you to give the report careful consideration. We want to be clear that these comments are independent from PMCC, and wholly separate from the comments submitted by PMCC staff.

No staff or board members of PMCC served on the Panel. The Panel members were not offered or provided financial compensation.

Sincerely,

Peter Huhtala
Senior Policy Director

Pacific Marine Conservation Council

Independent Scientific Review Panel Evaluation of

Draft Environmental Impact Statement on Essential Fish Habitat for the U.S. West Coast

Dr. Selina Heppell, Chair

Dr. Peter Auster

Dr. Don Gunderson

Dr. Ralph Larson

Dr. Les Watling

Consensus Statement

The Draft Environmental Impact Statement (DEIS) on Essential Fish Habitat (EFH) for the U.S. West Coast represents an important opportunity for the Pacific Fisheries Management Council (PFMC) to take a major step toward ecosystem-based management. The document has a number of shortcomings, principally, a) lack of data on habitat impacts of various gear types, b) lack of ground-truthing for the GIS-based model that forms the foundation of several of the recommended management actions, c) lack of data to determine the functional relationship between habitat condition and fish population or community response, and d) repeated failure to identify appropriate response variables to assess the likely success or failure of a proposed action. Nevertheless, the DEIS does a reasonable job of acknowledging these shortcomings (many of which will require years of research to rectify) and providing alternatives with a wide range of precaution. The authors of the DEIS are to be congratulated on production of a comprehensive document in a very short time frame that provides paths for habitat definition and protection, while highlighting the paucity of information available on fish habitat off the west coast of the United States.

This review Panel's preferred alternatives for each DEIS objective reflect a general consensus of precaution, based on our understanding of the alternatives presented, data gaps (particularly on the distribution and intensity of non-trawl fisheries) and the our collective experience in marine ecology and fishery impacts. Because data on gear impacts, habitat sensitivity and recovery are not available for the West Coast, the data layers used to generate EFH and mitigation alternatives are not functionally connected. This is a major drawback, although the GIS-based model is an excellent tool for visualizing and evaluating the spatial extent of each alternative. We urge the PFMC to utilize this tool carefully and to acknowledge the uncertainty that accumulates with each data layer by avoiding decisions that require a high level of precision.

The impact of fishing on habitat can be reduced through one or more of the following actions:

a) gear modification,
b) gear restrictions in space – permanent (including closure to all gear types),
c) gear restrictions in space – rotating, and
d) effort reduction.

We anticipate that the PFMC will settle on a “package” of EFH protection that utilizes most or all of these actions. However, as marine ecologists, we are not well-qualified to judge the likely effectiveness of gear modifications and effort reduction. We also cannot evaluate the potential socioeconomic impacts of the alternatives, but support additional research to choose alternatives that minimize hardship while assuring adequate habitat protection. Progressive alternatives that include relief for fishermen, such as the Central California license buy-out, may be a viable solution for some areas. However, we have concerns about the potential redistribution of fishing effort if closures are enacted, and we urge the PFMC and its Habitat Committee to consider this possibility carefully for any management scenarios that involve closures.

We strongly recommend that the EIS be reviewed 5 years after implementation, to update the models with new information, ground-truthing, and assessment of the effects of the chosen alternatives. The research and monitoring necessary to improve the EIS will require a substantial commitment of funds from NMFS and state agencies. In order to estimate recovery times for damaged habitats, controlled experiments must be carried out over extensive time periods (decades in many cases). This research will be money well spent, however, if it is targeted at the major uncertainties of the model and effects of the mitigation actions. We anticipate that well-planned, cooperative research will decrease the amount of area designated as "essential" or "critical," and permit a much more focused conservation effort that has less impact on fisheries and greater benefits to fish populations.

Preferred Alternatives – Summary

A. EFH designation

Alternative A.3, with some support for A.4.

B. HAPC designation

Alternative B.7 was strongly supported, along with designation for estuaries (B.2), kelp canopy (B.3), seagrass beds (B.4) and rocky shelf areas (B.6) that serve as juvenile rearing habitat.

Alternative B.5 is supported as a goal but some Panel members felt that Core Area designation is premature given the limited data available.

Alternative B.9 is supported with an emphasis on external review.

C. Alternatives to Minimize Impacts to EFH

Alternatives 3 or 12/13.

General goal: Reduce effort of most damaging gear on most sensitive habitat.

There is additional support for Alternatives 7 and 10.

D. Research recommendations

Alternatives D.2 and D.4 .

Preferred Alternatives – Justification and Discussion

EFH designation

All life stages and life processes require habitat, and these are not the same within a species. Identification of habitat necessary for growth, reproduction, and other life processes for all 80+ groundfish species and their life stages is an enormous undertaking, as evidenced by the large appendix listing these factors. It is not surprising that when presence/absence is used as a response variable to assess EFH, the entire EEZ becomes designated. No amount of probabilistic modeling is likely to change that conclusion, but placing EFH designation into a probability framework (Habitat Suitability Probability, or HSP) is a step in the right direction because it at least acknowledges uncertainty.

Able (1999, American Fisheries Society Symposium 22, *Fish Habitat: Essential Fish Habitat and Rehabilitation*) described a hierarchical scheme for EFH designation that could be integrated into PFMC's research and management goals:

- Tier 1: Presence/absence. This approach requires comprehensive sampling of all potential habitat with multiple gears, not just NMFS trawl survey data.
- Tier 2: Relative abundance. Better quality habitats should be able to sustain larger population sizes than lower quality habitats. This approach requires a repeated measures sampling scheme because population sizes fluctuate from year to year.
- Tier 3: Vital rates. Growth, frequency of reproduction, and other demographic rates should be greater in high quality habitat. This approach requires physiological sampling of multiple individuals from a variety of sites over time.
- Tier 4: Productivity. "Source" habitats contain healthy populations that consistently provide a net export of individuals through recruitment and spillover. The identification of "sources" is difficult and requires detailed sampling of many sites over long time periods.

The advantage of this hierarchical approach is that is can help us hone our designations substantially, from the entire EEZ to areas that truly are "essential" because they provide the food and shelter required to sustain healthy fish populations.

We are particularly concerned about the paucity of information on juvenile groundfish habitat because it is precisely those individuals that are most likely to be strongly tied to structure that may be damaged by fishing gear. Only the designation of estuaries, seagrass beds, kelp canopy areas and some "Areas of Interest" specifically address juvenile habitat. We believe that the PFMC should be most precautionary about potential impacts to juvenile habitat and be extremely wary of habitat status assessment that is based solely on the catch of adults.

Alternatives A.3 and A.4

Alternative A.1 (No action) keeps many options open, with less potential conflict when combined with HAPC designation and mitigation actions. It also identifies categories of habitat, although these should be expanded. However, designating the entire EEZ as EFH does not focus attention on any particular habitats, and shifts the entire direction of the exercise to designation of HAPC.

Alternative A.3 (100% HSP area) received the most support within the Panel, with additional consideration of alternatives that designate unknown deep water areas. However, this alternative is primarily based on HSP calculations from trawl survey records, which are insufficient measures of habitat use by all life stages. This option also makes everything "essential," hence nothing is essential, and makes actions targeted to conserve particular species difficult or impossible to implement using the EFH boundaries

We like the flexibility and added precaution of EFH based on management status (Alternative A.4), and 2 Panel members supported this option as preferred. Designation is weighted by management status of the exploited populations and protects “essential” habitats based on frequency-dependent distributions (Tier 2, above). Further, this alternative designates seamounts as EFH in a precautionary manner appropriate for the management regime and sensitivity of such habitats. However, this alternative is problematic because a) a population at low abundance may not occur regularly in areas that could be “essential”, and b) habitat needs of individuals do not change just because their management status changes.

The alternatives with lower HSP thresholds lack data to support the assumption that such designations truly contain essential habitats of managed species and that other areas do not have habitats that play an important role in mediating demographic processes.

Recommendations:

1) Retain the seven composite areas identified in the 1998 EFH designation, but consider other habitat designations based on structure, function and impacts. For example, splitting nearshore rocky shelf habitat (<100m depth) into a separate category is supported because of the importance of these shallow reef areas as juvenile fish habitat and increased impacts of recreational fishing gear.
2) Final designation of EFH should be based on maps that include the most recent information from multiple sampling sources. A research plan for ground-truthing those maps should be a top priority for the first 5 years. Refinements to the HSP model using a tiered assessment approach are encouraged.

HAPC designation

We strongly support the effort to designate Habitat Areas of Particular Concern, and the list of considerations is a good start. The use of habitat-specific knowledge regarding sensitivity to impacts and recovery times to designate specific sites as HAPCs allows implementation of precautionary approaches to mitigate the effects of fisheries activities in the context of ecosystem-based management. Unfortunately, the first consideration for HAPC designation, “the importance of the ecological function provided by the habitat”, is far too broad and vague, and “ecological function” has not really been measured for any of the habitats listed. Nevertheless, the areas listed in Alternatives B.2 – B.7 are based on ecological principles and observations of fishes and particular life stages in those habitats. Core areas for managed species as well as areas of interest, with area-specific knowledge of function or sensitivity, should be included in HAPC designation.

The Areas of Interest listed for Alternative B.7 include various canyons and banks that have unique combinations of structure and oceanographic characteristics that seem to correspond with high productivity, biodiversity, or both. Many of these areas also include biogenic structure,

likely because of particular combinations of depth and current. The danger of a somewhat vague "Areas of Interest" HAPC designation is that decisions to include or not include an area will be highly subjective, at least until further study can identify features that make these areas unique or areas of high groundfish productivity. There may be more specific combinations of structure, depth, and currents that would be better to use for HAPC designation and identification of Areas of Interest.

Three Panel members strongly support designation of Core Areas (B.5). Use of core areas based on frequency-dependent distributions are supported by theoretical and empirical studies of demersal fishes. Core Habitat designation is a good goal, but may be premature without more "higher level" data (Tiers 2-3) than are currently available.

Specific HAPCs for areas known to serve important ecological functions are supported. Alternatives B.2 (Estuaries), B.3 (Kelp canopy), and B.4 (Sea grass) make sense, although the potential effects of non-fishing human activities on these habitats may exceed the effects of fishing activities, and there seems to be little power to limit these activities (such as development and filling of estuarine areas, or dredging and disposition of spoils). The kelp canopy designated for California (based on 1989) probably underestimates potential kelp coverage, although the map of kelp canopy in California looks reasonably complete at the scale shown. The area of kelp canopy habitat that does not coincide with area designated as essential under EFH alternative A.3 (Habitat Table 4-4) must be on sand bottom. If the inconsistency of the EFH alternative A.3 and the HAPC alternative B.3 is a problem, HAPC alternative B.6 would cover most of the important habitat included in alternative B.3.

Alternative B.6 (Rocky reefs) makes sense to the Panel, as the physical structure of the reef is essential for a number of species of fish, and can be subject to modification by some fishing activities. This alternative would include most kelp forests, so if alternative B.3 was not chosen, most of the same habitat would still be recognized as HAPC.

The Panel generally did not support the designation of oil platforms as HAPCs (Alternative B.8), despite the fact that they do serve as habitat.

All of these designations lack specific consideration of biogenic habitat other then kelp and sea grass, and all soft-bottom habitat. Much of biogenic habitat associated with hard substrates would be covered under Alternative B.6, and some in B.7, but none associated with soft bottom habitat would be included. Hard-substrate habitats are probably more sensitive to some effects of fishing, but focus on these areas may be at the expense of soft-bottom habitat.

The process for designating new HAPC areas (Alternative B.9) is supported, as it allows flexibility and response to new findings. Recommendations from the PFMC Habitat Committee should be reviewed by experts on benthic habitats, fish ecology and fish distribution. There should also be a mechanism for "delisting" HAPCs, as new information may actually reduce the perceived importance of specific areas.

Recommendations:

1) Combine Alternatives B.7, 2, 3, 4, and 6, with effort to identify quantifiable

characteristics for designation.

2) Strongly consider Alternative B.5, Core Area designation, if species-specific relative abundance data are available.
3) Support Alternative B.9, with emphasis on external review.

Alternatives to Minimize Impacts to EFH

General goal: reduce effort of most damaging gear on most sensitive habitat

We would encourage the use of more habitat-friendly gear, and the participation of the fishing community in the development of effective fisheries management systems. Therefore, to the extent that it is possible, we would like to see the use of the most destructive gear in the most sensitive habitats be restricted the most, and other gears restricted less (or encouraged). Given a wealth of experimental and observation data on the negative impacts of mobile, bottom-contacting gear in multiple habitats, we favor restrictions on dredging and trawling (especially on hard bottom). Restrictions on fixed gear are more problematic, because the effects of pots, nets and lines on habitat are poorly documented and probably less than mobile gear. Thus, precautionary restrictions on these gear types, in addition to trawl restrictions, may stifle a move toward more sustainable fishing practices. At present, we can only guess at habitat sensitivity to different gears, and it may be a long time before this lack of knowledge changes. Certainly, gear design and fishing tactics can minimize damage, so that this problem will be a constantly moving target.

Alternatives 3 and 12/13

The Panel favors impact reduction through protection of sensitive habitat. We favor options within Alternatives C.3 and C.12/13, although both of these approaches have flaws. These options provide a choice between a subjective set of "Ecologically Important Areas" identified by Oceana (C.12 and C.13) or, or an alternative set of areas chosen more objectively by the National Ocean Service (C.3) but using crude data inputs (trawl survey data) and admittedly questionable analytical techniques. Only option C.13 addresses invertebrate megafauna explicitly. Neither option seems to identify what will happen to the HAPC areas identified in Alternatives B.1 to B.8. Redistribution of fishing activities must be carefully considered, as "unsensitive habitat" may become heavily impacted, and more explicit justification for restricting the designation based on trawl effort is needed under Option C.3. However, either alternative offers a place to start, providing the areas involved can be added to or deleted as further information on HSP or sensitivity becomes available. Present information is crude at best, making it imperative that some flexibility be built into the selected alternative.

The amount of area closed to fishing under alternatives C.3.1 and C.3.3 is extensive, and would certainly play a role in limiting the effects of fishing on habitat. C.3.2 and C.3.4 apply more limited restrictions, focusing on the most highly-rated sensitive habitats, and might be more palatable from a socioeconomic perspective. The PFMC should consider the addition of Alternative C.7 (close Areas of Interest) if this alternative is adopted. Alternatives under C.3 may be particularly useful on an experimental basis as part of an adaptive management plan that includes intensive monitoring.

Alternatives C.12-14 are specific to habitat and the footprint of fishing and are most tightly linked to the distribution of managed species based on habitat selection theory, where areas of highest density, at particular life history stages, are generally an organism's preferred habitat. The description of these Alternatives is comprehensive and rather complex, requiring a) identification of ecologically important areas and b) an assumption that bottom trawling is the major impact on those areas. The latter is likely, but impact from other fisheries should not be ignored. The former requires a complex assessment and a number of assumptions, given the lack of data on relative abundance for many species and life stages. The Panel liked these alternatives from a biological standpoint, but data are lacking to provide a strong *empirical* justification for the large areas affected. From a precautionary standpoint, restriction of gear that is known to damage structure forming invertebrates in areas where those invertebrates are likely to occur is reasonable, but should be verified. This Alternative is strongly driven by protection of deep sea corals, which are poorly mapped on the west coast slope and may or may not provide critical habitat for groundfish.

Specific regulations that result from the adoption of this Alternative will require much discussion, compromise, and assessment monitoring. Efforts to "appease" fisheries by allowances for certain important fishing areas may be a successful compromising measure. Redistribution of effort must be modeled, at least qualitatively, and may be anticipated through analysis of logbook data following trawl footrope restrictions that occurred in 2000.

Alternatives C.13 and C.14 are more restrictive variations on C.12, and were generally viewed by Panel members as overly precautious. The exception to this is a recommendation for restriction of fixed gear in deepwater areas that are likely to house structure-forming invertebrates. There is a great advantage to having some areas closed to all fishing activities, but the large areas covered by these alternatives are likely excessive. Selective closures of Areas of Interest may be more palatable and avoid massive effort redistribution. One Panel member argued that the provision on footropes (none greater than eight inches in diameter) allowed in the open area should be removed from C.13 if this Alternative is adopted.

Alternative C.1 was deemed unacceptable because current regulations and closures are not based on habitat, which is the mandate of this EIS.

Alternative C.2, depth-based gear restrictions, could serve as a default option in light of poor information on impacts and recovery, but may be overly cautious. Restrictions on large-footrope trawl gear would seem to have positive effects, constraining trawling largely to non-rocky areas without having to specifically identify the rocky areas. Information on habitat recovery in areas currently closed or no longer trawled would be helpful to determine recovery times and relative impact functions. Without field data, it was difficult for the Panel to evaluate which depth zones would be best for this under the alternatives in C.2. However, we do not favor the restrictions on fixed gear in shallow water. Two important and well-managed fisheries, the Dungeness crab and California spiny lobster fisheries, would be particularly affected by the restrictions posed here, and it seems excessively punitive to destroy these fisheries after the members have helped to create reasonable systems of management.

Alternative C.4, prohibit geographic expansion of fishing, has some serious methodological flaws. Why would anyone assume that areas not fished between 2000 and 2002 are "potentially pristine", given the long history of fishing on our coast? Nevertheless, the Panel agrees that preserving the current fingerprint of fishing seems like a good idea with few economic impacts right now. Alternative C.4.2 (all gear) would be preferable, as a way to encourage gear with smaller impacts (as covered under C.11). Fixed gear has a limited but measurable impact footprint, especially in deep waters during deployment and recovery. On hard substrates, gillnets and other fixed gear have been shown to impact emergent fauna like corals as well as fragile geologic structures. However, we note that these alternatives are not consistent with most of the EFH designation alternatives.

Alternative C.5. prohibit a krill fishery, is an interesting idea from an ecosystem-based management standpoint. It may also "set the stage" for setting limits to the expansion of fisheries for other low-trophic level species, such as northern anchovy, shortbelly rockfish, sardine and squid. However, this alternative seems outside of the scope of EFH, and it does not make sense from an ecological standpoint to equate prey availability with habitat.

Alternative C.6, close hotspots. This alternative focuses on biodiversity and needs further development. Hotspots do not directly address the sensitivity of habitats. For fisheries enhancement or biodiversity protection, hotspots can be stratified by depth, latitude and habitat type. They should also be based on data collected over a number of years. Identification and protection of hotspots of productivity or juvenile recruitment may meet sustainable fisheries goals more than biodiversity criteria.

Alternative C.7, close Areas of Interest. This may be a reasonable, precautionary alternative until data show "minimal impact" of each gear type on the Area of Interest identified in the HAPC Alternative B.7. However, as with Alternative C.3, redistribution of effort will be important to consider, and closing these areas is probably insufficient for EFH protection. This alternative could be added to Alternative C 3, and overlaps with areas identified in our current preferred alternative, C12.

Alternative C.8. Ocean zoning is a hotly debated option that we feel is politically unfeasible at this time. While the idea of zoning fishing activities and doing further research on ways to fish while reducing impact on the habitat may be useful, these concepts are better addressed in other alternatives. Also, zoning quickly turns the scientifically-based issue of habitat protection into a pure allocation issue.

Alternative C.9 covers a series of gear restrictions. Alternatives that involve the development of less harmful gear types, rather than fishing restrictions, are an effective management approach when there are data available to show that the gear modifications actually work (i.e., maintain catch and substantially reduce impact). This approach leads to cooperative research, which further enhances the relationship between fishermen, researchers and managers. Also, this alternative codifies many current practices. Gear restrictions are likely to be useful in some areas but are not precautionary by themselves. Some on the Panel felt that we should avoid support for gear-specific options, given our mandate and expertise. The measures described in this option are

aimed only at a subset of the bottom-tending gears and are thus more allocative than biologically based, and may be more difficult to enforce than some other Alternatives.

Alternative C.10, no-trawl zones plus license buy-out in Central California, is the most progressive alternative and is likely to be useful in some areas, but may not be feasible where multiple gear impacts are common. It would also be important to know what the trawlers will do in response to the buy-out. C10 requires actions of private organizations after passage and is outside the purview of the Council and NMFS to require implementation of all of the provisions. In general, the Panel felt it was beyond our abilities to evaluate the socioeconomic trade-offs of acceptance or rejection of this alternative.

Alternative C.11 relaxes gear endorsement requirements. Adding flexibility to fishing strategies can ease the negative effects that area closures or gear restrictions may have on fishermen, promotes the use of more habitat-friendly gear, and may also help spread effort of individual fishermen across space, time and species. However, the biological impacts of this Alternative are unclear.

Recommendations:

1) Alternatives that consider the spatial distribution of habitat, impacts on habitat (fishing effort) and its sensitivity to those impacts should be adopted. Of the alternatives provided, C.3.4 and C.13 best meet those goals, and could be modified to reduce socioeconomic impacts.
2) Impacts of all gear types should be included in the assessment, and ground-truthing is needed.
3) Areas of Interest identified in the HAPC designation should also be protected (Alternative C.7).
4) Solutions that reduce economic hardship and encourage partnerships between conservation groups and industry should be supported (Alternative C.10).
5) Gear modifications to reduce impacts on habitat should be encouraged but require field testing (Alternative C.9).
6) Adoption of any Alternatives that include area closures should include an assessment of likely effort redistribution.

Research Recommendations

The Panel developed and ranked a series of general research needs that included our own judgments as well as specific alternatives from the DEIS:

1) Ground-truthing habitat suitability probability
2) Habitat recovery monitoring
3) Research reserves
4) Expanded logbook to include data from other fisheries
5) Gear impact experiments
6) Vessel Monitoring System effort distribution analysis
7) Alternative sampling methodologies

Recommendations 5, 6, and 7 received equivalent mean ranks from Panel members. Note that all of these research needs are important, but restricted funding will likely require some prioritization. We strongly recommend intensive pre- and post-closure monitoring of any closed areas that may result from adoption of the alternatives outlined in this DEIS.

Research reserves that are closed to all fishing activities are highly controversial, but provide the only tool to separate fisheries impacts from changes in habitats or fish abundance that are due to environmental change. Research reserves could also serve as locations for habitat sensitivity and recovery assessment. Two Panel members ranked establishment of reserves as their top research priority. We support cooperative efforts by coastal communities and scientists to design these reserves, as recommended by Oregon's Ocean Policy Advisory Council.

We also make the following general recommendations for improvements to the HSP designations:

1) Trawl survey data needs to be supplemented with ROV or submersible observations.

2) The correct spatial scale (based on home range) for habitat analysis needs to be determined for each life stage of each species.

3) The analysis of habitat suitability currently should incorporate additional parameters and interactions of those parameters with the current ones (depth, latitude, and "substrate").

4) Relative abundance (Tier 2 response) should be used instead of presence/absence whenever possible.

5) More habitat categories should be considered. Ten is overly crude, and misses important detail on features such as rugosity, biogenic cover, etc.

Comments on the DEIS process and document

The idea of "Essential Fish Habitat," as outlined in the SFA in 1996, was flawed at the outset, in that no guidance was provided to distinguish mere "habitat" from "essential habitat." The idea of habitat bottlenecks (habitats of limited size through which the population passes at some time in its life cycle, which are also vulnerable to the effects of fishing gear and other factors) is ecologically sound. However, the language of the law makes it difficult to account for the effects of density-dependent habitat selection (and therefore to distinguish the core areas of habitat that are most suitable for a population), the rarity of a habitat that might be used by a particular life stage, and the vulnerability of that habitat to human and natural disturbances. Thus, NMFS was probably correct in its first assessment, designating everything within the EEZ as "Essential Fish Habitat," even though that designation in the end meant nothing because it failed to allow focus on any particular portion of the habitat. As a result, the HAPC designation became the means of identifying "really, really Essential Fish Habitat."

Use of the HSP models for identifying habitat is a reasonable approach, but subject to limitations of the data used in the analysis. Because of the inherent problems in identifying "essential fish habitat" as it has been defined, perhaps the highest purpose of this section (EFH designation) should be to recognize the diversity of species and the habitats utilized, and allow for the broadest context for the identification of really, really essential (and vulnerable) habitat in the designation of HAPC and of measures to minimize adverse impacts to EFH.

It is critical, for the logic of this EIS, that any HAPC and actions for remediation are areas that have been designated as EFH. All of the alternatives to reduce impacts must interact with the designation of EFH that is ultimately chosen, and with the alternatives for HAPC. Ideally, mitigation efforts should be nested within EFH and HAPC designations to drive the alternatives to limit impacts, with explicit language linking mitigation issues to the attributes of concern. We recommend that the PFMC Habitat Committee develop a comprehensive framework for action that more logically follows the hierarchy necessary for non-conflicting action: a fairly broad EFH designation based on ground-truthed information on relative abundance of all life stages (which may not need to be species specific), HAPC designation for areas with unique functions, such as nursery grounds, areas with high biogenic habitat, high productivity, and/or high biodiversity, and impact reduction actions that target critical areas within these designations. The alternatives presented in the DEIS are disjoint, requiring an overwhelming appendix of tables and maps to show conflicts that will arise. This approach is inefficient and makes it extremely difficult to do more than simply choose a preferred action (or combination of actions) for each of the 3 sets of alternatives, based on ecological principles, conservation concerns, socioeconomic concerns, etc.

The apparent conflicts between EFH and HAPC designation shown in Appendix 4 are of particular concern and difficult to understand. For example, Habitat Table 4-4 shows that only EFH alternative A.6 would not include the areas identified in HAPC alternative B.6, but Figure 4-3 shows some areas (which seem mostly like deep-water areas) included in HAPC alternative B.6 are excluded in several of the EFH alternatives. Likewise, some of the areas included in HAPC alternative B.7 (Areas of Interest) are not included in some of the EFH alternatives because of a disconnect between methods to identify HSP (catch records) and in-water observations of these areas that identify them as Areas of Interest.

The "Purpose and Need" section does a good job describing the management framework for west coast groundfish but does a poor job linking the management framework to EFH designations, thus making it impossible to evaluate EFH alternatives against a set of explicit goals (e.g., minimally capture the top 50% of the population distribution of each managed species, capture 80% of spawning habitat, etc.). While there are targets set within alternatives (e.g., 70% HSP), these are thresholds for specific alternatives and not an overall goal for which various alternatives were proposed and can be compared. The four goals stated in section 1.4 are strawmen and the existing preferred alternatives discussed in chapter 2 clearly "consider" these in aggregate. Without explicit threshold values for particular metrics (e.g., what are thresholds for "practicable" alternatives?), it is impossible to develop a review criteria that does not explicitly include personal viewpoints related to balancing industry needs with conservation goals. This is not an unusual situation (in fact, a similar process and framework were recently evaluated for groundfish EFH in the New England Region) and is why reviews of the EFH and HAPC alternatives from other Councils preclude rigorous scientific review. While the underlying theory and methods used to develop alternatives is certainly open to scientific debate, the value-laden alternatives are really not. Thus, we believe that the approach used by the PFMC is generally robust and defensible, but science-driven vs. value-driven decisions should be distinguished whenever possible.

The Purpose and Need section is supposed to "set the stage" for what the EIS is and why it is important. Overall, the description of the EIS process is reasonable, but there are a few elements missing, such as the definition of EFH and habitat-related mandates of the Sustainable Fisheries Act. Some Panel members also found it confusing to have the EIS presented as a document describing "the effects of conservation actions [on habitat]" when the mandate is to determine the effects of fishing on habitat. This may be more than a simple semantics issue, as the "burden of proof" may rely on proper definition of the problem. Because the "action" in this case is implementation of conservation measures, rather than introduction of a new stressor, this apparent switch of focus may be intentional and necessary – but it should be better explained.

This section of the DEIS also includes a description of the current management framework for west coast groundfish, but does not really provide information about how habitat management would fit into that framework. Most importantly, state vs. federal regulations and their interactions should be addressed. Also, there is no description of the current regulations that are designed to reduce impacts on overfished stocks (these closures are described in the Alternatives chapter).

The current methods for determining HSP and habitat sensitivity are not up to the task at hand, primarily due to a lack of data. The Risk Assessment group developed a model that relies on a complex matrix of these interacting factors, which in turn is based on published studies that are mostly from other areas. The functional relationship between habitat sensitivity and impact is based on a sound premise, but one without any empirical support. There are no data on effort and local impacts of non-trawl fisheries. There is also a problem of spatial scale that was noted by the SSC - fishing effort blocks (large scale) vs. habitat patch (EFH polygons – small scale). The SSC's conclusion was that fishing impacts model is inadequate and should not be used in its present form for risk assessment. Some Panel members were less certain of this conclusion, as long as the results of the model are used in a qualitative, rather than quantitative way. The level of apparent precision given by the models can be misleading, but only if you let it be. The DEIS

authors acknowledge the uncertainty in the model and argue that the array of alternatives provides a range from extremely precautionary to risk-prone approaches. As a result of current uncertainty in key parameters, the PMCC Independent Scientific Review Panel believes that an adaptive approach is required whereby the EFH process allows for both closing and re-opening areas to fishing activity.

Pacific Marine Conservation Council Independent Scientific Review Panel

DR. SELINA HEPPELL is an Assistant Professor in the Department of Fisheries and Wildlife at Oregon State University (OSU). She is also Adjunct Faculty in the OSU Marine Resource Management Program at the College of Oceanic and Atmospheric Science, as well as the Nicholas School of the Environment at Duke University. Selina is a member of the IUCN Marine Turtle Specialist Group (sea turtle conservation), the Willamette-Lower Columbia Technical Recovery Team (listed salmonid recovery planning), and the Environmental Quality Committee of the American Society of Ichthyologists and Herpetologists (fish conservation). Her expertise is population ecology, marine fisheries ecology, conservation biology, and life history evolution, and her research generally focuses on how populations respond to perturbations. Some current research projects include: comparative life-history analysis of Oregon groundfish, changes in habitat structure and fish communities in de facto marine reserves off the Oregon coast, grouper population dynamics and marine protected area design in Florida, maternal effects on offspring quality and changes in recruitment variability with age of maternal stock, and sea turtle population dynamics in response to management and longline bycatch.

DR. RALPH J. LARSON was born in 1946, and from the age of 4 grew up in southern California. He attended Occidental College, where he met Dr. John S. Stephens, Jr., and was introduced to marine ecology and the biology of fishes. He graduated with departmental honors in 1968. He then attended graduate school at the University of California, Santa Barbara, under the tutelage of Dr. Alfred W. Ebeling, earning his M.A. degree in Biology in 1972, and his Ph.D. degree in 1977. At UCSB, he studied the ecology of kelp-forest fishes, and interspecific competition between two species of kelp-forest rockfishes. He then taught for a year in the Department of Zoology, U. C. Berkeley, was a research Biologist for a year at the New York Ocean Sciences Laboratory, studying larval fish ecology, and then spent a year assessing the effects of the San Onofre nuclear power plant on fishes. He was appointed an Assistant Professor of Biology at San Francisco State University in 1980, and has spent the remainder of his career at that institution. He has taught courses in ecology, biology of fishes, fisheries biology, biological oceanography, biogeography, general zoology, and general biology, and has supervised the Master's thesis research of nearly 40 students. He also spent 2 ½ years working on leave with the National Marine Fisheries Service, studying the ecology of pelagic juvenile rockfishes. He and his students have studied life history of rockfishes, the ecology of juvenile rockfishes and other species, the genetics of the larval and juvenile stage of fishes, and the effects of climate change on fish communities. He is a Fellow of the California Academy of Sciences, was Chair of the Board of Governors for the Moss Landing Marine Laboratories, was a member of the Master Plan Team for the Marine Life Protection Act in California, and is the President-elect for the Western Society of Naturalists.

DR. LES WATLING received his Ph.D. in Marine Science from the University of Delaware in 1974. He is currently Professor of Oceanography at the University of Maine. He served on the U.S. National Research Council's Committee on Marine Biodiversity and he is a Past President of the Crustacean Society. He also serves on the International Council for the Exploration of the

Sea's Working Group on Benthic Ecology. His research interests have spanned two disparate topics, crustacean taxonomy and phylogeny on the one hand and benthic oceanography on the other. Watling's benthic interests are focused on impacts of humans on benthic environments, with an emphasis on organic enrichment and habitat disruption. Topics investigated in the last few years include the impact of salmon net-pen aquaculture on benthic environments, and the effects of fishing activities on benthic habitats and its consequences for benthic community structure. Most recently he has been the co-sponsor of two symposia dealing with impacts of mobile fishing gear on benthic communities and his research projects have focused on the potential loss of marine biodiversity associated with fishing activities. Much of the current work has been conducted using research submersibles as well as samples taken from surface ships.

DR. DONALD R. GUNDERSON is a Professor in the School of Aquatic and Fishery Science, University of Washington. His research has focused on the biology, population dynamics, and management of groundfish, with nearly 40 years of experience at the University of Washington, the Washington Dept. of Fish and Wildlife, and the National Marine Fisheries Service. Most of his current research is on spatial processes in population dynamics, and habitat utilization by groundfish.

DR. PETER J. AUSTER is the Science Director for the National Undersea Research Center and an Assistant Professor-in-Residence in the Department of Marine Sciences at the University of Connecticut. His research focuses on the ecology and conservation of fishes. He has participated as scientist or chief-scientist on 40 major research cruises and countless day trips in the northwest Atlantic, Gulf of Alaska, Bering Sea, Caribbean Sea, South China Sea, and equatorial Pacific. He also participated in research expeditions to Lake Baikal in Russia and Lakes Victoria and Malawi in the Rift Lake Valley of East Africa.

For the past 20 years, he has conducted studies to define how seafloor landscapes effect the distribution and abundance of fishes, understand the linkages between habitat level processes and population-community dynamics, and develop methods for monitoring habitat integrity. From an applied science perspective, he has focused his attention on the impacts of fishing gear on the environment and developing the scientific basis for using marine protected areas as a conservation tool in outer continental shelf regions.

His basic approach to fieldwork has been to use the same types of techniques underwater that wildlife biologists use on land. That is, making direct underwater observations to study how individual animals react to variations in nature. He has conducted over 1,400 scuba dives, 59 submersible dives (using the Johnson Sea-Link I and II, Delta, Mermaid IV, NR-l, Alvin, and Deepworker 2000), and 360 remotely operated vehicle dives (using Minirover, SeaRover, MaxRover, Phantom, Recon, and Ventana ROVs).

Peter serves on a number of panels and committees that are focused on marine resource management and conservation. He is involved in several outreach initiatives that are targeted at informing the public about marine conservation issues. Most recently, he was awarded a Pew Marine Conservation Fellowship in 1999, the NOAA Environmental Hero Award in 2000, and was named an Ocean Hero by the American Oceans Campaign in 2001.

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May 10, 2005

Mr. D. Robert Lohn, Regional Administrator
c/o Maryann Nickerson
National Marine Fisheries Service
7600 Sand Point Way NE - BIN C15700 - Bldg. 1
Seattle, WA 98115-0070

Subject: Comments on the "Pacific Coast Groundfish Fishery Management Plan - Essential Fish Habitat Designation and Minimization of Adverse Impacts" Draft EIS Support of Modified Alternatives of Collaborative Efforts between Environmental Non-Governmental Organizations and Fishermen and Protection and Consideration of Impacts to Coastal Communities

Dear Mr. Robert Lohn:

We appreciate this opportunity to comment on the "Groundfish Essential Fish Habitat Designation and Minimization of Adverse Impacts Draft Environmental Impact Statement (DEIS)." We support the Pacific Fisheries Management Council and National Marine Fisheries Service's efforts to assess the environmental and socioeconomic effects of the alternatives presented in the Draft EIS. Our review of the Draft EIS document and discussions we have had with NMFS staff, including Dr. Rebecca Lent and Mr. Steve Copps, provided us with a good understanding of the intent and variables of the Essential Fish Habitat program. Our comments are broad with respect to the fisheries issues but are focused on the effects of the Essential Fish Habitat program on local coastal communities and fishing dependent harbors.

The Magnuson-Stevens Act and a 2000 court order require the preparation of this DEIS. The purpose of this DEIS is to evaluate the effects of fishing on essential fish habitat and to identify measures that will minimize those impacts to the extent practical. The project will also designate "Habitat Areas of Particular Concern" and identify other actions that encourage the conservation and enhancement of Essential Fish Habitat (source: DEIS). The Pacific Coast Groundfish Management Plan (FMP) will ultimately be amended to incorporate the alternatives selected by the Pacific Fisheries Management Council (PFMC) and as may be approved by the National Marine Fisheries Service (NMFS).

Fisheries and Non-Governmental Organizations

There are an estimated 4-6 permit holders that we believe regularly bottom trawl in the San Luis Obispo central California region. These commercial fishermen have historically moored and offloaded seafood product at Avila Beach/Port San Luis Harbor. We strongly support the environmental non-governmental organizations (NGO's) and these 4-6 commercial fishermen's (and their associated representatives) efforts to agree on designating zones in the study area (such as Alternative C.12 as may be modified) as no-bottom trawl zones. Of course, other areas would remain available for trawling and other types of fishing, both sport and commercial use. As we understand it, the NGO's, individuals and Fishing Associations (local Fishermen's Associations, FMA, PCFFA and others) are working to identify areas they think should be kept open to bottom trawl fishing and those remaining areas that should be closed to bottom trawlers. Again, we strongly support these efforts and recommend that whatever collaborative proposals are eventually submitted to the Pacific Fisheries Management Council be taken seriously and adopted by NMFS and the Commerce Department. We believe that the collaborative efforts of the NGO's and the commercial fishermen will result in the best alternative for the central California coast area regarding designations of the Essential Fish Habitat, while also meeting the requirements of the court order and the Magnuson-Stevens Act, et seq.

Port San Luis Harbor staff is working with the NGO's and some of the fishermen to educate and encourage the development of information for the GIS mapping of the Alternatives in the draft EFH EIS. The outcome, which is subject to modification, may also include some of the local trawl permits and vessels being purchased with private funds.

We respectfully request both the PFMC and NMFS allow the NGO's to continue working with the trawl fishermen, the group most greatly impacted by this process, in order to prepare recommendations on open trawl areas and trawl closed zones within the central California coast study region. We expect these groups to present a preliminary zoning plan at the PFMC meeting in June 2005. We support any alternative submitted by a collaborative effort of NGO's and commercial fishermen.

In addition, we respectfully request that both the Pacific Fisheries Marine Council and the National Fisheries Marine Service accept and support any Alternative submitted by these groups in a joint effort as one of the preferred alternatives in the EFH EIS. We believe that the fishermen and NGO's should be allowed, if not encouraged, to continue their collaborative work to identify essential fish habitat, to designate habitat areas of particular concern, to minimize, to the extent practical, the adverse effects of fishing on the essential fish habitat, and to identify other actions that will encourage the conservation and enhancement of the essential fish habitats within any modified Alternative for the central California coastal region.

Ports, Harbors and Coastal Communities

There are many small ports and harbors that have a symbiotic relationship with the fisheries industries, both sport and commercial, within the EIS study region. These small craft harbors rely on the fisheries to provide steady jobs and act as an economic engine, keeping the community vibrant. In the case of central California harbors, the past few years of increased regulatory actions have had a drastic effect on the ability of the fishing fleets to continue making a profit. This decline, in turn, has a direct effect

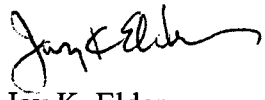
on the coastal host community (harbors and marinas). The implementation of regulatory closures or restrictions will have a deleterious economic effect on these local coastal communities. We ask that both the PFMC and the NMFS carefully consider the socioeconomic effects of any designation of essential fish habitat in the central California region.

We understand that it is very difficult to quantify the exact social and economic effects of the proposed closures and cannot offer, at this time, solid evidence of those effects, other than our past experience and day-to-day observation of the fishing industry and the benefits it provides to our communities. There is a synergy that occurs which is un-measurable in terms of cash value that also needs to be considered in the development of fishing regulations, including the designation of essential fish habitats on the west coast. The public visits the ports and harbors and loves to get their fresh seafood while watching the boats offload their catch. Without community interest, these small craft harbors become stagnant and turn into yacht harbors for the wealthy, or marine malls selling plastic sharks and T-shirts. The small independent business persons (fishermen) are forced out and the working harbors cease to exist. We have seen this in southern California harbors and hope that that does not happen here. With this in mind, please use care in implementing the EFH's and HACP's and take our comments into consideration.

We have attached our specific comments to this letter for your consideration in preparing the final "Environmental Impact Statement for the Essential Fish Habitat Plan on the West Coast for the Pacific Fisheries Management Council." In advance, we appreciate your consideration of these comments and observations.

Again, we thank the Council and Fisheries Service for your attention to this alternative. We are available for future discussions on this issue. Should you require additional information please contact me by phone at (805) 595-5409, ext. 14, or by email at jaye@portsanluis.com.

Sincerely,



Jay K. Elder
Harbor Manager
Port San Luis Harbor District

Encl.: Attachment A – Detailed Comments

cc: Harbor Commission
Dr. Rebecca Lent, Dept. Asst. Administrator – Regulatory Programs, NMFS
Mr. Steve Copps, Sr. Policy Analyst, NMFS
Mr. Don Hansen, Chair, PFMC
Port San Luis Commercial Fishermen's Association

Attachment A

Memorandum

To: Mr. D. Robert Lohn, Regional Administrator
c/o Maryann Nickerson
National Marine Fisheries Service
7600 Sand Point Way NE - BIN C15700 - Bldg. 1
Seattle, WA 98115-0070

From: Port San Luis Harbor District
Avila Beach, CA

Date: May 10, 2005

Re: Comments on the "Pacific Coast Groundfish Fisheries Management Plan - Essential Fish Habitat Designation and Minimization of Adverse Impacts" Draft EIS

The following are comments offered for consideration with regard to the "Draft Environmental Impact Statement on Pacific Coast Groundfish Fisheries Management Plan Essential Fish Habitat Designation and Minimization of Adverse Impacts." The Proposed Action is to amend the "Pacific Coast Groundfish Fishery Management Plan ("FMP") pursuant to section 303(a)(7) of the Magnuson-Stevens Act, to (**1**) describe and identify essential fish habitat (EFH) for the fishery, (**2**) designate Habitat Areas of Particular Concern, (**3**) minimize to the extent practicable the adverse effects of fishing on EFH, and (**4**) identify other actions to encourage the conservation and enhancement of EFH. The project area for this action extends from the seaward boundary of the Pacific Coast Exclusive Economic Zone shoreward to the inland extent of estuaries.

We appreciate the opportunity to offer these comments, which focus on the possible effects of the proposed action on coastal fishing communities in the central California coast study area (Port San Luis/Avila Beach to Pillar Point - Princeton).

There are numerous alternatives offered and considered in the Draft EIS that would have distinct effects on the coastal fishing communities. We are also aware that the socioeconomic effects of the proposed action are difficult to calculate due to the lack of available hard data for both the fisheries

biomass and onshore activities related to the fishing industry. The fisheries models and economic models are models and, as such, are subject to a margin of error. We appreciate the efforts of the NMFS staff economists who have worked hard to develop these economic models and are not being critical of the work presented here. However, we believe there is much to be learned about the socioeconomics of any essential fish habitat designation that may be adopted. We urge the Council and NMFS to proceed with caution as we are dealing with a very tender social community which is on the verge of collapse. As we all agree, the estimates of the rockfish biomass is still uncertain and we support the continued funding of monitoring and research to improve the science of rockfish biomass determination to continue the sustainability of these important fisheries.

In general, the calculations that use the "Habitat Suitability Probability" ("HSP") are acceptable and raise the question of "What is the definition of Essential Fish Habitat?" We believe that the entire ocean is an essential fish habitat and, therefore, any human use would have an impact to its protection designation. We also understand that essential fish habitat is defined in the statutes, but in reality, we must make a reasonable determination that allows human interaction with the habitat as long as the final effect of the human factor does not reduce the species (in this case, rockfish) below the sustainability levels set by the NMFS and PFMC. We request that you continue to allow human use of the resources to the greatest extent feasible for the benefit of both fishing and harbors. We believe that we can co-exist in the environment by properly designating some areas for the protection of the essential fish habitat and other areas for resource harvest and harbor functions.

Alternatives to Designate and Describe Essential Fish Habitat ("EFH")

This Draft EIS states that the "Actions taken by a Council to minimize adverse effects of fishing on EFH may include fishing equipment restrictions, time or area closures, harvest limits, or other measures. Any such measures would be designed to reduce ongoing effects to fish habitats and/or promote recovery of disturbed habitats. These measures may result in socioeconomic effects for the affected sectors of the fishing industry, but would be designed to promote sustainable fisheries and long-term socioeconomic benefits. The environmental consequences of proposed actions would be evaluated in applicable NEPA documents before they are implemented." The designation of EFH's is a good idea but should only be adopted if the socioeconomics and historic uses (specifically fisheries and harbors) of those areas are seriously considered, understood and protected in the final EIS. We do not believe that the long-term cumulative socioeconomic effects on harbors in the designation of EFH's were fully explored, identified or mitigated in this draft EIS. More work is required to identify and mitigate the long-term socioeconomic impacts of any designation of EFH's on coastal harbors and the fishing industry.

A.1: The no action plan or status quo encompasses 317,690 sq. miles. We do not support this alternative for obvious reasons.

A.2: Designate the entire region west of the 3,500 meter as EFH (100% of HSP is greater than zero); encompasses 187,741 sq. miles. We do not support this alternative as it could have severe effects on the existing fishing and harbor industries that rely on the resources in that designated area.

A.3: Designate the region as EFH (100% of HSP is greater than zero); encompasses 87,160 sq. miles. Same comment as A.2 above.

A.4: Designate the region as EFH (60-90% of HSP overfished areas, precautionary areas, all other ground fish and all seamounts); encompasses 79,481 sq. miles. May support if some areas were opened to all gear types for continued fishing.

A.5: Designate the region as EFH (70% of HSP is greater than zero); encompasses 78,569 sq. miles. May support if adequate areas were opened to all gear types for continued fishing and limited effects to coastal communities.

A.6: Designate the region as EFH (30% of HSP is greater than zero); encompasses 66,589 sq. miles. May support if adequate areas were opened to all gear types for continued fishing and limited effects to coastal communities.

With regard to the matter of the errors on some of the essential fish habitat maps generated from information collected on the managed species, we wish to reserve the right to comment further if there are substantial differences in those maps from what is represented in the Draft EIS.

Alternatives to Designate Habitat Areas of Particular Concern ("HAPC")

This Draft EIS states that the "Designation of HAPC's, like designation of EFH generally, does not have any direct environmental or socioeconomic affect, but may result in indirect effects greater than those associated with EFH because resource managers and regulators are likely to place a high priority on protecting areas that have been designated as HAPC's." The designation of HAPC's is a good idea but should be adopted only if the socioeconomics and historic uses of those areas are seriously considered by the PFMC and NMFS in the final EIS. The long-term effects of designation of HAPC's must be further considered in the final EIS with a focus on the probability of further regulation restricting the fisheries and possibly the functions of ports and harbors in these designated zones. We do not believe that the long term cumulative effects of the designation of HAPC's were fully explored and identified in this draft EIS. More work is required to establish the long-term impacts of any designation of HAPC's.

B.1: The no action plan or status quo. We do not support this alternative as we understand that HAPC's must be identified and designated.

B.2: Estuaries designation: This alternative is understandably an important one and is supported. However, many estuaries also include harbors and marinas and the effects of a HAPC on any of these coastal dependent harbors could have an effect on the basic functions of harbors and marinas and should be seriously considered in the process. We do not believe that this Draft EIS fully explores the possible effects of such a designation on ports, harbors and marinas located in or near estuaries. More work needs to be done with regard to the continued ability of harbors to perform basic maintenance functions such as dredging and repairs to facilities.

B.3: Canopy Kelp: This alternative is also an important one and is supported. Again, however, we urge the consideration that a 100% designation of all kelp forest (current and historic) could have an effect on some commercial harvest operations and, of course, some harbors and marinas. Excluding some areas should be considered, which might have a negative effect on the harvesters and or coastal communities with facilities in or near kelp forest.

B.4: Sea Grass: See our comments on B.3. Clearly an important species, but must consider the impacts to ports, harbors and marinas and their continued ability to continue in maintaining their facilities and providing services.

B.5: Core Habitat (upper 10% of overfished and precautionary species): Clearly an important alternative and is supported. However, there may be some areas which should be excluded to allow continued fishing and harbor functions, as may be historic and established by past or current use. Additional consideration on the effect to historic and existing use by fishermen and harbors is required.

B.6: Rocky Reefs: Again, this is an important alternative and is supported. However, there may be some areas that should be excluded to allow continued fishing and harbor functions, as may be historic and established by past or current use. Additional consideration on the effect to historic and existing use by fishermen and harbors is required.

B.7: Areas of Interest: This is an important alternative and is supported. However, there may be some areas that should be excluded to allow continued fishing and harbor functions, as may be historic and established by past or current use. Additional consideration on the effect to historic and existing use by fishermen and harbors is required.

B.8: Oil Production Platforms: The artificial reef alternative is not supported. Also consideration of existing lease sales, (Mineral Management Service) especially in the Santa Maria Basin should be discussed. Designation of EFH and HAPC's of those existing Outer Continental Shelf (OCS) lease sites should be done to protect the habitat from future oil exploration and production on the central coast.

B.9: Process for New HAPC Designations: Great idea, but another process also needs to be developed. The "Process to Un-Designate HAPC's" should be designed for the possibility of future re-designation or changes to this HAPC program. Please add the decommissioning of HAPC process to this alternative.

Alternatives to Minimize Adverse Impacts to EFH

This Draft EIS states that the "Federal and state agency actions that may adversely affect EFH trigger consultation and/or recommendations under sections 305(b)(2)-(4) of the Act. Under section 305(b)(4)(A) of the Act, NMFS must provide EFH Conservation Recommendations to federal and state agencies regarding any action that would adversely affect EFH."

"EFH recommendations from NMFS or a Council to federal or state agencies are non-binding. Nevertheless, as a result of EFH coordination, consultations, and recommendations, Federal or state

agencies may decide to restrict various activities to avoid or minimize adverse effects to EFH. Such restrictions could result in project modifications that lead to higher costs for the applicants for federal or state permits, licenses, or funding."

"Costs associated with consultations will likely vary depending on the number of species associated with an EFH designation, and the amount of habitat designated as EFH. If an entity chooses not to participate in consultations, then the EFH designation will ultimately have no effect on that entity. If consultations result in conservation recommendations, then there are likely to be increased costs in the short-term and possibly in the long-term depending on the amount of offsetting benefits realized from enhanced habitat productivity resulting from EFH designation."

This Draft EIS fails to fully consider the probable effects of the EFH designation on coastal communities, especially ports, harbors and marinas. The final EIS should detail what the effects might be to these coastal facilities if designation of EFH's are adopted and include the community's facilities. The increase in costs to mitigate an EFH in a harbor location may have an adverse socioeconomic effect and/or close down existing facilities which support coastal access, commerce, recreational uses and marine transportation corridors.

C.1: No Action: No comment.

C.2: Depth-based Gear –specific Restriction:

C.2.1: For the central California region, we believe that this action is already in place and, if so, would support the status quo, with some exceptions that might open up some historic trawl zones to allow some take with bottom gear.

C.2.2: For the central California region, we believe that this action is already in place and, if so, would support the status quo. We would object to the prohibition of all fixed gear shoreward of 150 fathoms and request that some fixed gear be allowed in the region, specifically in areas of historic take.

C.2.3: We would not support this alternative option as it would have a significant impact on the historic fisheries and harbor functions.

Consideration of the effects of all the C.2 options should be analyzed for the economic and social impacts to the coastal communities.

C.3: Close Sensitive Habitat:

C.3.1: "Greater than or equal to the recovery index where the value is greater than one. Closed to all gear types."(?) We would support this option if the pelagic fisheries and other less invasive bottom gear fisheries would still be allowed in the EFH zones.

C.3.2: "Greater than or equal to the recovery index where the value is greater than one. Closed to all gear types."(?) We would support this option if the pelagic fisheries and other less invasive bottom gear fisheries would still be allowed in the EFH zones.

C.3.3: Same comment as above.

C.3.4: Same comment as above.

Consideration of the effects of all the C.3 options should be analyzed for the economic and social impacts to the coastal communities. The use of the 100 hours rule and the limited time period (i.e.,

2000-2002) is not reasonable. We strongly suggest that the period be expanded to include at least the past ten - if not the past twenty - years of trawling. The one hundred hour rule may be sufficient, but we would request that the NMFS and PFMC take into consideration the trawl fleet reply for this central coast area on this matter. There is a limited fleet here and the time periods (hours and years) used may not be applicable for our small fleet.

C.4: Prohibit the Geographic Expansion of Fishing: Areas that have not been fished recently (2000-2002) would be closed to fishing to protect areas that are potentially pristine.

C.4.1: Trawl fisheries would be prohibited from fishing in areas that were untrawled during 2000-2002.

C.4.2: Apply the expansion limit to all bottom-tending gear types. The closure would extend west from a line approximating the 2,000 m (1,094 fm) depth contour to the seaward margin of the EEZ.

Consideration of the effects of all the C.3 options should be analyzed for the economic and social impacts to the coastal communities. The use of the 100 hours rule and the limited time period (i.e., 2000-2002) is not reasonable. We strongly suggest that the period be expanded to include at least the past ten - if not the past twenty - years of trawling. The one hundred hour rule may be sufficient, but we would request that the NMFS and PFMC take into consideration the trawl fleet reply for this central coast area on this matter. There is a limited fleet here and the time periods (hours and years) used may not be applicable for our small fleet.

C.5: Prohibit a Krill Fishery: We support as long as other fisheries and the harbor functions are not impacted and continue to be allowed.

C.6: Close Hotspots: Prohibits trawling in hotspot areas, where – in this case – hotspots are defined as habitat that has high probability of being EFH for a large number of groundfish. Areas that are associated with 50 or more species/lifestage combinations would be closed to bottom trawling.

We support this as long as other types of non-trawling fisheries are allowed in the "Hotspot" areas.

C.7: Close Areas of Interest: Closes any combination of the areas of interest HAPC's designated under Alternative B.7 to fishing by specified gear types. (The 21 areas of interest listed under Alternative B.7 are underwater features, such as seamounts and submarine areas, or are currently under some form of protection.) Closures affect the following activities:

Option C.7.1: Close areas of interest to bottom trawling.

Option C.7.2: Close areas of interest to all bottom-contacting fishing activities.

This is an important alternative and is supported. However, there may be some areas that should be excluded to allow continued fishing and harbor functions, as may be historic and established by past or current use. Additional consideration on effect to historic and existing use by fishermen and harbors is required.

C.8: Zoning Fishing Activities: Limits the use of bottom-tending fishing gear to specified zones.

First, all areas deeper than the 2,000 m (1,094 fm) contour along the continental slope extending to the maximum westward range of groundfish EFH are closed to certain bottom-tending fishing gear types, according to the options described below.

Second, a five-year transition period to gear specific zones is established for the remaining area inside the 2,000 m contour, which remains open to these activities, subject to any other restrictions, for the five years from implementation (e.g., 2007-2011). Third, during this five-year period, NMFS conducts the research necessary to delineate zones where specified fishing activities would be permitted. At the end of the five-year transition period, the gear-specific zones come into effect and any remaining unzoned area is closed to affected gear types, according to the options described below. (Restrictions applied outside 2,000 m remain in effect.)

In identifying fishing zones, NMFS must demonstrate that any unavoidable adverse impacts would be minimal and temporary, based on the best scientific information available.

Option C.8.1: Fishing zones are established for bottom-contact trawls, dredges, and similar bottom-tending mobile fishing gear. Other bottom-contacting gear types are unaffected by the zoning system, including the prohibition outside 2,000 m.

We support as long as some bottom trawl and bottom-contact fishing is allowed and that all other types of fisheries are not impacted (i.e., pelagic and mid-water trawl/net).

Option C.8.2: Fishing zones are established for all bottom-contacting gear types, including bottom longlines, traps, and pots. The immediate closure outside of 2,000 m applies to all bottom-contacting gear types. In addition to establishing the zoning system, NMFS will conduct a gear substitution and modification research program, intended to redesign bottom fishing gear to reduce damage to habitat. This program will have a significant cooperative research element by employing fishermen in the design and testing of new gear.

We support as long as some bottom trawl and bottom-contact fishing is allowed and that all other types of fisheries are not impacted (i.e. pelagic and mid-water trawl/net).

The zoning system will be regularly modified to incorporate new information about habitat sensitivity and recovery factors, gear impacts on habitat, and to accommodate use of newly developed or modified gear.

This is an important statement that requires a follow up mitigation measure and policy to insure it is implemented.

C.9: Gear Restrictions: Specific gear modifications and prohibitions that are based on that interaction. The following gear restrictions would be implemented in areas identified as EFH for groundfish:

C.9.1: Prohibit roller gear larger than 15 inches on bottom trawls.
C.9.2: Prohibit the use of flat trawl doors (i.e., require cambered doors).
C.9.3: Limit the length of a single longline groundline to 3 nm.
C.9.4: Employ Habitat-Friendly Anchoring System.
C.9.5: Prohibit dredge gear.
C.9.6: Prohibit beam-trawl gear.
C.9.7: Prohibit set-gillnets in waters deeper than 60 fm.
C.9.8: Prohibit dingle bar gear (troll groundfish gear).

We support these mitigation measures and policies.

C.10: Central California No-trawl Zones: Based on a project being undertaken by two environmental advocacy organizations, The Nature Conservancy (TNC) and Environmental Defense Fund (EDF). Involves private funds used to purchase groundfish limited entry trawl licenses and vessels in concert with the designation of no-trawl zones off the central California coast. The project area extends from Point Conception to Davenport, California, and includes adjacent offshore seamounts (Gumdrop, Guide, Pioneer, Davidson, and Rodriguez).

TNC/ED have identified 23 permit holders they believe regularly trawl inside the project area. Most home port in Morro Bay, Moss Landing, Monterey, or Half Moon Bay. TNC/EDF intend to purchase a significant majority of the bottom trawling permits and vessels in this region if the Council/NMFS designates a significant portion of the project area as no-bottom-trawl zones.

TNC/ED will identify areas they think should be designated no-trawl zones using the GIS data developed as part of this EIS in combination with a participatory process involving trawl fishermen in the project area. If this alternative is adopted as an FMP and regulatory amendment, these areas will be closed to bottom trawling by NMFS once TNC/EDF have negotiated purchase contracts or options for at least half of the limited trawl permit holders they have identified as operating in the project area.

We generally support this Alternative only if a majority of the limited entry permit holders of local bottom trawl fishermen and other impacted fishermen cooperate with the NGO's in establishing the open trawl areas and agree with the closed areas. We suggest that a modified alternative be considered which allows for the collaboration of the NGO's and the bottom trawl fishermen to present a pilot project in the southern area of this Alternative study area (Pt. Conception to Pt. Sur) and then expand to the northern boundary of this Alternative study area in the nine months allocated for final action by the Pacific Fisheries Management Council. Consideration of the buy out program and unintended effects to the local harbors should be considered and offset with mitigation measures to insure the continued infrastructure is in place, new markets are explored, funding for new shore side fisheries support facilities are provided and the economic synergy is maintained for the shore side businesses in the local coastal communities. The Final EIS should also implement mitigation measures to prevent the

buy back program from becoming a burden to the local coastal communities and harbors if the subject vessels are abandoned and fall into disrepair, creating a nuisance.

C.11: Relax Gear Endorsement Requirements: Vessels holding a groundfish limited entry permit account for a large portion of groundfish landings. Currently, limited entry permits include a gear endorsement specifying the type of gear the permit holder may use. These endorsements identify three gear categories: trawl, longline, and pot. In addition, longline and pot gear permit holders may also have a sablefish endorsement. Permit holders with this species-specific endorsement may participate in the high-value primary sablefish fishery and are allocated vessel-specific catch quotas, known as tier limits because the endorsements fall into one of several categories, or tiers, with different catch quotas. Under this alternative, gear endorsements are relaxed but the sablefish endorsement is not. This would allow permit holders to switch gear types, providing fishermen greater flexibility in changing strategies based on prevailing conditions in the fishery.

We support this Alternative.

C.12: Close Ecologically Important Areas to Bottom Trawl: This alternative was proposed by the environmental group Oceana. The alternative would close a network of areas to bottom trawling; set a maximum footrope size of eight inches on bottom trawl gear within open area; require Vessel Monitoring Systems on all bottom trawl vessels with positions recorded every 5 minutes; increase onboard observer coverage on bottom trawl vessels to a level determined to be necessary by NOAA to estimate annual bycatch of habitat-forming invertebrates; establish a process for setting a limit on the bycatch of habitat-forming invertebrates; require ongoing research including comprehensive benthic mapping.

We would support this Alternative only if a majority of regional limited entry bottom trawl fishermen cooperate with this NGO in establishing the open trawl areas and agree with the closed areas and if all other fishing gear types would continue to be allowed in the EFH designated in the Alternative.

C.13: Close Ecologically Important Areas to Bottom-contacting Gear: The areas identified in Alternative C.12 would be closed to all bottom-contacting gear types, defined as both fixed gear (longlines, pots, and traps) and bottom trawl.

We oppose this alternative.

C.14: Close Ecologically Important Areas to Fishing: The areas identified in Alternative C.12 (see Figure 2-28) are closed to all fishing.

We oppose this alternative.

The Draft EIS fails to take into consideration or explain the current regulations and restrictions that are in place and should prepare a map with overlays in the Final EIS. The PFMC and NMFS should seriously consider these existing and possible future (such as the California State Blue Ribbon committee studying MPA's) actions that may overlap any designations being considered in this EIS.

This EIS includes the following statement: ***6.1.7** EO 12866 (Regulatory Impact Review)* EO 12866, Regulatory Planning and Review was signed on September 30, 1993, and established guidelines for promulgating new regulations and reviewing existing regulations. The EO covers a variety of regulatory policy considerations and establishes procedural requirements for analysis of the benefits and costs of regulatory actions. Section 1 of the EO deals with the regulatory philosophy and principles that are to guide agency development of regulations. It stresses that in deciding whether and how to regulate, agencies should assess all of the costs and benefits across all regulatory alternatives. Based on this analysis, NMFS should choose those approaches that maximize net benefits to society, unless a statute requires another regulatory approach. The information and analyses in Chapter 4 of this EIS would be relevant to a Regulatory Impact Review (RIR) analysis of future regulations developed from this process. If proposed regulations are promulgated, an RIR would be prepared as part of a proposed regulatory package.

The question here is whether the Draft EIS sufficiently meets this requirement of an analysis of the benefits and costs of regulatory actions with regard to the designation of EFH and or HAPC. We would request that the NMFS expand the discussion on this EO and provide additional analysis of the proposed regulations on both the fishing fleets and the harbors and marinas within the study area.

We appreciate your consideration on this very important matter and look forward to the Final EIS including a response to our questions. Overall, we believe that the contents meet the minimum requirements of NEPA but the document must be expanded in the areas identified in our comments. We are available for consultation on our comments if you wish to discuss them further. Again, thank you for the opportunity to comment on this EIS.

May 11, 2005

Mr. D. Robert Lohn, Regional Administrator
National Marine Fisheries Service
C/o Maryann Nickerson
7600 Sand Point Way, NE
Bin C15700
Seattle, WA 98115-0070

RE: Comment on 2005 Pacific Coast Groundfish Essential Fish Habitat Draft Environmental Impact Statement dated February 11, 2005.

Dear Mr. Robert Lohn,

Thank you for this opportunity to submit comments on the 2005 Pacific Coast Groundfish Essential Fish Habitat Draft Environmental Impact Statement dated February 11, 2005. The Audubon Society of Portland has 10,000 members throughout the state of Oregon who care deeply about the protection of coastal wildlife and habitat off of our coast. We applaud your efforts to compile the best available science, identify and designate essential fish habitat (EFH) and Habitat Areas of Particular Concern (HAPC), minimize adverse impacts that may result to EFH due to fishing, and identify further actions to encourage the conservation and enhancement of EFH. In the spirit of the PEW Ocean Commission Report of 2003 and the U.S. Commission on Ocean Policy Report of 2004, we believe this document seeks to incorporate the vital principles of ecosystem-based management into Pacific fishery management.

ALTERNATIVES TO IDENTIFY AND DESCRIBE EFH: ADOPT A.2

The Audubon Society of Portland recommends adoption of Alternative A.2, where EFH is identified as 100% of the area where the habitat suitability probability (HSP) is greater than zero for all species and any additional area in depths less than or equal to 3500 m (1914 fm).

We feel Alternative A.2 should be chosen as the Preferred Alternative because it is inclusive enough to cover all habitats where groundfish have been observed, with the addition of 100 m depth as a precaution for non-observed species and scientific uncertainty, but it is not so over-inclusive as to render the designation of EFH

meaningless. Additionally, it will minimize restrictions to subsequent selections of HAPCs, which are to be subsets of designated EFH.

ALTERNATIVES TO DESIGNATE HAPC: ADOPT B.2, B.3, B.4, B.6, B.7, B.9

The Audubon Society of Portland recommends adoption of Alternatives B.2, B.3, B.4, B.6, B.7 and B.9. Although not required by the Magnuson-Stevens Act (MSA), Councils are encouraged to designate HAPCs, based upon the importance of the ecological function provided by the habitat, the extent to which the habitat is sensitive to human-induced environmental degradation, whether development activities are or will be stressing the habitat type and the rarity of the habitat type. These considerations are particularly germane in the context of the more than 80 species managed by the Pacific Fishery Management Council (PFMC). At a time when eight of the assessed 19 species of groundfish are declared overfished and offshore aquaculture and exploration activities are being hotly pursued on the federal level, the moment is ripe to move forward with designation of HAPCs in an effort to conserve and restore the most crucial habitat types, to be determined by the best available science.

In light of the importance of such designation, we recommend including Alternatives B.2, B.3, B.4 and B.6, which encompass essential estuaries, canopy kelp, seagrass and rocky reefs. These biologically productive areas have been shown to provide important habitat for many marine species, including groundfish, at various stages of life history, for reproduction, feeding and refuge. Although these habitat types are among the areas of highest productivity in the world, they can be particularly sensitive areas, due to proximity to the shoreline, inadequate mapping and vulnerability to certain gear types. Thus, designation as HAPCs would serve to concentrate attention on potential threats to these habitat types and would enable the PFMC to make informed future decisions regarding the management of Pacific groundfish.

Additionally, we recommend including Alternative B.7, a “catchall” designation for special interest areas that possess unique geological and ecological characteristics that may be critical for rockfish management. Seamounts and canyons supply a variety of unique ecological functions, perhaps the most important being the provision of high concentrations zooplankton, which is a principal food source for both juvenile and adult rockfish.

Finally, we recommend adopting Alternative B.9, which establishes a streamlined process for designating new HAPCs, based on proposals submitted to the PFMC. Based on the principles of adaptive management, this alternative recognizes that new future scientific information could call for inclusion of other critical habitat areas as HAPCs. It establishes a process for petition and PFMC consideration. This streamlined process will provide assurances that proposals submitted by organizations and individuals will be fully and fairly considered.

ALTERNATIVES TO MINIMIZE ADVERSE IMPACTS TO EFH: ADOPT C.4.2, C.6, C.7.2, C.9.5, C.9.6, C.10 AND A COMBINATION OF C.12, C.13 AND C14.

The Audubon Society of Portland recommends adoption of C.4.2, C.5, C6, C.7.2, C.9.5, C.9.6, C.10 and a combination of C.12, C.13 and C.14. Because Amendment 11 to the Fishery Management Plan did not include measures to minimize fishing impacts on EFH, it is essential to take steps to do so today. Although restrictions on the use of large footrope gear and Rockfish Conservation Areas have some mitigating benefits on the effects of fishing gear, these restrictions may only affect a small portion of habitat and are not necessarily determined by specific habitat type.

Under Alternative C.4.2, geographic expansion of fishing for all bottom-tending gear types would be prohibited, to protect areas that are potentially pristine. Because there is little data for areas in which there have historically been no fisheries, a precautionary approach should guide management in these unexploited areas, so as to truly adhere to the principles of sound science and provide valuable environmental baseline data for the future. As acknowledged by the DEIS itself, relatively little is known about organisms such as deep-sea corals that may occur in these areas and be particularly vulnerable to impacts associated with even a single fishing event. Recent discoveries such as new black coral species in close proximity to Los Angeles, multispecies aggregations of reproducing psychrolutid sculpins and deep-sea octopod, brooding eggs on the Gorda Escarpment off of California and methane seeps with associated carbonate rock structures and chemosynthetic communities along the shelf-break off of Oregon's coast support this precautionary approach, suggesting there are diverse, yet scattered areas that warrant protection by limiting the expansion of existing fisheries. Thus, protecting presently undisturbed areas until better mapping information is available is critical. Additionally, applying the expansion limit to all bottom-tending gear types, not just trawl fisheries, is essential.

The PFMC should adopt Alternative C.5, which prohibits a krill fishery. Euphausiid shrimp are important prey for a wide range of species along the West coast and are inextricably linked to groundfish, both as primary prey for groundfish and in secondary ways through the food web. In the spirit of ecosystem-based management, we are supportive of preserving a healthy forage base for groundfish and their prey, and we encourage future actions by the PFMC to protect the full spectrum of currently non-managed forage species.

We recommend inclusion of Alternative C.6, which calls for closure of "hotspots," as a Preferred Alternative for minimization of adverse impact on EFH. Used in conjunction with other alternatives, prohibiting trawling for the top 20% HSP areas associated with 50 or more species/lifestage combinations will ensure protection of the greatest possible number of groundfish populations.

Alternative C.7.2 closes off those special interest areas included under B.7 to all bottom-contacting activities, rather than just to the specific method of bottom trawling, thereby

affording increased precautionary protection to these geographically unique and biologically productive areas.

Alternatives C.9.5 and C.9.6 prohibit the use of destructive dredge and beam trawl gear, which are being phased out anyway. Thus, these limitations will have little economic impact on fishing interests, but will seek to afford maximum protection to bottom habitat. That being said, we acknowledge that fishing gear is constantly evolving and that habitat protections envisioned may not be maintained through time as gear configurations change. We therefore support using gear restrictions in conjunction with the other protective measures to minimize adverse impact to EFH, as outlined above and below.

Alternative C.10 utilizes existing closed or unfished areas to eliminate bottom trawl gear. Through the use of public-private partnerships, private funds are used to buyout 50% of groundfish trawl permits, in concert with designation of no-trawl zones off the Central California coast. Progressive cooperative partnerships such as these are an essential and forward-thinking means of protecting habitat and fisheries for future generations, distributing the economic hardship of marine conservation more evenly onto a more diverse spectrum of interested stakeholders. Although geographically limited in scope, this alternative may have merit if the interested private parties (the Nature Conservancy and fishing interests) agree this is a productive proposal.

Alternatives C.12, C.13 and C.14 represent a broad spectrum of closures to ecologically important areas, either to just bottom trawl gear, all bottom-contacting gear or all fishing, respectively. We believe a combination of these alternatives should be utilized to achieve the PFMC's goals of protection and research. Integration of these approaches will also give the PFMC the opportunity to develop a network of research reserves, which can serve as a means to compare fishery management techniques and effects against benchmark data.

The Audubon Society of Portland recommends adoption of C.12, the "Oceana" alternative, in an effort to freeze the existing bottom trawl footprint. As stated by Oceana, the best science available from the National Academy of Sciences has found that bottom trawling reduces habitat complexity, causes shifts in benthic communities and reduces productivity of benthic habitats. By utilizing existing closed areas, denying expansion of trawling areas, closing sensitive areas within those currently being trawled, limiting roller gear size and engaging in ongoing research and monitoring, the PFMC can maintain healthy fisheries while protecting habitat and marine biodiversity. The Audubon Society of Portland also supports adoption of C.13, which limits use of bottom-contacting gear in ecologically important areas. Finally, we also recommend closure of specific ecologically important areas to all fishing. There is sound science to suggest that creating a network of discrete marine areas of biological significance that is off-limits to all fishing can allow adult fish to grow and reproduce in abundance, while their offspring help replenish populations outside closed boundaries where fishing is allowed. This alternative is supported by the principles of ecosystem-based management and moves fishery management into a broader ecological context.

RESEARCH AND MONITORING ALTERNATIVES: ADOPT A COMBINATION OF D.2.1 AND D.4

The Audubon Society of Portland recommends adoption of D.2.1. As stated above, one of the biggest challenges the PFMC faces today in the context of Pacific groundfish management is the relative lack of data, analysis and understanding of the species, their habitats and the effects of human disturbance. Data collected by fishing vessels can prove invaluable for gaining a future understanding of these complex interactions and gathering spatial data for future mapping. Thus, under this alternative, all fishing vessels will be required to maintain a logbook, recording information on fishing time, location and catch composition, similar to the current trawl logbook program. In addition, however, it is imperative that this data is not only collected, but also error-checked, entered into a database and analyzed in a meaningful way; one of the biggest complaints we have heard from fishing interests at public meetings related to this and other documents is that logbook data is gathered by individuals, but is not compiled and analyzed in a meaningful or timely manner.

We also strongly support Alternative D.4, which would restrict fishing in specific areas. These research reserves areas would not only minimize fishing impacts on habitat and marine wildlife, but would provide controlled benchmark data for determining extent of fishing impacts, differentiating natural versus human impacts and measuring the length of time necessary for habitat features and function to recover. By establishing a network of research reserves, the PFMC can engage in a comparative study of 1) areas open to and impacted by commercial and recreational fishing, 2) areas subject to only limited and controlled fishing disturbance and 3) areas not open to or impacted by any fishing. These areas should broadly represent all habitat types in which PFMC-managed groundfish occur, to allow comparison of the effects of fishing across these different types.

GUIDING PRINCIPLES

In general, we feel it is imperative for the PFMC to take a precautionary approach to management of Pacific groundfish, while we improve our limited understanding of the impacts of fishing on diverse habitats and the ability of habitats to recover from fishing impacts. In fact, the Oregon State of the Environment Report 2000 states, "the most significant risk to marine fisheries … is our insufficient understanding of the complex interactions of natural and human caused changes in stock health."[1] It is crucial, therefore, that the PFMC err on the side of caution in protecting and restoring Pacific groundfish and habitat.

We strongly encourage the PFMC to include a network of research reserves in its effort to designate, protect and understand present and future EFH. By monitoring and analyzing impacts and effectiveness in these reference sites, the PFMC can glean new

[1] **Oregon Progress Board.** 2000. Oregon State of the Environment Report, Statewide Summary, Salem, Oregon.

knowledge, engage in adaptive management and move forward more confidently with fishery management, basing its decisions on sound science.

Utilizing the principles of ecosystem-based management, the PFMC should develop an ecologically based management plan that considers the entire ecosystem, including humans, and protects the long-term health of the marine environment**.** This plan should think beyond protection of single species and should consider the inherently interrelated nature of all marine species and habitat types, as well as potential past, present, future and cumulative human impacts on these environments.

Finally, we feel it is important that all possible EFH protection measures be adopted in the near-term, rather than deferring measures for future understanding. This precautionary implementation should then be modified accordingly, based on the principles of adaptive management, as new information is gathered during the mandatory five-year review process.

CONCLUSION

In conclusion, we would again like to thank you for this opportunity to comment. As stated above, we applaud your efforts in creating this Draft Environmental Impact Statement and strongly support the designation and protection of EFH for Pacific groundfish. Specifically, we support the respective alternatives and general principles outlined above.

Thank you for considering these comments.

Sincerely,

Susan Ash
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Paul M. Engelmeyer
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PO Box 496
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cc: Pacific Fisheries Management Council
Oregon Department of Fish and Wildlife

Southern California Trawlers Association

May 4, 2005

Mr. D. Robert Lohn, Regional Administrator
National Marine Fisheries Service
c/o Maryann Nickerson
7600 Sand Point Way, NE, Bin C15700
Seattle, WA 98115-0070

RE: GROUNDFISH MANAGEMENT PLAN ESSENTIAL FISH HABITAT (EFH) DRAFT EIS

Dear. Mr. Lohn:

Our Association is composed of small trawl vessels in the 32 to 60 foot range, most being less than 45 feet long, who trawl for California halibut, ridgeback prawns and sea cucumbers, and formerly for spot prawns. We fish along the coastline from San Pedro, sometimes as far south as San Diego, up to Point Conception, from Point Arguello up to Pt. Buchon, and a few of our boats fish in Monterey Bay for halibut seasonally. Our boats are home-ported in Morro Bay, Port San Luis, Santa Barbara, Ventura, Channel Islands and San Pedro Harbors.

The purposes of this letter are 1) to fill in some serious information gaps in the DEIS regarding small-boat artisanal trawling that is done by our Association members in this region, and 2) comment on the various alternatives offered in the DEIS to mitigate impacts of fishing on EFH. Since most, if not all, of the information regarding trawling and its impacts in the DEIS relate to Groundfish Management Plan A-Permit trawl vessels, only one of which, home-ported in Morro Bay, is in our Association, we believe it is in the best interest of all for us to provide you with information about our fisheries.

In the Santa Barbara Channel area, particularly, there is no groundfish fishery to speak of, as described in the DEIS. This was not always the case: in the 1940s until about 1980 or so, groundfish were trawled in this region. Due to market and infrastructure changes, ***not*** stock decline problems, this fishery gradually moved out of the Southern California Bight (SCB). However, many, if not most, of the alternative proposals for management actions under the groundfish plan that address mitigation of impacts to EFH will certainly affect our small-boat artisanal fisheries for the remaining species we fish for, as well. So far, however, this is without including relevant information about our fisheries, to any appreciable extent, upon which the Pacific Fisheries Management Council (Council) can make an informed decision on EFH mitigation measures that accounts for our fisheries.

6 Harbor Way, Box 101 Santa Barbara, California 93109

Habitat Mapping Discrepancies

The DEIS map scales are nearly useless for us to have any accuracy regarding exactly where EFH, HAPC or mitigation closure areas are. Larger scale maps need to be created in order for us to effectively understand and comment on the accuracy (or lack thereof) of habitat type information in the SCB.

Partly due to scale, partly due to very inappropriate assumptions on limited data, areas noted in DEIS maps as rocky or gravelly bottom are grossly inaccurate for the SCB. Our Association members have a combined, cumulative fishing experience history approaching a few hundred years of time on these seafloors, and pretty much know where the hard bottom habitat is. Unfortunately, we have not been consulted regarding these details of habitat type distribution. This information disconnect should be corrected prior to making decisions about closing areas of presumed habitat in the SCB based on mostly inaccurate habitat type geographic data.

As an example, and as far as we can determine given the small-scale of maps presented in the DEIS, Oceana's Alternative 12 mapping misses significant detail for water depths that we trawl, particularly with respect to mapping of bottom types (*see* DEIS Appendix C, Figure 42). It is clear that Alternative 12 wishes to place the entire Channel Islands National Marine Sanctuary in marine no-take reserve status, despite the extremely detailed habitat analysis undertaken by the CINMS Marine Reserve Working Group (MRWG) that resulted in the nearly-consensus array of no-take zones implemented by the California Fish and Game Commission. Much of the discussion in Alternative 12 lacks any of the habitat typing specificity that was readily available online from the CINMS web site, and makes erroneous assumptions about habitat types in those federally managed waters as a result.

What is unclear, however, is the status of the western Santa Barbara Channel. A green-blocked area is marked "open to bottom trawling" in the eastern half of the Channel, and a pink zone "Areas closed to bottom trawling" extends 6 miles around the Sanctuary, but the map is white (is that open?, closed? both?) in the western half of the southern part of the Channel, and western quarter of the coastal, northern part of the Channel. This area is currently open to trawling. This ambiguity must be resolved prior to making any meaningful comment on the proposal for the SCB, particularly the Channel.

Other conservation efforts have similarly mischaracterized large swaths of habitat type, and we are concerned that this misinformation made its way, by reference or by inappropriate use of this misinformation by the DEIS writing team: an area from Santa Barbara Point to Pitas Point from 1-2 miles offshore was mischaracterized as gravel bottom. This area is predominantly soft mud bottom, as any trawler would have been able describe. There is one reef structure, Carpinteria Reef, that everyone knows about and avoids, and there are a couple of hard bottom area outside of Carp Reef towards the oil platforms that we also know about and avoid to prevent damage to our nets. However, to characterize the entire area as gravel bottom is to ignore well-marked bottom type notations on the NOS charts, as well as failing to incorporate readily-available local fishing knowledge of the region.

Cumulative area closures in the SCB

This consideration of EFH is not happening in a vacuum, and should not be approached as if it were the only management measure that will reduce risk for groundfish EFH. A number of other actions have been taken by both State and Federal ocean regulatory agencies that bear directly on risk-averse, precautionary protection of groundfish EFH in the SCB. Some examples of these (See Figures 1 & 2):

▪ State Waters Inside One Nautical Mile. This area is closed to trawling at all times throughout California. The bulk of nearshore rocky reefs occur in this zone, and this is some of the best essential fish habitat (EFH) along the coastline. It is completely protected from any impacts of trawl fishing.

▪ Channel Islands National Marine Sanctuary (CINMS) Marine Protected Areas (MPAs). This effort culminated in 2003 with a number of complete no-take marine protected areas (called marine reserves) around the northern Channel Islands. These areas were carefully selected to represent an array of habitat types, but the driving factor in discussions about these reserves was clearly the perceived status of groundfish stocks in the area. We say "perceived status" because at a time when conservation groups and state and federal marine resource regulators were saying that the SCB was devoid of bocaccio, our Association members were seeing startlingly large numbers of bocaccio in the region. Likewise with cowcod, hook and line fishermen repeatedly reported that there were many areas that were abundant in cowcod that were not being reported by scientists studying the area.

▪ Proposition 132 (Gillnet Ban) State Waters Marine no-take zones. Two of the four no-take zones in this regulation protect dozens of square miles of EFH in the SCB.

▪ CINMS Federal-waters MPAs. Currently, the Sanctuary Program (NMSP) is circulating a Sanctuary Designation Authority amendment document that proposes to give authority for the Sanctuaries Program to regulate commercial and sport fishing in ocean waters, traditionally the role of its sister agency, National Marine Fisheries Service (NMFS) or NOAA Fisheries. The purpose of this attempt to power-shift from NMFS to NMSP is to facilitate the implementation of "Phase 2" of the CINMS MPA plan in federal waters of the Sanctuary from 3 miles to 6 miles offshore of the four northern Channel Islands. Many of these areas are in places where our Association fishermen have traditionally fished for ridgeback or spot prawn, and this effort will, once again, further reduce the perceived risk to groundfish EFH in federal waters.

▪ Federal-State designated Cowcod Conservation Area. This area, some 5,200 square miles of ocean area is designated to, again, reduce risk to groundfish stocks (cowcod) and to protect EFH under the groundfish management plan (and California management consistency therewith) is closed to all trawling, and most other types of fishing as well.

▪ Federally-designated Rockfish Conservation Area (RCA) (Shelf Closure). In the SCB, the area has been somewhat of a "moving target," but currently is believed to be closed to fishing of all types for groundfish between shore and 150 fathoms, but changes seasonally to 60 or 75 fathoms and outward.

▪ California Halibut Trawl Bill. Enacted in 2004, these new regulations and management measures provide yet another risk-averse layer of gear, permitting and area closures that further protects groundfish EFH of concern to the Council. Some of the additionally precautionary measures include

observers for California Halibut Trawl Grounds (CHTG) bycatch and habitat issues, excision of potential coral and sponge habitat from CHTG (all deepwater canyons in the CHTG), a permit system that declines or defers transferability until capacity goals/fleet reduction issues are considered, and a complete closure of the CHTG during the halibut spawning period (mid-March to mid-June, which no other halibut gear type observes), and others.

This accumulated suite of risk-averse, precautionary management actions taken together serve as a suitable array of areas that provide more-than-adequate protection for rebuilding groundfish stocks and the EFH upon which they depend. It should be considered as an offset for both the small-boat trawl fishery in the SCB, and as sufficient buffer for protection from impacts of fishing on groundfish EFH.

1. This array (See Figures 1 and 2) is hereby formally proposed as another alternative to be comprehensively and cumulatively analyzed in the EFH DEIS for the SCB region to protect groundfish EFH.

Monterey Bay

At a recent meeting in Morro Bay to discuss various alternatives, we learned that the Oceana Alternative 12 and the Nature Conservancy Alternative both have the entire Monterey Bay closed to trawling to protect hard bottom habitat, especially corals and sponges. However, this ignores the fact that in certain areas (see Attachment A and Figure 3), our Association members fish in highly storm-disturbed sandy bottom area (Terrace Point to the Pajaro River) for California halibut seasonally, and no deepwater coral or sponge habitat exists in the relatively shallow 25 to 60 fathom halibut flats used by our members. In order to achieve the stated goal of maximizing protection of EFH while minimizing socioeconomic impacts to fishing, further information sharing and a finer-scale closure proposal should be examined in the Monterey Bay. The areas currently used by halibut trawlers in our Association do not impact biogenic organisms or hard bottom substrate in Monterey Bay. Those areas should not be closed to trawling. The approximate bounds of this very small portion of the Monterey bay are as follows: outside the 3-mile line to the 60 fathom contour, from a point where these two lines intersect off Terrace Point (approximately 36° 53.61' x 122° 4.13') to a point where these two lines intersect again off the Pajaro River (approximately 36° 50.26' x 122° 52.37').

2. We respectfully request that this area be kept open to trawl fishing, as currently regulated, in any final proposal to protect groundfish EFH.

Avila Beach Area

Attachment A describes an area From Point Buchon to Point Arguello outside the 3-mile state waters limit line out to 60 fathoms. This area is historically fished for California halibut in muddy seafloor bottom habitat as the fish and weather allow.

3. We respectfully request that this area be kept open to trawl fishing, as currently regulated, in any final proposal to protect groundfish EFH.

Cumulative Socioeconomic Impacts

With the array of closures already implemented along the California coastline, a significant concern relates to the cumulative impacts of these closures on the essential infrastructure required to sustain viable commercial "working" fishing ports and harbors along the 1,100 mile coastline of California. At what point do we see the regulation that becomes "the straw that broke the camel's back?" That is, which additional layer of no-fishing regulation will cross the threshold of cutbacks to the number of boats required to harvest a sustainable yield from California's ocean resources, the number of buying stations still left in Morro Bay, San Pedro or Santa Barbara Harbors, the number of fish processors and/or retailers that can keep their doors open in order to serve the remaining few fishing boats that still go out? The cultural value of working ports and harbors is measured in both cultural heritage and tourism value: it is common knowledge that what attracts tourist dollars to the Morro Bay or Santa Barbara Harbor is "the quaint fishing boats" that still number in the tens, at least, in each Harbor (actually, there are only 5 A-permit boats left in the combined ports of Morro Bay and Port San Luis, we learned at the May 1 meeting in Morro Bay). At some point, an additional regulation will be the last one necessary to remove the infrastructure, more or less permanently (due to the failure of the commercial fishing industry to recruit young people among its numbers), that supports this cultural heritage in California ports and harbors. It behooves the Council to carefully consider whether or not further draconian measures are actually required to effectively protect groundfish EFH, or whether these further measures are, in fact, "the last straw" for fisheries culture and infrastructure in these ports and harbors. Another way to phrase this question is to turn it on its head: "how much fishing area, how many fishing boats, are necessary to maintain the year-round sustainable infrastructure of buying stations, ice houses, hoists, fish processing plants, wholesalers and retailers, that can provide fresh California seafood to seafood consumers?"

Fishing Grounds for Southern California Trawlers Association members

Attachment A lists the areas that our Association members use to harvest California halibut, ridgeback prawns, sea cucumbers and (formerly) spot prawns in the disjunct fishing grounds from Monterey Bay to San Diego. Figures 1 and 2 chart the areas closed to trawling due to a wide variety of management and regulatory actions. As you will see, due to recently implemented regulations, these areas are vanishingly small compared to "the Pacific Ocean," a common yardstick for conservationists to conclude "but we're only closing 1-4% of the ocean to trawling." They are vanishingly small compared to any EFH Alternative proposal currently in the DEIS. That 1-4% referenced, depending on how it overlaps with our trawl areas, might actually represent an additional erasure of 20, 30, 40, or even 50% of our remaining trawl grounds. Which percentage will be the final straw?

To conclude, we offer another alternative for the Southern California Bight that we respectfully request be analyzed concurrently with the other alternatives in the DEIS prior to the Council making a final decision regarding further protection for EFH from the impacts of trawling. We offer assistance to any proponent of any alternative in the form of consultation on detailed information regarding habitat types in our region. Please contact Mike McCorkle (805) 566-1400 to arrange such information sharing. Thank you for considering our request for analysis of our alternative to protect EFH while minimizing socioeconomic impacts to our Association members.

Sincerely,

Mike McCorkle

Mike McCorkle,
President

c: Mr. Don McIsaacs, PFMC
Ms. Rebecca Lent, NMFS
Mr. Steve Copps, NMFS
Mr. Steve Ralston, NMFS
Ms. Jan Mason, NMFS
Mr. Mark Helvey, NMFS
Mr. Lyle Enriquez, NMFS
Ms. Marija Vojkovich, CDFG
Ms. Susan Ashcroft, CDFG
Mr. Jim Ayers, Oceana
Mr. Chuck Cook, Nature Conservancy
Mr. Rod Fujita, Environmental Defense
Mr. Pete Leipzig, FMA
Mr. Zeke Grader, PCFFA
Congresswoman Lois Capps

Attachment A

Southern California Trawlers Association: Southern California Trawl Grounds

The Southern California Trawlers Association is a group of small-boat artisanal trawl fishing vessels that use a small footrope (8" or less) to trawl sustainably for mainly fresh, local markets and buyer/processors. Our Association is composed of relatively few boats (variable from 13 to 20), but the age composition of our captains makes attrition a problem today that is accelerating (we held funeral services for Association Member, Captain Tony West, F/V Steel Fin II, in late April, 2005). Few younger fishermen are entering the trawl fishery due to the incessant clamor of some conservation organizations that "all trawling is bad," and due to the draconian measures taken by both State and Federal regulatory agencies in the last few years to rebuild several groundfish stocks. Due to horsepower and gear limitations, our boats do not fish on rocky substrate or in extremely deep water. Net damage from reefs has taught us the wisdom of avoiding these areas of rocks.

Our boats provide local live halibut, ridgeback prawns (and, formerly, spot prawns) and some sole to local markets. We also trawl for sea cucumbers, for human consumption, mostly in Asian ethnic markets in the San Francisco, Oakland, Los Angeles areas, and some dried sea cucumber is exported.

Areas our Association Members Fish

San Diego

From the 3 mile line out to about the 45 fathom depth. The seafloor from Pt. Loma down to the Mexican border is mostly relatively low gradient sand flats. We catch mainly halibut and sea cucumber in this area, but ridgeback shrimp are in the Navy dumping area but it is so full of debris we can't fish there.

Newport Beach

From the western edge of the Newport Canyon up to Pt. Fermin, off San Pedro, from the 3 mile line outward as far as (for ridgeback prawn) 100 fathom depth. We catch sea cucumbers, halibut and ridgeback prawns in this area, but the halibut are mainly closer to the 3-mile state waters limit line.

Santa Monica Bank and Bay

Along the eastern edge of the Santa Monica Bank we fish for halibut, ridgeback prawn and sea cucumber, all on soft mud bottom from the Santa Monica Bay fishing closure line and/or the 3-mile state waters limit out to 100 fathoms for ridgebacks. Along the western edge of the Santa Monica Bank up to Malibu we fish along the closure line & outside 3 miles also. We do not fish any part of Redondo Canyon.

Pt. Mugu to Arguello

Along the mainland side of the Santa Barbara Channel from Point Mugu to Point Arguello. During the California Halibut Trawl season (June 16 to March 15) we fish from 1 mile offshore to 3 miles out and beyond. During the closed (for spawning) season in this area, we fish outside of state waters 3-mile limit line. As a result of discussions with conservation groups regarding the recently enacted California

Halibut Trawl Permit legislation, we agreed not to fish in areas that may contain deepwater corals and/or sponges or other biogenic organisms such as sea fans. For this area specifically, we now do not fish in Mugu Canyon, Hueneme Canyon, or in the canyons off Point Arguello and Point Conception. We fish out to 150 fathoms from mainly Conception to Santa Barbara, and in the Ventura Flats from Hueneme Canyon west. We fish these areas for sea cucumbers, ridgeback prawn, and California halibut. We used to fish for spot prawns, but due to concerns over bycatch of bocaccio (principally in the area north of Point Arguello), we no longer are able to fish for spot prawns at this time. The bottom types we fish in this area are mostly mud and some sandy mud. There are a few well-known rock reef areas we all avoid so as not to damage our small trawl nets. Historically we also fished for ridgeback and spot prawns in China Bay, Santa Cruz Island, and in the Channel inside of the gap between Anacapa and Santa Cruz Islands, also over mud bottom. In 100-130 fathoms we also historically fished for Dover and English sole on soft bottom in that area, and along "the Finger" (100-fathom west-pointing bathymetric feature in mid-Channel) for rockfish. Sole were also caught along the lower (northeastern) edge of the Finger as it merges with the Ventura Flats (the "Dunes" area where Platform Gail is now located).

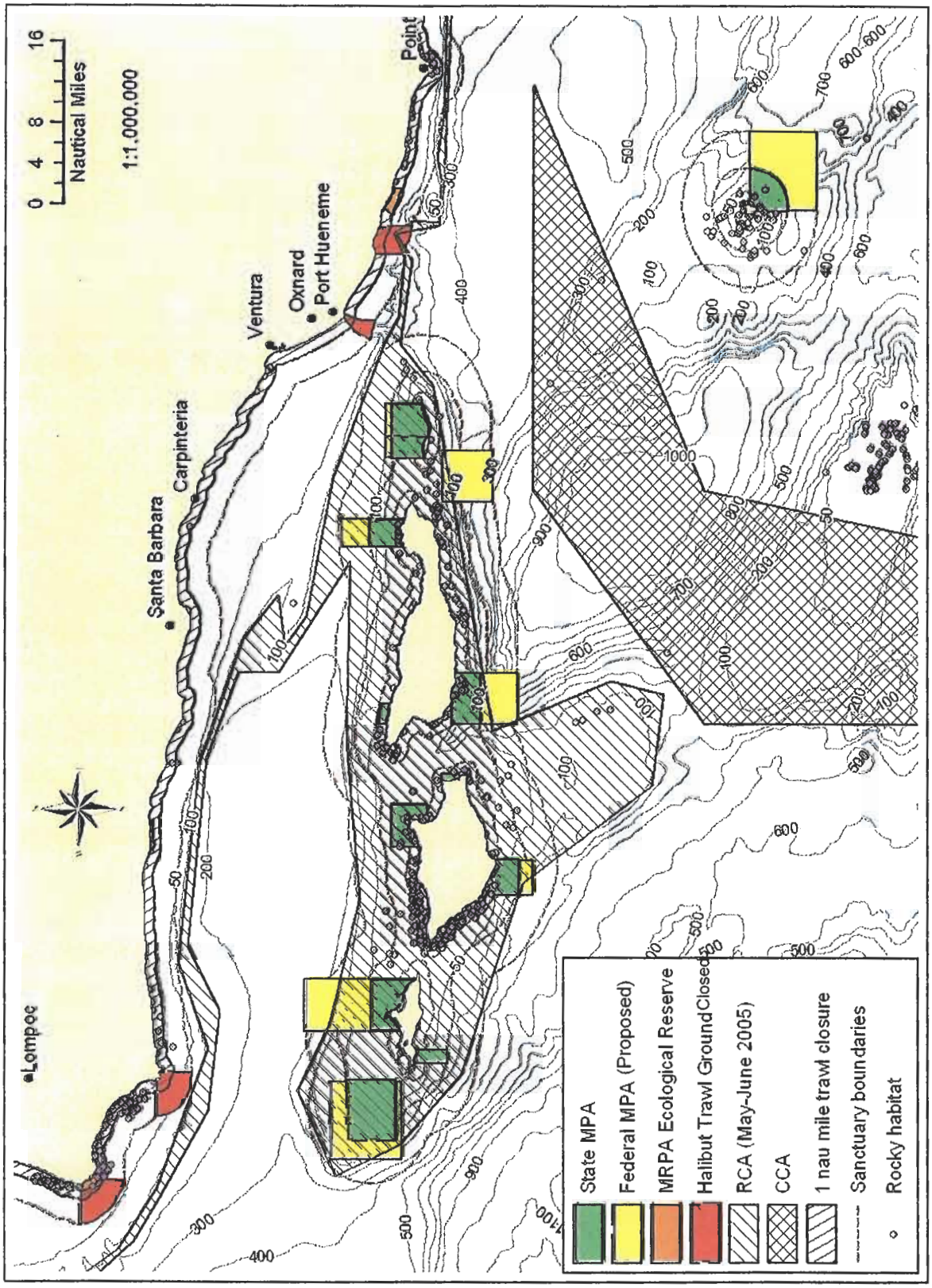
Avila Beach

From Point Buchon to Point Arguello outside the 3-mile state waters limit line. We catch principally California halibut, but also catch some sole in quantities allowed by the Groundfish Management Plan.

Monterey

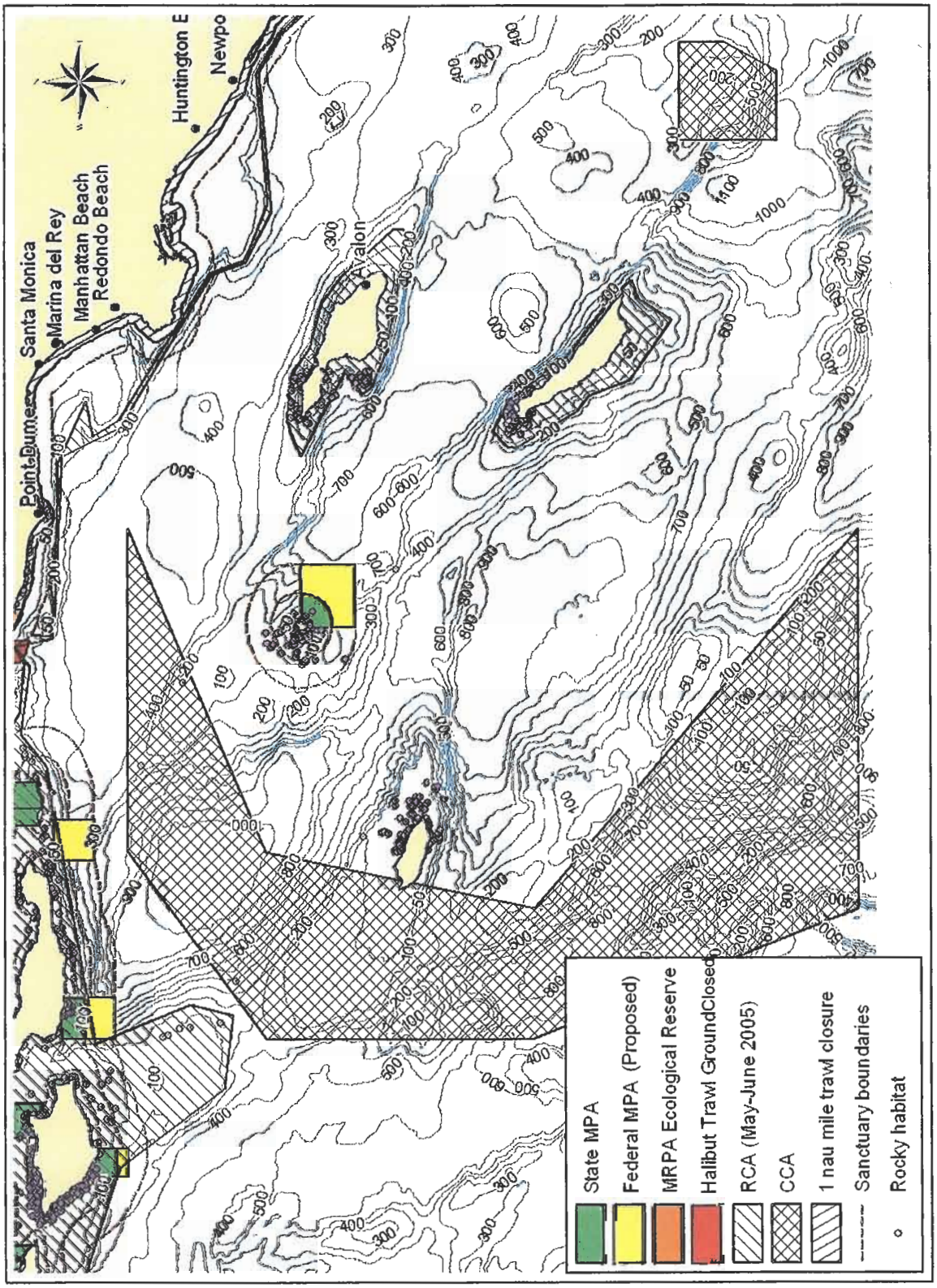
Outside the 3-mile line to the 60 fathom contour, from a point where these two lines intersect off Terrace Point (approximately 36° 53.61' x 122° 4.13') to a point where these two lines intersect again off the Pajaro River (approximately 36° 50.26' x 122° 52.37'). We catch halibut and sole, and the bottom is mostly sandy. Association members do not fish in the Monterey Canyon.

Figure 1.
Southern California Trawlers Association
Proposed Alternative to Mitigate Effects of Fishing on EFH



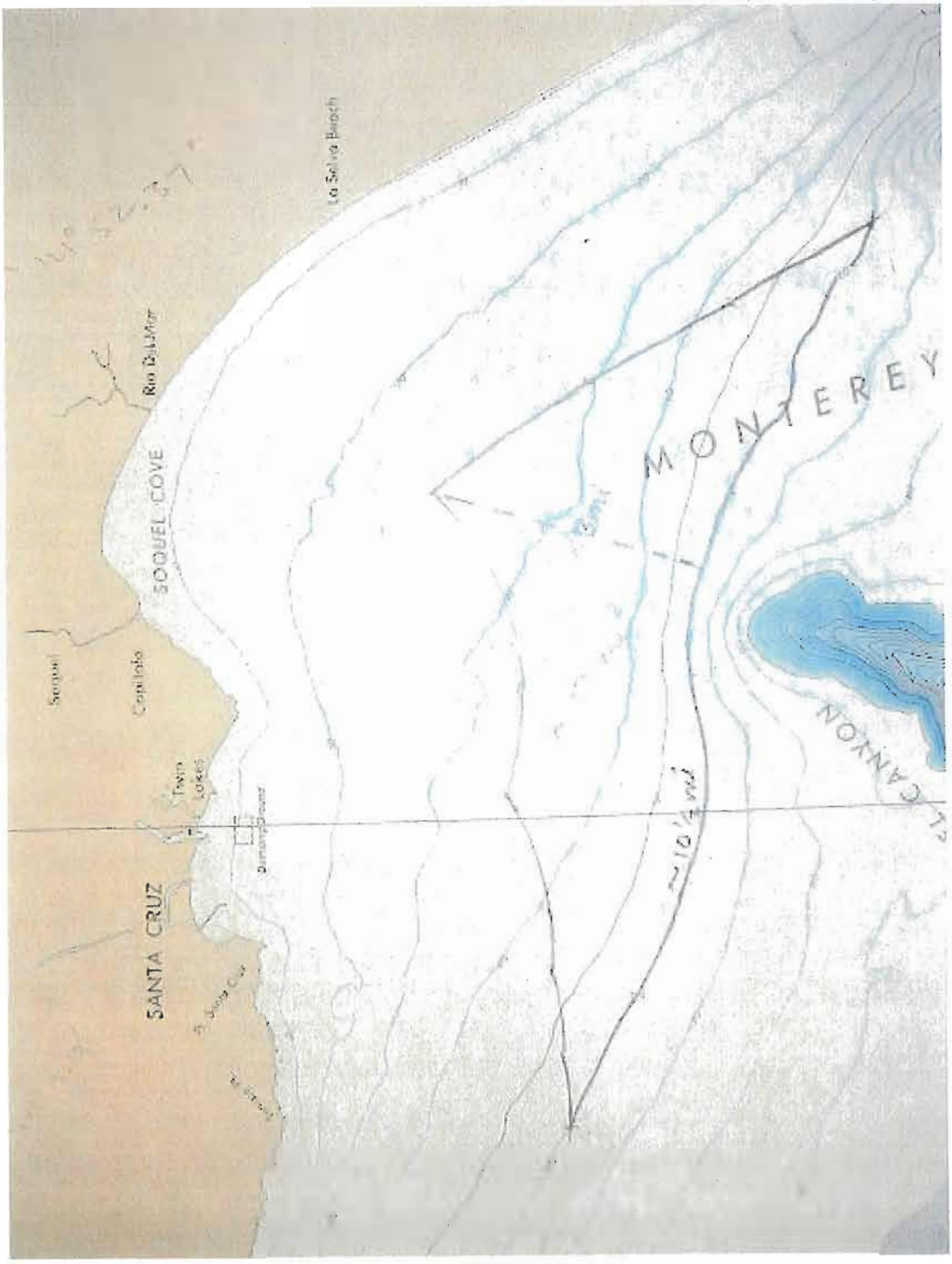
Data: NOAA, CA DFG, CSDS (substrate). Design: M.Robinson, 2005.
Bathymetry in fathoms. Map colors: www.colorbrewer.com.

Figure 2.
Southern California Trawlers Association
Proposed Alternative to Mitigate Effects of Fishing on EFH



Data: NOAA, CA DFG, CSDS (substrate). Design: M.Robinson, 2005.
Bathymetry in fathoms. Map scale: 1:1,250,000. Map colors: www.colorbrewer.com.

Figure 3.
Southern California Trawlers Association
Monterey Bay Halibut Trawling Area (Outside 3 miles)



Southern California Trawlers Association

6 Harbor Way, Box 101, Santa Barbara, CA 93109

May 16, 2005

RE: ERROR CORRECTION, COMMENT LETTER ON EFH DEIS

To whom it may concern:

On May 4, 2005, our Association sent a letter to Dr. Robert Lohn regarding our comments on the Draft EIS on Essential Fish Habitat currently under review. Unfortunately, due to the large volume of information we had to review in a very short time frame, we inaccurately described one of the alternatives to minimize fishing impacts on EFH.

Alternative C.10, described in Chapter 2 of the DEIS, involves the Nature Conservancy's alternative to work with fishermen to come up with areas closed to trawling in the central coast. Figure 2-27 illustrates an area from above Monterey Bay to Pt. Conception and out to at least 200 meter depth. The figure was captioned "no-trawl zones" and the text was not specific in detail other than to say that the Conservancy would work with fishermen to come up with no-trawl zones.

We erroneously concluded that the entire area, including all of Monterey Bay, was proposed to be closed to trawling, due to our reading of the text and figure. We understand now that that is not the stated intent of the Nature Conservancy proposal represented by Alternative C.10.

Please strike the words "...and the Nature Conservancy Alternative both..." from line 2 of the paragraph on page 4 of our letter that is headed "Monterey Bay." Thank you for making this correction to our comments on the EFH DEIS.

Sincerely,

Mike McCorkle

Mike McCorkle,
President

Subject: Comment on 2005 Pacific Coast Groundfish DEIS
From: "Steve Bodnar, Coos Bay Trawlers Association" <c.trawl@verizon.net>
Date: Mon, 09 May 2005 10:14:58 -0700
To: "GroundfishEFHDEIS" <GroundfishEFHDEIS.nwr@noaa.gov>
CC: "Hal Weeks" <hal.weeks@state.or.us>, "Pacific Fishery Comment lin" <pfmc.comments@noaa.gov>

Coos Bay Trawlers' Association, Inc.

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A Non-Profit Organization Since 1997

May 9, 2005

Mr. D. Robert Lohn

Regional Administrator, National Marine Fishery Service

c/o Maryann Nickerson

7600 Sand Point Way, NE

Bin C15700

Seattle, WA 98115-0070 Comment on 2005 Pacific Coast Groundfish DEIS

Dear Mr. Lohn;

The lawsuit litigation that forced the Pacific Fishery Management Council to develop an Essential Fish Habitat Environmental Impact Statement did not challenge the content of the FMP but only the process used to develop the FMP. The judge ruled that the FMP fell short of following NEPA procedure and therefore the Council needed to revisit the development of the FMP using correct NEPA procedures. However, the Council, fearing further lawsuits or perhaps even a directive from NMFS or by NOAA Fisheries Office of General Council, made the decision that NEPA compliance, or over-burdening the management system, is now a priority. This became obvious when Alternative 1, status quo, was eliminated from the Council's preferred options. What we should be asking is whether NEPA, and how NOAA Fisheries has started implementing it, fosters or hinders timely, high quality federal fisheries management and whether it could disrupt the intent and goal of the best management decisions for fishermen and conservation.

To quote attorney David Frulla's recent testimony to the U.S. House of Representatives Committee on Resources, "NEPA is a procedural statute. It imposes no substantive conservation obligations. That said, the environmental community has often used NEPA as a litigation device to attempt to force a substantive

reconsideration of an agency action with which it did not agree. Accordingly, there are two elements of NEPA that should concern the Subcommittee: (1) whether it serves as an effective independent mechanism to ensure quality agency decision-making; and (2) whether it actually also serves to improve the quality of NOAA Fisheries decision-making. Regarding the first point, the litigation record shows that NEPA is, quite simply, over-rated as an enforcement tool. As to the latter, I submit that a wide array of substantive statutes independently help to ensure environmentally-aware decision-making. In fact, NEPA obligations may actually inhibit timely, science-based management."

While status quo for many may mean no change, business as usual, that is certainly not at all the case with our Pacific Fishery Management Council or the west coast fishing fleet. Status quo here means a continuation of heavy management measures while the resources continue to rebuilding. For the trawl fleet, this has meant: Fleet reduction via the buy-back program; Prohibited large roller gear use; Restrictions of use of large footrope gear areas; Implementation of small footrope gear and areas of use; Development of the selective flat fish net and restriction on deployment; Introduction and mandatory use of excluders in all shrimp trawls; Forced to carry observers for data collection activities; Coerced to operate under "house arrest" with the unfunded mandatary VMS program; Forced to develop the RCA and boundary modifications; Engaged in collaborative research to help improve the science; Current development of ITQ program to reduce discards with industry funding; Reduced time on the water by 75 to 80 percent; Reduced our earnings by at least 75%.

THE FACT OF THE MATTER IS THAT NO MATTER WHAT THE TRAWL FLEET DOES TO IMPROVE THE SITUATION, OCEANA AND NATURAL RESOURCE DEFENSE COUNCIL WILL NEVER BE SATISFIED. Look at either groups' website and you will see that their goal is to eliminate all net fishing. This is unreasonable. So how can any appeasement be made? We believe that you and the Council should take a stand against eco-terrorists by just saying no. Remember the judge didn't have a problem with the plan, just the technical NEPA procedure.

We encourage NMFS and the Council to select the following:

A. IDENTIFY AND DESCRIBE ESSENTIAL FISH HABITAT

CBTA preferred Alternative A.1 status quo

Second choice Alternative A.2 Depths less than 3500 meters

B. Designate Habitat Areas of Particular Concern

CBTA preferred Alternative B.1 status quo

> Second choice Alternative B.2 Estuaries, 3 Canopy Kelp, 4 Seagrass, and 6 Rocky reefs combined

C. MINIMIZE ADVERSE IMPACTS ON EFH DUE TO FISHING

CBTA preferred Alternative C.1 status quo

> Second choice Alternative C.4.1 Prohibit the geographic expansion of fishing for all bottom-tending gear and if other alternatives are also going to be adopted then it has to be the "Trawl Industry's Proposal" developed through meetings on the west coast with Pete Leipzig.

D. RESEARCH AND MONITORING

CBTA preferred Alternative D.1 status quo

second choice has not been developed by anyone. But we would prefer status quo with added collaborative research on fishing impacts.

The expanded logbook program really does not need to be an alternative. The current logbook law requires all commercial fishermen to keep logbooks but the government has chosen to enforce it with only one group, the trawlers. If logbooks are going to be used in the future, one type should be produced for the entire coast that emphasizes total catch for both commercial and sport fishing.

VMS alternative is already in motion. However, CBTA is still against this system, especially because the government refuses to pay for this mandated equipment.

Fishermen feel that the Council is operating in fear of environmental group lawsuits and are willing to sacrifice every coastal community to appease them, all over of a question of NEPA procedure. The Council and its family of support agencies and committees have worked hard to manage our fisheries. The fleet in particular has made the most extreme sacrifices to ensure a healthy sustainable resource and to ensure the Council met compliance requirements of the management laws. We are very frustrated to see that NOAA is willing to flush it all down the toilet. Its our communities jobs at stake, not NMFS', that these environmental groups are willing to sacrifice.

The nation needs to address the frustration level environmental groups are placing on our fishing communities. The nation needs to weigh the stress these groups are placing on our hard working families against the donations these groups receive from their appeals to the public that the oceans are in crisis. The nation needs to address the fact that they are being duped by the desire to fund environmental groups effort to free the waters of nature loving fishermen.

Sincerely,

Steve Bodnar, Executive Director

Subject: Does PFMC Understand California's Abalone Fishery?
From: Rob Cozens <rcozens@pon.net>
Date: Wed, 11 May 2005 09:38:17 -0700
To: GroundfishEFHDEIS.nwr@noaa.gov

Ladies & Gentlemen:

In my reading, the PFMC Groundfish EFH EDIS seems to give the impression that (a) there is a commercial abalone fishery in California and (b) dive equipment is used in harvesting abalone:

Chapt 3,

Pg. 107--

"In California, abalone and sea urchin are taken in dive fisheries, ...

Dive fisheries (using either a self contained air tank, or breathing off a hose "hooka" from a low pressure air compressor vessel) are used to pursue various fish and shellfish such as urchins, lobsters, and sea cucumbers..."

Pg. 137--

"Many commercial sea urchin and/or abalone divers also hold sea cucumber permits and began targeting
sea cucumbers more heavily beginning in 1997."

I would refer you to the Abalone Recovery Management Plan on California's Department of Fish & Game website, which states in part:

1.2 Purpose and Need for Action
...The only abalone fishery currently open in the state is the northern California red abalone sport fishery.

7.1.1.1 Species-specific Considerations for Management
Since 1997, northern California abalone management has been limited to red abalone, the only species with abundances that can support a fishery...

7.1.1.2 Gear Restrictions
The prohibition of the use of scuba and surface-supplied air while taking abalone in northern California established a depth refuge for a portion of the stock, because free

divers generally cannot dive deeper than 28 ft (8.5 m) (Karpov et al. 1998).
The mandatory use of a specialized abalone iron for take aids in protecting the soft and vulnerable abalone foot and thus reduces incidental mortality. This gear restriction has been used throughout California since 1975.

Rob Cozens, Staff Conservator
Mendonoma Marine Life Conservancy
P.O. Box 217
Manchester, CA 95459-0217
(707) 895-2584

"Promoting a healthy and bountiful offshore environment."

Subject: MMLC Comments Re: PFMC Groundfish EFH DEIS
From: Rob Cozens <rcozens@pon.net>
Date: Mon, 9 May 2005 11:58:18 -0700
To: GroundfishEFHDEIS.nwr@noaa.gov
CC: MMLC Conservators:;, MMLC +:;, MMLC General:;

May 9, 2005

Mr. D. Robert Lohn, NOAA Fisheries Regional Administrator
National Marine Fisheries Service, Northwest Region
7600 Sand Point Way NE, BIN C15700
Seattle, WA 98115-007

Dear Mr. Lohn,

I am writing on behalf of the Mendonoma Marine Life Conservancy to express our support for the effort to identify, restore, and protect ocean habitats that are essential to Pacific Coast groundfish.

We are a private group of sixteen educators, fishermen, environmentalists, divers, Native Americans, kelp harvesters, and other stakeholders focused on mapping offshore geography, ecology, fisheries, and recreational uses in California State waters from the Humboldt-Mendocino county line to the outflow of the Russian Gulch Watershed south of Fort Ross. MMLC's mailing list includes over 100 individuals and organizations, and our By-Laws authorize advocacy as an "interested party" as referenced in Section 2861(a) of the California Fish & Game Code.

Groundfish share a vulnerability to overfishing with open water, schooling fish. But because many groundfish species live in and around the same rocky reefs and other bottom features for most of their adult life, they are also vulnerable to destruction of their homes, feeding areas, and breeding grounds from certain kinds of fishing activity. These homes, feeding areas, and breeding grounds often include living seafloor animals as well as geologic terrain and vegetation.

MMLC supports efforts to (1) identify and protect habitat areas of concern essential to groundfish, and (2) protect some areas from further damage by prohibiting the use of fishing gear known to damage groundfish habitat and seafloor animals. We believe that the elimination of habitat-damaging fishing gear should be done in such a way as to minimize economic hardships on fishermen, as they are simply applying techniques and tools created before mankind realized their potential for damage.

MMLC would also like to point out that Figure 2-7 [B.2 HAPC Estuaries] omits the longest undeveloped estuary in California: Big River Estuary, where the upper extent of salt water intrusion can exceed eight miles. Bocaccio is among the species that were documented in the Big River Estuary and lower subbasin by Warrick & Wilcox in 1981, and several other groundfish species have been identified in the Estuary at some stage in their development. We feel Big River Estuary offers an excellent venue for estuarine research in general and studies of potential interaction between juvenile salmonids and juvenile rockfish in particular. Please include Big River Estuary in Alternative B.2.

Lastly, we would caution that precautionary management principles be used in all cases where information needed for decision making is unavailable. In the history of U.S. and Canadian management of North Atlantic fishing grounds many decisions placed socioeconomic interest over precautionary management principles, and eleven years after the fishery was finally closed Atlantic cod population levels were still among the lowest ever recorded.

We understand that application of precautionary management principles will skew decision making in favor of protecting essential habitat in those cases where definitive data is unavailable or inconclusive. Because of the degree of uncertainty surrounding much current data, precautionary management principles will need to be employed often early-on; thus we feel it is important that the final EIS include a definition of "precautionary management principles" in Chapter 9.

Thank you for the opportunity to comment.

Sincerely,

Rob Cozens, Staff Conservator
Mendonoma Marine Life Conservancy
P.O. Box 217
Manchester, CA 95459-0217
(707) 895-2584

"Promoting a healthy and bountiful offshore environment."

[Hard copy to follow via USPS]

Subject: Groundfish Essential Fish Habitat Draft Enviromental Impact Statement
From: "Robert Craven" <cravenr@charter.net>
Date: Thu, 28 Apr 2005 14:47:44 -0700
To: <GroundfishEFHDEIS.nwr@noaa.gov>
CC: <pfmc.comments@noaa.gov>

Gentlemen: I am a small charter operator in the central Oregon coast area (Newport). I am also Vice resident of the Oregon Coast Sportfishing Association. I hope my comments on the proposed changes comming in the coastal groundfish fishery will help you to do a better job of managing this difficult challange facing you now.

alternative A.4 is my Prefered option

No comment on section B

alternative C.3 It is not acceptable to close Habitat areas to all fishing because some types of fishing have little or no impact on the habitat. Option C.3.1 or C.3.2 is a much more rational approach to the problem, and would have the least economic impact on the coastal communities.

alternative C.14 NOT acceptable (see comments on alternative C.3 which apply to this alternative also.)

alternative D.2 Option D.2.1 One more Logbook! This will not set well with the smaller commercial, and charter vessel owners some operate only 4 months of the year, and have very little envirmental impact. Option D2.2 Better, but from my point of view, it is still not good.

alternative D.3 This could be the ecconomic straw that breaks the back of the small vessel operators. The impact of these vessels is minimal or none existant, but more people work on the small vessels than on the larger ones in this area. Do you really want to put all those people out of work? Do you really want to turn off the lights of the small coastal communities? I know the main thrust of this draft proposal is enviromental, but I would like to remind all of you that Homo Sapiens is also part of the enviroment, and to fail to consider them in your proposals or to give them a lesser status is to fall short of the job. Please consider us also. Thank you for your time and attention.

Robert E Craven managing owner
Sea Quell Charters LLC
Hustler Charters LLC
Newport Oregon

Subject: Comment on 2005 Pacific Coast GroundfishDEIS
From: "Janice and Harry Green" <hjgreen@jeffnet.org>
Date: Mon, 9 May 2005 22:09:17 -0700
To: <GroundfishEFHDEIS.nwr@noaa.gov>
CC: <pfmc.comments@noaa.gov>, <Hal.Weeks@state.or.us>

May 7, 2005

Mr. D. Robert Lohn
Regional Administrator, NOAA Fisheries
c/o Maryann Nickerson
7600 Sandy Point Way, NE
Bin C15700
Seattle, WA 98115-0070

Re: Comment on Groundfish EFH DEIS

Dear Mr. Lohn:

Your staff and the Pacific Council are to be congratulated for such an intelligent and comprehensive approach to providing a rational basis for analyzing fisheries conditions and their effects on essential habitat. If what I say indicates a limited comprehension of what exists in the DEIS, I will be happy to be corrected, and will make my excuses beforehand: It is an extensive document which I am not sure I comprehend.

My concern is an evident “pass” on analyzing the impacts of sportfisheries. I believe I saw references to Appendix A, which had an Appendix 13. But all I ever found was a perfunctory textual re-reading of MRFSS data graphs. There was no attempt to resolve any (startling) data inconsistencies. There was no attempt to use better state data. There seemed to be no attempt to sort salmon trolling and tuna fishing from bottom fishing, though I am not sure about this last from the text. There was no attempt to even discuss the abundance depressions where groundfish are accessible to small boats (increasing in severity as a point of access is approached). I am certain there is literature on this subject. There was so far as I know, no data search, or even discussion, of the effects of estuary fishing on stocks which use estuaries for reproduction. There is no discussion of the effects of the livefish fishery burgeoning in the past 10 years in traditional sport groundfish territory (also leading to depletion and most likely contributing to the “port effect”). Surely there are some measures somewhere of the likely impact of mooching, of jigging on the bottom with a weight, etc. Or at least we could look forward to some attempts to quantify those impacts.

In a time when some media report how sportfishing is more responsible for fisheries depletion than commercial fishing (!), and when many organizations concerned with sustainable fisheries seem to go out of their way to mention only sustainable commercial fishing, I believe that sportfishing needs to be brought up to the point of having an important place in every discussion. Since most sportfishing probably does have less impact than most commercial fishing, and in many cases an equal or greater community economic impact, it seems clear that one way to minimize the impact on EFH would be to allocate more fish to sportfishers. This would have the added benefit of extracting a greater economic benefit from the limited allowable catches of some of the more constraining species of groundfish. While I realize that such views might not meet with enthusiasm in some quarters, it seems to me that such ideas at least warrant some discussion in a comprehensive review.

Sportfishers do need to consider what impacts they are having, and perhaps how best to minimize them. While I might think to myself that the truth might be rather benign, right now we are left with no data with which to argue any point in any direction. Sportfishers and regulators need to get started somewhere.

Very truly yours,

Janice Green
Oregon Sport Advisory Committee

cc via e-mail
Marine Program, ODFW
Pacific Fishery Management Council

Subject: Comment on 2005 Pacific Coast Groundfish DEIS
From: "Fischer, Rhonda" <rhonda.fischer@oregonstate.edu>
Date: Mon, 9 May 2005 16:26:08 -0700
To: <GroundfishEFHDEIS.nwr@noaa.gov>, <pfmc.comments@noaa.gov>, <Hal.Weeks@state.or.us>

To: Maryann Nickerson

As a third generation commercial fisherman and long time Sea Grant Extension Educator, I have a number of comments on the Groundfish Essential Fish Habitat Draft Environmental Impact Statement (Groundfish EFH/EIS).

- I strongly support protecting fish habitat and using the tool of Habitat Areas of Particular Concern (HAPC) is important. I support the Council's preferred alternatives, B.2, B.3, B.4 and B.6.
- Under Alternative C.12, C.13 and C.14 there is only one near shore area listed for Oregon. That area runs from Coos Bay south to Bandon and out to approximately 80 fathoms. This area is rarely trawled because of rough bottom and communication cables, thus restricted bottom trawling (C.12) would have little affect. But this area is the only area available to recreational groundfish fleet and a small number of hook and line groundfish commercial vessels. Alternative C.13 would eliminate those fisheries, a real blow to Coos Bay and Bandon. Alternative C.14 would also cut out a large portion of very productive salmon trolling grounds out of Coos Bay and Bandon. A double blow to the communities.
- Alternative C.9 (option 9.8) would prohibit dingle-bar gear (troll groundfish gear). I have fished this gear for lingcod for over 20 years and prohibiting it would be a real mistake. Dingle-bar gear is very selective for lingcod. If setup right rockfish catch is nearly zero. The gear is primarily used by salmon trollers allowing an alternative fishery during salmon closures. Because the fish are handled carefully, one at a time, landed price is double trawl caught and is usually sold to niche markets. The bottom impact is minimal.

Maybe there is a misconception of what the gear is and how it is used. The dingle-bar is a 5 to 7 foot, 1½ inch diameter steel bar and replaces the lead cannonball weight. The trolling gear is a string of 5 or 6 weighted jig hooks spread six feet apart and floats are used to keep the gear off the bottom. The dingle-bar is lowered to the bottom with a salmon gurdie and then raised and lowered to meet bottom conditions. The dingle-bar is not drug along the bottom, but raised slightly off the bottom and only allowed to occasionally contact bottom. The jig line does not hit the bottom as it is set two to three feet above the bottom of the dingle-bar. The gear is towed at 2.0 to 2.5 knots with only occasional bottom contact (maybe every 100 feet) with a 1½ diameter footprint bottom impact is very minimal.

Instead of prohibiting this gear I think the Council and NMFS should be encouraging gear that is selective, has minimal impact, is available for small boats and produces a high value product.

Thank you

Paul Heikkila
F/V Andante
786 S. 1st Avenue
Coquille OR 97423
(541) 396-3096

Monterey Fish Market

MFM Seafood Inc.

★ Wholesale
Pier 33
San Francisco,CA 94111
Ph: 415-956-1985/86
Fax: 415-956-5851
★ Retail Market
1582 Hopkins St.
Berkeley, CA 94707
Ph: 510-525-5600
★ Office
1620 Hopkins St.
Berkeley, CA 94707
Ph: 510-525-0999
Fax: 510-525-4109

D. Robert Lohn, Regional Administrator
C/o Maryann Nickerson
NMFS, 7600 Sand Point Way NE
Bin C15700, Bldg. 1
Seattle, WA. 98115-0070

Mr. Lohn;

i.e. 2005 Pacific Coast Ground fish EFH DEIS

I am a seafood wholesaler and retailer in San Francisco. A firm supporter of sustainable fisheries, and the need to protect essential fisheries habitat (EFH). I also support fishermen who attempt to fish for species which do not catch or impact other fish and who use non destructive fishing methods. There is a need to differentiate fishing gear which impacts EFH from fishing gear that dose not.

The Scottish Seine is a gear which will not impact an EFH. It is a very light and easily damaged encircling gear which can only be used over soft bottom. Even the presence of a small anomaly in the bottom damages and prevents the gear from fishing a hard bottom EFH. Unlike a bottom trawl that can fish and damage the hard bottom, Scottish Seines do not actively tow. Rather, the net is slowly gathered and reeled in hydraulically greatly reducing and often eliminating the possible impact to an EFH.

At this time I believe that Scottish Seine has been placed in the category of trawl gear in many of the proposed EFH's. This prohibits Scottish Seine fishing because of this improper inclusion in the trawl category.

When determining the final EFH please exclude Scottish seine from any fishing prohibition designed to protect fish from trawling. It is important to protect an EFH, but at the same time, I feel it is also important for NMFS to encourage methods of fishing, such as the Scottish Seine that dose not impact the bottom and the goals of the EFH.

Thank you for your consideration;

Paul Johnson

Tom Worthington

PORTS seafood
The Fresh Fish Company

D. Robert Lohn, Regional Administrator
C/O Maryann Nickerson
NMFS, 7600 Sand Point Way NE
Bin C15700, Bldg. 1
Seattle, WA 98115-0070

May 2, 2005

Dear Mr. Lohn,

I am a seafood wholesale/distributor located in San Francisco. I am and always have been a firm supporter of sustainable fisheries, and support and understand the need to protect essential fisheries habitat (EFH). However, I strongly believe that there is a need to differentiate fishing gear which impacts EFH from gear that does not. There are many fishermen who attempt to fish for species which do not catch or impact other fish and who use non-destructive fishing gear, and they are losing their livelihood as a result of being grouped with other more destructive fishing methods. These fishermen lack a cohesive voice.

The Scottish Seine is one such method that does not impact an EFH. It is a very light and easily damaged encircling gear, which can only be used over soft bottom. Even the presence of a small anomaly on the bottom damages and prevents the gear from fishing a hard bottom EFH. Unlike a bottom trawl that can fish and damage a hard bottom, Scottish Seines do not actively tow. Instead, the net is slowly gathered and reeled in hydraulically greatly reducing and often eliminating the possible impact to an EFH.

At this time, I believe that the Scottish Seine has been placed in the category of trawl gear in many of the proposed EFH's. This action would prohibit Scottish Seine fishing because of the improper inclusion in the trawl category.

When determining the final EFH please exclude the Scottish Seine from any fishing prohibition designed to protect fish from trawling. It is important to protect an EFH, but it is equally important for NMFS to encourage methods of fishing that do not impact the ocean bottom and the goals of EFH. I feel that a Scottish Seine exclusion is in the spirit of EFH.

Thank you for your consideration.

Sincerely,

Timothy Ports

1440 BANCROFT AVENUE SAN FRANCISCO, CA 94124-3603 (415) 593-8080 FAX (415) 593-9393

Subject: Comment on 2005 Pacific Coast GroundfishDEIS
From: "Rod Lee" <rod@staffjennings.com>
Date: Tue, 3 May 2005 09:41:15 -0700
To: <GroundfishEFHDEIS.nwr@noaa.gov>
CC: <pfmc.comments@noaa.gov>, <Hal.Weeks@state.or.us>

Dear Mr. Lohn,

I am writing you to express my opinions on the upcoming EIS groundfish proposal.

As a sportfisher and ex-commercial salmon troller, I have some experience with the fisheries off of the Oregon coast. I recently sold my boat and license after learning of the impending doom of the salmon fishery and I'm glad I did.

I understand the concern for wanting to protect our groundfish; however the problem I have is with the implementation of drastic methods without the convincing evidence to justify them. Based on my own observations it appears as though the stocks of Canary and Yelloweye rockfish are doing just fine, at least in the common "sportfishing" areas. Now I don't have "scientific" data to support that observation, but I don't think you or any of the government agencies have any "scientific" data to tell me I'm wrong either.

It is my understanding that Trawlers have created most of the concern for over harvesting of these protected groundfish? To my knowledge, the areas in which these trawlers fish is not the same as the areas the EIS is proposing to close to fishing? I'm curious as to how closing these areas are supposed to help and why it is necessary to penalize the sportfishermen for the trawler's over harvest?

I understand we are all in this together but if my neighbor kills off all the grass in his yard that doesn't give him the right to come over and use my yard to play in, right?

Here is the point of my email;

1. There are obviously areas that produce large amounts of these protected fish that are not commonly fished by sportfishermen. Why are you trying to isolate the areas that sportfishermen fish as opposed to closing areas Trawlers would use?
2. If you close an area, commercial or sport, use the correct and corresponding data for those areas. Do not base sport restrictions on Trawl data or vice versa.
3. The economic impact these closures would inflict to the coastal economies will be devastating. The demise of the commercial industries have already made a mark on the coastal community and caused them to focus more efforts on sport fishing. The closures proposed would kill not only the local fishers but also the thousands and thousands of tourists drawn to the area for that very reason.
4. There is a huge domino effect that happens when you close one area to sportfishers, as was witnessed last year after closing the >40 fathom area to bottomfishing, thus creating more pressure on the inshore reefs and the blue/black rockfish.
5. Rather than close existing habitat, why not make more habitat for them to thrive in? (i.e. artificial reefs) They are proven and would not only reverse the stock decline but create MORE fishing opportunities, thus creating a win-win situation for everyone.

Every time you hear a plane fly over I'm sure you don't run for cover for fear it's dropping a bomb in your area, and thus you shouldn't start closing the entire ocean because a few trawlers exceeded their catch limits, or because our neighbors (California) are having stock issues.

I appreciate you and your agencies trying to protect our fish, I just want to make sure we are using valid reasoning and not unnecessarily penalizing those who have done nothing wrong.

Thank you for your time and consideration,

Rod Lee
Concerned fisherman

6900 SW 130th Ave.
Beaverton, OR 97008

503-626-7264

Cc: Hal Weeks(ODFW) and the PFMC

4/28/05

To Dr. John Lohn:

I am writing you regarding the classification of Scottish Seine fishing as trawl gear. Osprey Seafood is celebrating 28 years of business in the Bay Area on May 1st. We are a seafood wholesale company located in San Francisco and a seafood retail outlet in Napa. In our years of doing business we have always supported the small fisherman, the fisherman that cares for their product as well as their enviornment. This concern for the integrity of the small guy has yielded a better product and a livelyhood for someone that knows the proper way to fish, that doesnt destroy their enviorn and shows a passion for the oceans that provide for their future. To be able to sell a top quality product that was caught with little or no by-catch and that didn't tear up the ocean floor is one of our goals. Imagine a targetted fishery where the fishermen only catches what they seek and doesn't leave a trail of destruction in their wake. We have that with Scottish Seine fishing. The delicate gear prohibits fishing the hard ocean bottom as well and active trawling. Thus the impact on habitat is minimal at best. Scottish Seine fishing has been placed in the trawl gear category in many of the essential fisheries habitat proposals. This categorization puts a halt to Scottish Seineing due to the impact caused by other types of trawl gear. We believe that all involved would be best served by excluding the Scottish Seine method, allowing a less invasive industry to grow and encouraging other fishermen to look at this method as a sustainable and profittable method of fishing. We hope that you will consider our input in this matter and look at this small fishery as one of the many steps needed to improve our oceans and preserving managable fishing techniques. Thank you for your time.

Best Fishes,

Michael Weinberg-Lynn
President, Osprey Seafood of CA, Inc.

04/28/2005 08:49 4152919721 PAGE 01

Subject: Groundfish impact statement
From: "josestone" <josestone@actionnet.net>
Date: Wed, 27 Apr 2005 12:36:31 -0700
To: GroundfishEFHDEIS.NWR@noaa.gov

Dear Mr. D. Robert Lohn;

I am writing this letter because, again, I find the governing fishing bodies possibly considering some very disturbing fishing changes.

First of all, I would like to give you some background of my fishing expertise. I started fishing at the age of 13 and I am now 61 and am still fishing. I started in the troll fishery, as most fishermen did at that time, and then moved into bottom trawling where in 1962 I was running bottom trawlers at the age of 20. I have seen the Russians and Polish take "ocean run" on our grounds. I have survived hook changes, mesh size and season changes, mercury scares, Demoic acid and Listeria. Fish too white, fish too black, fish too old, fish too young and through all of this I have tried to apply common sense. It is too bad we can't teach common sense because it would be more valuable than today's gasoline.

I understand, that as biologists and council members, you are being forced down this path by litigation. I am convinced, that no matter how we proceed the environmental groups will not be placated and as I look at some of these alternatives, I cannot see the logic behind them.

Under alternative 6.9, option 9.2 would eliminate the pink shrimp fishery. We have spent 20 years changing and fine tuning this particular door arrangement. I actually believe, that this door with its 8" wide shoe probably rides lighter on the bottom than the cambered doors the option prefers. I do have some doubt that we are doing damage to the bottom when we will sometimes fish the same grounds for months with good catch rates.

Option 9.5 would completely curtail my scallop fishing.

Option 9.8 would raise havoc with the troll fishery. Troll fisherman fish from top to bottom of the water column and to eliminate the bottom would devastate that fishery.

The reason I have written about these options is because they were the PMFC preferred alternatives.

We have experienced some huge changes in the last few years and we have seen the bottom fish fleet reduced and their area reduced dratically. No fishing from 50-250 fathoms, which as I see it, solved the problem of bottom contact. This is a tremendous area that is not closed with no fishing. So this is now a reserve.

The pink shrimp fleet has implemented sorting grates that eliminate the groundfish catch.

The halibut fleet has been moved from inshore to outside of 100 fathoms. Just another example of our effort to help the council solve these problems. Isn't it time for the industry, the council and the environmentalists to stop making rules that will harm the fishing community? The council has repeatedly said that Rock fish recovery is a slow process so I think we need to give these lates changes (bottom fish 50-250 fathoms, halibut outside 100 fathoms, & shrimp boats with sorting grates) a chance to work.

This is why I would endorse the status quo option at this time. It makes sense which I think is something that we all could use a healthy dose of now.

Thank you for taking the time to read these comments.

Joseph Rock

Subject: EFH Comments
From: "KELLEY RETHERFORD" <excalibur@carrollsweb.com>
Date: Wed, 11 May 2005 13:50:24 -0500
To: <groundfishefhdeis.nwr@noaa.gov>
CC: <Pfmc.comments@noaa.gov>, <Hal.weeks@state.or.us>

Michael Retherford
880 NE Sturdevant Rd.
Toledo, OR 97391

May 10, 2005

Mr. Jim Lohn
National Marine Fisheries Service
7600 Sandpoint WY NE
Seattle, WA 98115.

Dear Mr. Lohn,

I am and owner/operator of a 65' trawler/crabber fishing out of Newport, Oregon. I have been in the west coast fisheries since the mid 1980s and have observed the increasing complexity of management regulations that have been imposed on the fishing industry by legislation and litigation. I hope NMFS and the PFMC continues to support the current efforts toward development of IQs, as this is likely the only way we will stabilize and improve the wealth of the resource and the health of the coastal fishing industry. I do not feel that the current "habitat" related amendments will do much enhance fisheries management. Nearly all of the proposed measures require greater amounts of funding and manpower than that which is currently available. The history of management has shown that there is little enthusiasm for funding initiatives such as those proposed by government, so the onus of funding falls to the user.

Essential fish habitat is a difficult subject to define precisely, but if the intent is to define an area that habitat alteration effects on fish be considered then the PFMC alternative A.3 would be the most logical alternative.

I concur with the PFMC's proposal B2 to establish estuary areas as HAPCs. Research has shown that these are the areas that are very productive for most of our fished species and critical for the early life of crab and shrimp. I am not in favor of additional closures on the continental shelf and slope. Many of these areas have already been closed to fishing, some for up to 6 years. During that time there have been no efforts to evaluate if these closures were beneficial, detrimental, or neutral for fish production. I would hope that NMFS and the PFMC refrain from sequestering additional grounds without adequate scientific study. Without any supporting evaluation of the effects of fishing on offshore rocky reefs there is no basis for this option. There are already tools in place to control fishing in these habitats and additional regulations will only be redundant and add additional unnecessary expenses to fishermen.

The alternatives presented for item C are all problematic in that it is not clear how these measures will mitigate fishing effects. The base years of 2000-2002 are questionable measures of fishing. One must remember that the fishery in those years was already significantly impacted by trip limits and area closures. In fact the entire west coast trawl fishery is much different today than in the past. Since 1994 75% of trawl effort has been removed by limited entry permit retirement, vessel buyback program and migration of part of the fleet to Alaska. This along with changes in fishing practices has significantly reduced fishing effects. An ODFW study of fishing effort showed less than 10% of the grounds are actively fished. This result is in line with other studies that show trawl fisheries in general only trawl 10-15% of available habitat.

I have also actively participated in NMFS West coast trawl surveys and habitat mapping projects. I can attest that observations of many untrawled areas show barren bottom strewn with bare cobbles and stones, while trawled areas have rich bottom fauna.

My concern for selection of any of the items in item C has impacts on all bottom gear including crab traps. Again, without research there is no data to evaluate the effects of these permanent changes. Given that there already have been major reductions in trawl

impacts and that we lack objective data to base decisions on it would be prudent to take an incremental approach to develop meaningful regulatory measures. All of the needed action can be taken within the normal regulatory process and does not require a separate program.

Alternative D.1 is the appropriate alternative for research and monitoring. All of the proposed alternatives are added regulations on fishermen; however, it is not clear how these will further EFH objectives. Logbooks and VMS should be addressed in the normal regulatory process, since all of the alternatives, except research reserves, relate to management of catch and effort. In the case of research reserve,s it is premature for the Council to establish a “reserve system” without consideration of the effectiveness of this system and its affect on fishing. NMFS has a scientific study group working on developing an approach to studying reserves. The PFMC should wait until these studies are prepared before considering reserves. However, there is a pressing need to quantify fishing effects on habitat if, in fact, there are any significant fishing effects to habitats currently fished.

Sincerely yours,

Michael Retherford
Captain, F.V. Excalibur

Cc: PFMC
Hal Weeks, ODFW

Sent via the WebMail system at carrollsweb.com

OREGON STATE UNIVERSITY

Dr. Mark A. Hixon
Department of Zoology
Oregon State University
Corvallis, OR 97331-2914

phone: 541-737-5364 fax: 541-737-0501 e-mail: hixonm@science.oregonstate.edu http://www.onid.orst.edu/~hixonm/index.htm

10 May 2005

Mr. D. Robert Lohn, Regional Administrator
National Marine Fisheries Service
7600 Sand Point Way
Seattle, WA 98115-0070

re: Comment on 2005 Pacific Coast Groundfish DEIS

Dear Mr. Lohn:

I wish to endorse the comprehensive review of the EFH-DEIS submitted by an independent panel of academic scientists appointed by the Pacific Marine Conservation Council: Dr. Selina Heppell of Oregon State University (Chair), Dr. Peter Auster of the University of Connecticut, Dr. Don Gunderson of the University of Washington, Dr. Ralph Larson of San Francisco State University, and Dr. Les Watling of the University of Maine.

All of these marine scientists are respected experts on EFH-related issues, both regionally and nationally, ranging from spatially explicit population dynamics (Heppell), to groundfish habitat assessment (Auster), to West Coast groundfisheries (Gunderson), to rockfish recruitment and population structure (Larson), to benthos and biogenic habitat (Watling).

As the sole West Coast academic fish biologist serving on the Marine Protected Areas Federal Advisory Committee (http://mpa.gov/), I find the report by this panel of experts to be objective, thoughtful, and reasonable. I fully endorse their recommendations regarding the EFH-EIS alternatives, and urge NMFS and PFMC to consider their assessment carefully.

Thank you for considering my suggestions.

Sincerely,

Mark A. Hixon
Professor

cc: Oregon Department of Fish and Wildlife
Pacific Fisheries Management Council
Pacific Marine Conservation Council

May 6, 2005

Robert Lohn
Regional Administrator
National Marine Fisheries Service
7600 Sand Point Way, NE
Bldg 1
Seattle, WA 98115

Dear Mr. Lohn:

The Fishermen's Marketing Association represents commercial groundfish and shrimp trawl fishermen in Washington, Oregon, and California.

We are pleased to have the opportunity to provide comments on the Draft EIS for Groundfish Essential Fish Habitat. We have followed this issued since the passage of the Sustainable Fisheries Act in 1996 and the effort made by the Pacific Fishery Management Council to comply with the mandate of Congress to address this issue at that time.

This recent effort by NOAA Fisheries in assisting the Pacific Council to comply with the Court Order to prepare a new EIS has been an enormous task, requiring much work on the part of the Agency as well as the Council staff. The product, while comprehensive and greatly detailed, provides the public little guidance on the practical need for many of the measures.

The alternatives presented to limit the impact of fishing gear on the habitat are very broad ranging from status quo to complete closures of a substantial amount of area. There seems to be no standards or criteria that must be met, which would help evaluate whether any of the alternative achieve a goal. Therefore, the document presents a full range of alternatives from which the Council has great discretion to select from.

We are familiar with the Council process and support this open and transparent forum to develop fishery management measures. However, in this situation, the far reaching implications of some of the alternative in the EIS has led us to develop our own trawl industry proposal that falls within the range of alternatives that have been analyses in the EIS. Our goal has been to make recommendations for areas that could be closed to groundfish trawling while minimizing the negative economic impacts upon the fishery and the coastal communities. We will be submitting our proposal to the PFMC by their

briefing book deadline of May 25, 2005, so that our alternative may be given consideration at the Council's June meeting in Foster City.

It is our hope and wish that NOAA-Fisheries will work with the trawl industry to help identify the impacts of our proposal and provide the PFMC with an analysis by which a comparison with other alternatives may be made. We have been working with the three States on summarizing information about our proposal which will describe the economic impact of our proposed closure; however, the ability of the States to provide information about the bottom substrates found within our proposed areas is limited. Therefore, we would like the assistance of NOAA-Fisheries in compiling this information from the databases that the agency has used to characterize the bottom in some of the other alternatives.

Thank you for this opportunity to provide comments and we look forward to working with your staff on this new alternative.

Sincerely,

Peter Leipzig
Executive Director

cc: Don Hansen, Chair, PFMC
FMA Board of Directors

F/V Regina

Thomas J. Stickel
938 Pacific Street
Morro Bay, CA 93442

May 11, 2005

D. Robert Lohn, Regional Administrator
c/o Maryann Nickerson
National Marine Fisheries Service
7600 Sand Point Way NE
BIN C15700, Bldg. 1,
Seattle, WA 98115-0070

Via email: GroundfishEFHDEIS.nwr@noaa.gov;

Susan A. Kennedy
NOAA Strategic Planning Office (PPI/SP)
SSMC3, Room 15603
1315 East-West Highway
Silver Spring, MD 20910

Via email: nepa.comments@noaa.gov.

Re: Comments on 2005 Pacific Coast Groundfish EFH DEIS

To Whom It May Concern:

I am an open access fisherman who utilizes vertical hook-and-line gear. I have fished for a living all of my adult life, and I earn 100 percent of my income from fishing.

For many years, a large percentage of my income was derived from fishing vertical gear for chilipepper rockfish, working from about the Cordell Banks to the Channel Islands; that fishery is now virtually closed to me forever. In order to replace this lost income, in recent years I have fished the same type of vertical hook-and-line gear for blackgill rockfish, with some incidental blackcod. In 2004, I carried a federal observer on board my vessel on numerous occasions. It was observed that my fishery had no bycatch.

The only fishing grounds accessible for me to be able to participate in this fishery from my homeport of Morro Bay, California, is the Santa Lucia Banks. I have already been displaced from all closer grounds, where I traditionally fished for chilipeppers. Please do not close the last place I have left to fish this highly selective gear type.

Thank you for your consideration of my comments.

Sincerely,

/s/THOMAS J. STICKEL

Thomas J. Stickel

EXCLUSIVE FRESH, INC.
"Purveyors of Fine Seafood"
PRINCETON BY-THE-SEA

Exclusive Fresh, Inc.
P.O. Box 308
165 Airport St.
El Granada, CA 94018
(650) 728-7321 • (650) 728-7322
FAX (650) 728-7372

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April 7, 2005

D. Robert Lohn, Regional Administrator
c/o Maryann Nickerson
National Marine Fisheries Service
BIN C15700, Bldg. 1
7600 Sand Point Way NE
Seattle, WA 98115-0070

Dear Mr. Lohn;

I am writing to comment on 2005 Pacific Coast Groundfish EFH DEIS.

I am a wholesaler and retailer of seafood based in the San Francisco Bay Area. As a firm supporter of sustainable fisheries, I believe in the need to protect essential fisheries habitat. But I also support fishermen who attempt to fish "clean" and believe in the need to differentiate between gear which adversely impacts EFH and gear that does not.

The Scottish Seine is very light and easily damaged encircling gear which can only be used over soft bottom. Since even the presence of a small anomaly on the seafloor bottom damages or prevents this gear from fishing, hard bottom EFH is avoided at all cost. Unlike a bottom trawler, the Scottish Seine fishing vessel uses only minimal power to maintain orientation; there is no active towing of the net. Rather, the net is slowly gathered and reeled in hydraulically, further reducing the possibility of impacting EFH.

When choosing the final EFH EIS please take under advisement the benign nature of the Scottish Seine and consider precluding it from any fishing prohibition. It is important to protect EFH but at the same time I feel it is important for NMFS to encourage low EFH impact methods of sustainable fishing such as the Scottish Seine.

Thank you for your consideration,

Phil Bruno
Owner
Exclusive Fresh, Inc.

cc: Susan Kennedy, NOAA

EXCLUSIVE FRESH, INC.
"Purveyors of Fine Seafood"
PRINCETON BY-THE-SEA

Exclusive Fresh, Inc.
P.O. Box 308
165 Airport St.
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FAX (650) 728-7372

April 27, 2005

D. Robert Lohn, Regional Administrator
c/o Maryann Nickerson
National Marine Fisheries Service
7600 Sand Point Way NE
Bin C15700, Bldg. 1
Seattle, WA 98115-0070

Dear Mr. Lohn,

I am a seafood wholesaler in El Granada, a firm supporter of sustainable fisheries, and the need to protect essential fisheries habitat (EFH). I also support fisherman who attempt to fish using non-destructive methods which do not catch or impact other species of fish. There is a need to differentiate between destructive methods and those that are not.

The Scottish Seine is a gear which is non-destructive and will not impact an EFH. It is a very light and easily damaged encircling gear that can only be used over soft bottom. A presence of even the smallest anomaly on the bottom results in damage and prevents the gear from fishing a hard bottom EFH. Unlike a bottom trawl that is able to fish and damage the hard bottom, Scottish Seines do not actively tow. Instead the net is gathered slowly and reeled in hydraulically. This method greatly reduces and often eliminates any possible impact to an EFH.

Presently, I believe that Scottish Seine has been placed in the category of trawl gear in many of the proposed EFH's. Due to this improper inclusion in the trawl category, Scottish Seine fishing is prohibited.

When determining the final EFH, please exclude Scottish Seine from any fishing prohibitions designed to protect fish from trawling methods. While it is important to protect an EFH, it is also important for NMFS to encourage non-destructive fishing methods, such as the Scottish Seine, that do not impact the bottom and help reach the goals of the EFH.

Thank you for your consideration.

Sincerely,

Philip L. Bruno
President/Owner
Exclusive Fresh, Inc.

MOSS LANDING HARBOR DISTRICT

7881 SANDHOLDT ROAD
MOSS LANDING, CA 95039

TELEPHONE - 831.633.5417
FACSIMILE - 831.633.4537

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May 5, 2005

Mr. D. Robert Lohn, Regional Administrator
c/o Maryann Nickerson
National Marine Fisheries Service
7600 Sand Point Way NE - BIN C15700 Bldg. 1
Seattle, WA 98115-0070

Subject: Comments on the "2005 Pacific Coast Groundfish Fishery Management Plan - Essential Fish Habitat Designation and Minimization of Adverse Impacts" DEIS - Support of Modified Alternatives of Collaborative Efforts between Environmental Non-Governmental Organizations and Fishermen and Protection and Consideration of Impacts to Coastal Communities

Dear Mr. Lohn:

Thank you for this opportunity to comment on the "Groundfish Essential Fish Habitat Designation and Minimization of Adverse Impacts Draft Environmental Impact Statement (DEIS)." We support the Pacific Fisheries Management Council (PFMC) and National Marine Fisheries Service (NMFS) efforts to assist the environmental and socioeconomic effects of the alternatives presented in the Draft EIS. Our comments are broad in scope on the fisheries issues but are focused on the effects of the Essential Fish Habitat program on local coastal communities and fishing dependent harbors.

The Magnuson-Stevens Act and a 2000 court order require the preparation of this DEIS. The purpose of this DEIS is to evaluate the effects of fishing on essential fish habitat and to identify measures that will minimize those impacts to the extent practical. The project will also designate "Habitat Areas of Particular Concern" and identify other actions that encourage the conservation and enhancement of Essential Fish Habitat (source: DEIS). The Pacific Coast Groundfish Management Plan (FMP) will ultimately be amended to incorporate the alternatives selected by the PFMC and as may be approved by the NMFS.

Current Joint Efforts

There are an estimated 23 permit holders that we believe regularly trawl in central California region, some of whom offload at the Moss Landing Harbor. We support the efforts of the environmental non-governmental organizations (NGO's) and these 23 commercial fishermen (and their associated representatives) to see if they can agree on designated zones in the study area (such as Alternatives C.10 and C.12 as may be modified) as no-bottom trawl zones. Of course, other areas would remain available for trawling and other types of fishing, for both sport

and commercial take. It is my understanding that the NGO's, individuals and Fishing Associations (local Fishermen's Associations, FMA, PCFFA and others) are working to identify areas they think should be kept open to bottom trawl fishing and those remaining areas to be closed to bottom trawlers. We strongly support these efforts and recommend that whichever alternatives are eventually submitted to the PFMC be taken seriously and adopted by NMFS and the Commerce Department. We believe that the collaborative efforts of the NGO's and the Fishermen will ultimately result in the best alternative for the central California coast area for designation of the Essential Fish Habitat, meeting the requirements of the court order and the Magnuson-Stevens Act, et seq.

We request both the PFMC and NMFS allow the NGO's to continue working with the trawl fishermen (who will be most impacted) in order to prepare recommendations on open trawl areas and trawl closed zones within the central California coast study region. We expect these groups to provide a preliminary zoning plan for at the PFMC meeting in June 2005. We support any alternative submitted by a collaborative group effort of NGO's and commercial fishermen.

We respectfully request that both the PFMC and the NMFS accept and support any Alternative submitted by any joint effort of these groups as one of the preferred alternatives in the EFH EIS, and allow the fishermen and NGO's to continue their collaborative work with the commercial fishermen, that is, to identify essential fish habitat, to designate habitat areas of particular concern, to minimize, to the extent practical, the adverse effects of fishing on the essential fish habitat, and to identify other actions that will encourage the conservation and enhancement of the essential fish habitats within any modified Alternative for this region.

Potential Impacts on Ports, Harbors and Coastal Communities

There are many small ports and harbors that have mutually beneficial relationships with fisheries industries, both sport and commercial, within the study region. These small craft harbors rely on the fisheries to provide steady jobs and act as an economic engine to keep the community vibrant. In the case of central California harbors, the past few years of increased regulatory actions have had a drastic negative affect on the ability of the fishing fleets to continue making a profit, which has a direct effect on the coastal host community (harbors and marinas). The implementation of yet another regulatory action (closure) will have a great economically adverse effect on these local communities. Therefore, we ask that both the PFMC and the NMFS carefully consider the socioeconomic effects of any designation of essential fish habitat in the central California region.

We understand that it is very difficult to quantify the social and economic effects of such a project or plan and cannot offer specific verifiable evidence of those effects, other than our past experience and day-to-day observation of the fishing industry and the benefits it has on our communities. There is a synergy that occurs which is un-measurable in terms of cash value that needs to be considered in the development of fishing regulations, including the designation of essential fish habitats on the west coast. The public comes to the ports and harbors and enjoys getting their fresh seafood while watching the boats offload their catch. Without that, these small craft harbors become stagnant and turn into yacht harbors for the rich. The little guys are forced out and the working harbors cease to exist. We have seen this in southern California harbors and

hope that that does not happen here. Please be careful in the implementation of the EFH and take these comments into consideration when doing so.

Again, we thank the Council and Fisheries Service for your consideration of this alternative. We are available for future discussions on this issue. Should you require additional information please contact me by email at mcintyre@mosslandingharbor.dst.ca.us or by telephone at (831) 633.5417.

Sincerely,
Moss Landing Harbor District

Linda G. McIntyre
General Manager/Harbormaster

LGM:mdm

C: MLHD Board of Harbor Commissioners
Dr. Rebecca Lent, Dept. Asst. Administrator – Regulatory Programs, NMFS
Mr. Steve Copps, Sr. Policy Analyst, NMFS
Mr. Don Hansen, Chair, PFMC
Moss Landing Harbor Commercial Fisherman's Association

Mr. D. Robert Lohn
NMFS
C/o Maryann Nickerson
7600 Sandy Point Way, NE
Bin C 15700
Seattle, WA 98115-0070
May 4, 2005

Dear Sir,

I am writing to express my concerns with several of the proposals being considered by the NFMS about closures to areas of the Oregon coast.

One proposal would ban all bottom-contact fishing. This would eliminate all bottom fishing including crabbing in those areas. That seems a very severe measure, especially based on the lack of good scientific evidence that sport fishing or crabbing has a big impact on the fishery.

Sport fishing has been the lifeblood of many small communities along the Oregon coast and represents a substantial infusion of money to local and the state economy.

Another proposal would close certain, "Ecologically Important Areas", to all fishing. Who decides what areas and what data supports that sport fishers have impacted the fishery. Sport fishermen have historically been very responsive in following guidelines for bag limits, size and gender identification. Little or no EIS data is based on sport fishing. It is based almost exclusively on Trawl Data.

Please take into account when you consider the current closure proposals that the sport fishing fleet does represent a major influence on the economy and does virtually no harm to the ecology or the fishery.

Sincerely Yours,

Edmund Keene
920 SW 13th Ave.
Portland, OR 97205

Email; ekeene@ecomphotos.com

Subject: Comments on 2005 Groundfish DEIS
From: "George Alderson" <george7096@comcast.net>
Date: Tue, 10 May 2005 13:59:21 -0400
To: <GroundfishEFHDEIS.nwr@noaa.gov>
CC: <pfmc.comments@noaa.gov>

Mr. D. Robert Lohn, Regional Administrator
National Marine Fisheries Service, Northwest Region

Dear Mr. Lohn:

Please consider our comments which follow in reaching decisions on the 2005 groundfish DEIS. I (George) grew up in Oregon, and my sister's family still lives there. Here in Maryland we consume fish from the Northwest that arrive through commercial channels.

We ask NMFS to adopt a top priority of assuring a sustainable, natural fishery resource. We would like to see increased protection for sensitive habitat such as kelp, sponges and corals, essential factors to support groundfish populations. We ask NMFS to adopt policies that will encourage fishing operators to adopt fishing gear that is less destructive to the habitat and to non-target species of fish and invertebrates.

NMFS should identify examples of the main habitat types and protect reserved areas to serve as ecological benchmarks, somewhat like using exclosures and research natural areas in terrestrial habitat management. Reference reserves should be established to give researchers a basis for identifying the impacts of fisheries on all the habitat types in the region.

At any time when essential information for decisionmaking is lacking, "precautionary management principles" should be used.

NMFS should adopt a management plan based on the natural ecosystems. This is an essential foundation for managing fisheries over the long term, so we will have a productive marine fishery in the future.

Thank you for considering our views.

Sincerely,
George & Frances Alderson
112 Hilton Ave.
Baltimore, MD 21228-5727
Tel. 410-788-7096
Email: george7096@comcast.net

Subject: Comment on 2005 Pacific Coast Groundfish EFH DEIS
From: Tom Aldridge <thomasaldridge95112@yahoo.com>
Date: Fri, 6 May 2005 12:58:14 -0500
To: GroundfishEFHDEIS.nwr@noaa.gov

May 6, 2005

Regional Administrator D. Robert Lohn
7600 Sand Point Way NE
Seattle, WA 98115-0070

Dear Regional Administrator Lohn,

I kind of think it is almost hopeless to get our government to actually protect and save our marine life because it seems to me that the law of the day is to let business do anything to make a profit even if it causes the death of all kinds of species and even if it means mass extinction of all kinds of marine life.It seems to me that if our government continues to act with little care for the oceans and the fish and the marine life, this will truly become the century of mass extinction.Year after year we read of the crisis in the oceans and year after year business intersts seem to run amuk and kill all they can kill and the government simply does nothing to stop this slaughter.Remember how close we came to killing all the buffalo-and how about the number we did on the carrier pigeon!!Our government seems to be incapable of protecting the great works of God and only capable of protecting big business and their right to destroy the works of God and all life in the sea!!I urge you to protect ecologically important and sensitive ocean habitats, including deep water corals and sponges, from destructive fishing practices in the Pacific Ocean.

The waters off the West Coast of the United States contain a diversity and abundance of ocean life, including ecologically and economically important fish species. Sadly, years of unsustainable fishing practices have decimated many fish populations to dangerously low levels and damaged the habitat they need to flourish. Studies have shown that fishing gears such as bottom trawls, which are widely used on the West Coast, damage sensitive marine habitats. Right now you have the opportunity to protect and restore the ocean habitats necessary to sustain our marine life by protecting ecologically important and sensitive areas from destructive fishing practices such as bottom trawling.

I am particularly concerned about the protection of deep water coral and sponges that recent studies have shown occur off the West Coast. These organisms, which can live for centuries, are highly susceptible to damage from fishing. I urge you to protect these areas from further damage by prohibiting the expansion of bottom trawling and protecting known areas of coral and sponge.

Thank you for the opportunity to present these comments.

Sincerely,

Mr. Tom Aldridge
296 S 13th St
San Jose, CA 95112-2143

Subject: "Comments 2005 Groundfish DEIS"
From: Karen Meyer <karen@greenfireproductions.org>
Date: Tue, 10 May 2005 19:48:04 -0700
To: GroundfishEFHDEIS.nwr@noaa.gov
CC: pfmc.comments@noaa.gov, Hal.Weeks@state.or.us

May 11, 2005

Mr. D. Robert Lohn, Regional Administrator
National Marine Fisheries Service, Northwest
Region 7600 Sand
Point Way NE, BIN C15700
Seattle, WA 98115-007

Dear Mr. Lohn:

I attended the recent Essential Fish Habitat meeting in Newport, Oregon at the end of April and wanted to submit the following comments for your consideration for decisions that will be made on the Groundfish Essential Fish Habitat Draft Environmental Impact Statement (DEIS).

Because the DEIS is so complex, the alternatives quite numerous, and the fact that I do not feel qualified to comment on specific alternatives, I will make more general comments and suggestions to the Pacific Fishery Management Council.

Based on the meeting in Newport, I am concerned that the specific needs of fishermen will carry more weight than the scientific knowledge about the state of groundfish and their potential habitat protection needs. I encourage you to strongly consider the scientific recommendations.

In general, I feel it is imperative for the PFMC to take a precautionary approach to management of Pacific groundfish, while we improve our limited understanding of the impacts of fishing on diverse habitats and the ability of habitats to recover from fishing impacts. In fact, the Oregon State of the Environment Report 2000 states, "the most significant risk to marine fisheries Š is our insufficient understanding of the complex interactions of natural and human caused changes in stock health." It is crucial, therefore, that the PFMC err on the side of caution in protecting and restoring Pacific groundfish and habitat.

I strongly encourage the PFMC to consider the need for connectivity between habitats, so that these habitat reserves can provide the added benefit of enhancing groundfish populations. I encourage you to include a network of research reserves in PFMC's effort to designate, protect and understand present and future EFH. By monitoring and analyzing impacts and effectiveness in these reference sites, the PFMC can glean new knowledge, engage in adaptive management and move forward more confidently with fishery management, basing its decisions on sound science.

Utilizing the principles of ecosystem-based management, the PFMC should develop an ecologically based management plan that considers the entire ecosystem, including humans, and protects the long-term health of the marine environment**.** This plan should think beyond protection of single species, and consider the inherently interrelated nature of all marine species and habitat types, as well as potential past, present, future and cumulative human impacts on these environments.
I feel it is important that all possible EFH protection measures be adopted in the near-term, rather than deferring measures for future understanding. This precautionary implementation should then be modified accordingly, based on the principles of adaptive management, as new information is gathered, during the mandatory five-year review process.

Overall, I believe it is important to:
* manage and make these decisions on a precautionary principle,
*increase protection for sensitive habitat types such as kelp, corals and sponges that are essential to groundfish productivity,
* protect a representative sample of unique habitat types from all types of fishing impacts,
* include connectivity as a criteria for designating EFH - so that the habitat reserves have the potential to replenish groundfish stocks,
* make it easier for fishermen to change to less destructive gear,
* establish a network reference reserves in order to better understand fishery impacts on all habitat types.

Thank you for your efforts to protect essential fish habitat for Pacific groundfish.

Karen Anspacher-Meyer

- -

Karen Anspacher-Meyer
Executive Director
Green Fire Productions
karen@greenfireproductions.org
www.greenfireproductions.org
541-486-4070 fax 541-486-4010
P.O. Box 14906, Portland, OR 97293

April 13, 2005

Dr. Robert Lohn
Administrator, Northwest Region
National Marine Fisheries Service
7600 Sand Point Way, NE
Seattle, WA 98115-0070

NOAA-NMFS
RECEIVED
APR 18 2005
NORTHWEST REGIONAL OFFICE

Dear Administrator Lohn:

Re: Comment on 2005 Pacific Coast Groundfish EFH DEIS
Please adopt Alternative 12

I am writing because a healthy Pacific Ocean is crucial for our way of life, which includes our economy and recreation.

For more than three years, Oceana has been bringing science and information to the Pacific Fishery Management Council and NOAA regarding the importance of protecting deep-sea corals and sponges from bottom trawling.

I support protecting ecologically sensitive areas of the Pacific seafloor such as corals and sponges, and special places such as seamounts, biogenic areas, and deep sea canyons from destructive commercial fishing.

Deep-sea corals are a true natural wonder. Deep-sea corals are perhaps the oldest living seafloor animals on the planet. Extremely sensitive to disturbance and slow growing, these ancient animals can live hundreds of years. Corals, sponges, and other living seafloor animals provide oases of life on the seafloor, supporting ecological diversity crucial for healthy sustainable oceans.

Bottom trawling destroys far more ocean habitat than any other fishing practice on the West Coast. Commercial fishing vessels drag large weighted nets across the ocean floor, clear cutting a swath of habitat in their wake. When disturbed by bottom trawling, as much as 90% of a coral colony may perish, and up to 67% of sponges may be damaged.

Corals, sponges, and other living seafloor animals are important for healthy sustainable oceans. These animals cannot withstand the destructive fishing practice of bottom trawling.

Because living seafloor is not found everywhere, it is possible to both protect this important ocean habitat while maintaining vibrant fisheries.

This can be accomplished by prohibiting bottom trawling in areas where corals, sponges, and other living seafloor animals or known or likely to exist.

As you consider the Essential Fish Habitat Draft Environmental Impact Statement, please adopt Alternative 12, which protects habitat and maintains vibrant fisheries.

Thank you for your consideration and help in this urgent matter.

Respectfully,

J. Capozzelli

J. Capozzelli
315 West 90th Street
New York, NY 10024

Subject: Comments 2005 Groundfish DEIS
From: "Frank Quinn" <marfran@harborside.com>
Date: Tue, 10 May 2005 17:37:43 -0700
To: <GroundfishEFHDEIS.nwr@noaa.gov>

Mr. Robert D. Lohn, Regional Administrator

National Marine Fisheries Service, Northwest Region

Dear Mr. Lohn:

In developing policy for protecting marine habitats and managing offshore fishing within federal waters, surely two of the primary concerns of the Pacific Fisheries Management Council will be how to promote sustainable fishing to meet the needs of our growing population, and how to advise and assist fishermen to develop practices that assure a viable future for the industry.

In our area, where groundfish are particularly important, the fishing industry is already hurting and has been in serious decline for years. Overfishing and the use of bottom trawl nets and other heavy fishing gear have depleted fish stocks and caused much damage to the marine habitats the fish depend on for sustenance. Effective measures to protect those critical habitats and to regenerate and restore fish populations are essential if commercial fishing is to have a future here along the Pacific Coast.

We urge strongly that the Council adopt policies that will increase protection of sensitive habitats needed for the replenishment of groundfish stocks, and that representative sample habitat areas be reserved and protected from all types of fishing impacts for future study and as a source for regenerating fish populations. We hope the Council will be able to assist fishermen to develop and employ fishing gear and techniques that are less destructive than those that have caused so much damage.

Lastly, we believe that an ecosystem-based management plan that truly protects the long-term health of the marine environment offers the only promise for the future of fishing here on the West Coast, both as an important local industry, and as an essential economic resource for the country as a whole.

Sincerely,

Francis E. Quinn and Marjorie Feldman

425 Bandon Ave., SW

Bandon, OR 97411

Subject: EFH Alternatives- Public Comments sought
From: "sheri hafer" <somethingsfishy@charter.net>
Date: Wed, 13 Apr 2005 10:03:18 -0700
To: <GroundfishEFHDEIS.nwr@noaa.gov>

Dear Mr. Robert Lohn,

Yet again a heavily financed enviromental group(Oceana) is pushing their agenda of removing fisherman from existance. Despite now 10 years of heavy regulatory action protecting the groundfish, they still aren't happy until we are all out of business.
In the middle of listening to all the rheotoric regarding the implementation of The MLPA on the central coast attempting to make essentially most of our fishing grounds no-take zones, we receive your notice of further attacks on the fishing community. Honestly, does anyone consider that if this continues we will be importing all our fish from disease ridden fish farms, or unregulated fisheries of foreign countries. California has vast resources that are being wasted. The fishery managers should use simple tools to regulate the groundfishery, ie seasonal closures, size limits on the nearshore, quotas, gear modifications, mammal population controls, etc but chooses to continue with complex models of unending restrictions as if the fishery is not protected enough only because of these pretensious enviromental idealist and their money.
I am a trap fisherman for nearshore live-fish and spot prawns. I have been dealing with the development of a Nearshore Fishery Management Plan for the last 8 years including a 80% reduction in TAC, restricted access from 1200 to 200 permits, gear limits and modifications including a 5"ring to prevent large fish into the traps, trip limits, state wide allocations etc. With the spot prawns, all trawling was stopped and a restricted access program is in place with less than 30 permits. I have carried a Federal Observer the last 5 years with results demonstrating less than a 2% bycatch rate. The California nearshore fisheries are catch and release selective harvesting. It is the cleanist fishing in the world. How can you justify eliminating it?
Many fisherman are going out of business, there was a 50% reduction in fisherman just in our local Morro Bay community. We lost our local weather bouye and weather station recently with no effort to replace them. I feel the state/feds are too biased towards the enviromental community and letting the fishing communities die on the vine. 10 years from now, after the currrent older fisherman retire, their will not be commercial fishing in California at the rate we are going because it will be economically impossibe to survive, but maybe that is what everyone seems to want. Tom Hafer

Subject: Comment on 2005 Pacific Coast Groundfish EFH DEIS.
From: "Gayle Hansen" <gayle.hansen@oregonstate.edu>
Date: Tue, 10 May 2005 15:16:32 -0700
To: <GroundfishEFHDEIS.nwr@noaa.gov>
CC: <nepa.comments@noaa.gov>

Dear Dr. Robert Lohn and Susan Kennedy,

I briefly looked over the Draft EIS on essential fish habitat for groundfish. I was happy to see some mention of kelp beds as habitat structure for fish. But there are many things missing from the statement about seaweeds in general and their importance to ground fish.

In the Estuary chapter, you mention the importance of seagrasses to fish, but you overlook the tons of ephemeral green algae and diatoms that infest our bays also providing shelter and/or food (through the food chain) for fish and other animals. On the outer coast, multiple seaweed species provide shelter for fish -- and both seaweeds and phytoplanton provide essential food sources for fish through the food web. I recently asked Rick Brodeur, who works on food chain dynamics, how many pounds of algae (both phytoplanton and seaweeds) it takes to make 1 pound of salmon -- he said "about 1000 pounds". I had to determine how he calculated this 1000:1 ratio -- but you would have to go through at leasst 4 trophic levels, each with only 10% efficiency, to get to salmon -- so this does appear to be accurate -- and it is undoubtedly the same for groundfish. Also, in an early report by Leigh et al. (1986), kelps and rockweeds were determined to be more productive per unit area per year than plants in any other ecosystem on earth, exceeding even those in tropical rain forests -- and far exceeding the seagrasses.

If algae (both phytoplanton and seaweeds) are so essential to the habitat and diet of fish, including groundfish, I feel that it should receive more ephasis in your EIS. If seaweed beds (both kelp and other seaweeds) were destroyed, groundfish and many other fish would suffer tremendously and more than likely many would be wiped out.

Although I don't have the statistics on this, I find it astonishing that so few government agencies have marine botanists working for them on this very subject. As far as I can tell, NOAA doesn't have a single marine botanist in their Habitat division. The state of Oregon has put their Parks Department in charge of seaweeds, but they don't seem to have a clue about their importance.

In the terrestial environment, dominant tree types and other plants are well recognized for their importance to animals. It is such an undeniable fact that I cannot figure out why this hasn't happened in the marine environment. Without the shelter, food, and oxygen provided by these "plants" (both phytoplanton and seaweeds), there would be no fish out there. Many freshwater algae are considered to be indicator species of environmental change. Their tolerances to changes in temperature, water chemistry, and light are minimal, and when they die, it is obvious something is awry. This is also true of many marine algal species, but they have yet to be studied to recognize which ones are actually true indicator species. There has been little money available for this in the past -- explaining the lact of data.

I hope that you will rewrite this EIS to include more emphasis on these important organisms so that we can recognize their critical role in the marine environment and determine how to use them as indicator species in order to prevent future catastrophies like the depletion of our groudfish stocks.

Sincerely,

Gayle Hansen
Associate Professor, Oregon State University
Hatfield Marine Science Center
2030 SE Marine Science Drive
Newport, Oregon 97365

gayle.hansen@oregonstate.edu

Subject: Restore Ocean Habitat
From: "Ben Kitchen" <bkitchen@hotmail.com>
Date: Tue, 10 May 2005 19:40:09 -0700
To: <GroundfishEFHDEIS.nwr@noaa.gov>

Dear Mr. D. Robert Lohn,

My Name is Benjamin Kitchen and I live in Lake Oswego, Oregon. The reason why I am writing you today is to let you and others know that I support sustainable fishing in the Pacific Ocean off of the Oregon coast. The Audubon Society of Portland and I feel it is important that the Pacific Fisheries Management Council take action to:

*** increase protection for sensitive habitat types such as kelp, corals and sponges that are essential to groundfish productivity,**
*** protect a representative sample of unique habitat types from all types of fishing impacts,**
*** make it easier for fishermen to change to less destructive gear,**
*** establish a network reference reserves in order to better understand fishery impacts on all habitat types,**
*** develop an ecosystem-based management plan that truly protects the long-term health of the marine environment.**

As an Oregonian I favor these goals, and that I strongly urge application of "precautionary management principles" in all cases where information needed for decision making is unavailable. Please listen to me, it is our duty as Americans to defend and protect our country. Thank you for your time.
Sincerely,

Ben Kitchen

Subject: Comment on Pacific coast groundfish EFH DEIS
From: Christopher Lish <lishchris@yahoo.com>
Date: Sun, 8 May 2005 18:03:53 -0700 (PDT)
To: GroundfishEFHDEIS.nwr@noaa.gov

D. Robert Lohn
NOAA Fisheries Regional Administrator
7600 Sand Point Way NE
BIN C15700, Bldg. 1
Seattle, WA 98115-0070

Dear Administrator Lohn,

As you consider alternatives to protect Pacific groundfish habitat, I urge you to close ecologically important areas to destructive gears, such as bottom trawls, and to create areas where all groundfish and their habitats are protected.

"A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."
-- Aldo Leopold, The Conservation Ethic

Pacific groundfish are in trouble. Years of heavy fishing have taken their toll so that today both the fish and the fishermen are suffering. We must take steps today to restore our oceans so that our marine wildlife and our fisheries can thrive in the future. Protecting essential fish habitat is one of the most important steps on this path.

"An unwritten compact between the dead, the living and the unborn requires that we leave the unborn something more than…depleted natural resources."
-- A Washington State Court decision

Deep-sea corals, sponges, and rocky reefs are part of the seascape that supports ocean life and must be preserved. I also support actions that would help fishermen move away from destructive gears to more sustainable fishing.

"The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired, in value."
-- Theodore Roosevelt

I value the oceans and I want to see them healthy and vibrant in the years to come. I ask you to take real action now to protect underwater habitats.

Thank you for your consideration of my comments. Please let me know how you intend to proceed on this issue. I look forward to your response. Please respond by e-mail to lishchris@yahoo.com if possible.

Sincerely,
Christopher Lish
PO Box 113
Olema, CA 94950
lishchris@yahoo.com

Yahoo! Mail
Stay connected, organized, and protected. Take the tour

May 4, 2005
Mr. D. Lohn
Regional Administrator. NMFS
C/o Maryann Nickerson
7600 Sandy Point Way, NE
Bin C15700
Seattle, WA 98115-0070

Comment on 2005 Pacific Coast GroundfishDEIS

Dear Administrator,

I am a member of the Recreational Fishing Alliance and also an avid fisherman paying taxes in both Oregon and Washington and am opposed to regulators closing vast areas of the coastal zones to the new EIS regulations. I respectfully recommend that your office consider the economic disaster of imposing these new unproven regulations on the coastal communities that thrive on tourists visiting and recreating in these public areas. These is no justifiable rationale or studies that prove these area need to be closed to the public harvesting species within these areas. It is an unreasonable program developed without sufficient analysis and is not justifiable, regardless of any support the plan may have. I believe the National Marine Fisheries Service needs to better evaluate the impacts of these proposals and preserve fishing opportunities for future generations of anglers. I also believe that this plan is an economic disaster waiting to happen to the already economically depressed coastal communities.

The National Marine Fisheries Service has not fully analyzed the potential impacts on the anglers who harvest and recreate these areas. I for one will review my monies spent on the Oregon Coast and all the clients that I draw to the coast to fish the waters off Oregon and Washington. I will better manage my assets and tax dollars and reinvest in areas that Are not impacted by these inappropriate regulations.

Sincerely,
Tom Merriman

cc. PFMC, ODFW Marine Resources Program

City of Morro Bay
Morro Bay, CA 93442 • 805-772-6200
www.morro-bay.ca.us

May 10, 2005

Mr. D. Robert Lohn
Regional Administrator, National Marine Fisheries Service
c/o Maryann Nickerson
7600 Sand Point Way, NE
Bin C15700
Seattle WA 98115-0070

RE: COMMENT ON 2005 PACIFIC GROUNDFISH
DRAFT ENVIRONMENTAL IMPACT STATEMENT

The City of Morro Bay treasures its fishing heritage and local commercial fishing fleet that provides fresh seafood for this country in a highly regulated and sustainable environment. Our harbor and its commercial fishing businesses depend on groundfish landings to support the harbor infrastructure, since many of our fishermen are mainly albacore, crab or salmon permittees with actual landings in the ports north of Morro Bay. Our City has suffered from the reductions in groundfish quotas, seasonal restrictions and area closures to the extent that the local groundfish market has almost collapsed and just a few of the traditional shore side support businesses are still hanging on.

Currently there are 5 Class A permittees who operate out of our port. That represents trawl fishing effort over two hundred miles of coastline between Santa Barbara Harbor and Monterey Harbor. Each Class A permittee generally fishes between 5-8 days to make their 60 day quota; so on most of the days of the year there IS NO LONGER EVEN ONE DEEP WATER COMPLEX TRAWLER OPERATING ON THIS TWO HUNDRED MILES OF COASTLINE. Yet, the port still does get groundfish, and these are the consistent landings that allow our one remaining full service fish buying dock to keep employees working and pay the bills. The City is dedicated to supporting this remaining fish buying dock and is currently in the process of installing a new $700,000 ice making machine for commercial fishing use at this location.

Clearly the policy of subsidizing more and bigger trawlers in the 1970s was a disaster, but just as clearly the resource for 15 years now has been very lightly harvested compared to historic levels. Many of our local restaurants no longer can get local fresh fish and have turned, like most of the country, to frozen fish which is oftentimes harvested in environmentally damaging ways in unregulated countries. In the last two years we have seen some hope as groundfish prices have gone up a little, quotas increased slightly, (but typically not what was promised) due to the federal buy-back program and Class A permittees have started to see a reasonable economic return for fishing again. We are hopeful that some uncertainty can be relieved for these local businesses and for the City. In this context, we learned about the groundfish essential fish habitat draft environmental impact statement (EFH DEIS).

Many of the alternatives in the DEIS would appear to close fishing grounds to the extent that would eliminate consistent landings in Morro Bay and finally put an end to our commercial fishing harbor. We do not believe it is the intent of the National Marine Fisheries Service to eliminate fresh seafood landings in our area and decimate our City and we urge you to:

♦Work with the fishing industry on alternatives that will protect Essential Fish Habitat, especially those grounds with deep water corals and critical bottom habitat so that we can increase access to the abundant sustainable fishery resources in our area for our City and the seafood consumer.

♦Implement EFH designation for groundfish that have no strings attached or unforeseeable implications for low/no impact vertical gear or traps.

♦Extend the timelines for adoption of groundfish EFH so that the coastal communities/fishing industry can fully engage the discussion with NMFS and the environmental community.

♦Improve the outreach to community and fishing businesses by considering an ombudsman program, enhancing your sustainable fisheries outreach effort or some mechanism to empower local fishermen to give input and build trust with NMFS and the environmental community.

I would close by pointing out that virtually 100% of our commercial fishermen are owner operated small businesses. We don't have the corporate interests that can hire lobbyists that the large processors and factory producers of some other areas have or the money and influence of the environmental NGOs. It is tremendously difficult for a small business owner/operator or a small city for that matter to take the time to become informed on these issues, much less to attend the many meetings that are needed to have an impact. Thus our voices are often not heard or we find that decisions are made at meetings we are unable to attend. Even when we do comment (such as our support of the Federal Buyback Program, provided that the buy-back vessels would not become problems for harbors and the overall science based quotas would remain the same) we have come to have low expectations for results. Currently, two buy-back boats in this harbor are in arrears to the City approximately $4700 and the reallocation in groundfish quotas that were "bought back" has not happened as we felt was promised.

All of the above facts lead to a feeling of lack of empowerment and even distrust of the process that is not conducive to a positive collaborative process. Still, we remain convinced that almost all involved have the same goals of protecting our environment and maintaining sustainable fisheries; so we will continue to try to work with all parties for mutually beneficial solutions.

Please consider our recommendations and help us preserve the important economic and cultural values of allowing an environmentally sound and sustainable fishery to stay on the central coast of California.

Sincerely,

Janice Peters

Mayor Janice Peters

cc: Conresswoman Capps
PFMC

Subject: Comment on 2005 Pacific Coast Groundfish EFH DEIS
From: John Savlove <john@savlove.com>
Date: Fri, 6 May 2005 13:13:41 -0500
To: GroundfishEFHDEIS.nwr@noaa.gov

May 6, 2005

Regional Administrator D. Robert Lohn
7600 Sand Point Way NE
Seattle, WA 98115-0070

Dear Regional Administrator Lohn,

Ideas and projects constantly undergo revision. It is obvious that human endeavors - regardless of their value, which is of course in many cases very high - are tapping our resources at a pace that our minds refuse to comprehend. As the dominant force on this planet, we must take drastic measures now to make up for how successfully we've despoiled the ecology that sustains our lives.
The rest of this text is prepared, but I stand by every word for it because I understand the delicate yet powerful and altogether miraculously logical links between coral reefs, biodiversity, fish habitats, and the cycle of life that permits us to rule as we do. We have a moral AND economic imperative to get really smart and courageous NOW about how we treat our fellow life-forms. To ignore these messages - or even to blithely let them wait until tomorrow - is to betray our virtue and our future. I have seen environmental catastrophe. It is not pretty. In spite of their laziness, normal humans can be taught (or required) to respect our oceanic foundations in the face of greater and greater tragedies.

The waters off the West Coast of the United States contain a diversity and abundance of ocean life, including ecologically and economically important fish species. Sadly, years of unsustainable fishing practices have decimated many fish populations to dangerously low levels and damaged the habitat they need to flourish. Studies have shown that fishing gears such as bottom trawls, which are widely used on the West Coast, damage sensitive marine habitats. Right now you have the opportunity to protect and restore the ocean habitats necessary to sustain our marine life by protecting ecologically important and sensitive areas from destructive fishing practices such as bottom trawling.

I am particularly concerned about the protection of deep water coral and sponges that recent studies have shown occur off the West Coast. These organisms, which can live for centuries, are highly susceptible to damage from fishing. I urge you to protect these areas from further damage by prohibiting the expansion of bottom trawling and protecting known areas of coral and sponge.

Thank you for the opportunity to present these comments.

Sincerely,

Mr. John Savlove
PO Box 19
11 Water St
North Bennington, VT 05257-9516

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
500 NE Multnomah Street, Suite 356
Portland, Oregon 97232-2036

IN REPLY REFER TO
ER05/160

May 3, 2005

Mr. D. Robert Lohn
NMFS, Northwest Region
7600 Sand Point Way Northeast
Bin C15700
Seattle, WA 98115

Dear Mr. Lohn:

The Department of the Interior has reviewed the Draft Environmental Impact Statement for the Pacific Coast Groundfish Fishery Management Plan to Conserve and Enhance Essential Fish Habitat Designation and Minimization of Adverse Impacts, Pacific Coast Exclusive Economic Zone; Washington, Oregon, and California. The Department does not have any comments to offer.

We appreciate the opportunity to comment.

Sincerely,

Preston A. Sleeger
Regional Environmental Officer

Subject: Comments 2005 Groundfish DEIS
From: "Pepper Trail" <ptrail@ashlandnet.net>
Date: Tue, 10 May 2005 20:41:59 -0700
To: GroundfishEFHDEIS.nwr@noaa.gov
CC: pfmc.comments@noaa.gov

To: Mr. D. Robert Lohn, Regional Administrator
National Marine Fisheries Service, Northwest Region
7600 Sand Point Way NE, BIN C15700
Seattle, WA 98115-007

From: Pepper Trail, Ph.D.
Conservation Chair
Rogue Valley Audubon Society
2011 Crestview Drive
Ashland, OR 97520

These comments on the Groundfish Essential Fish Habitat Draft Environmental Impact Statement (DEIS) are submitted on behalf of the Rogue Valley Audubon Society, a chapter of the National Audubon Society with over 500 members in southern Oregon. We are concerned about the declining health of Oregon's fishery resources, and urge that management of groundfish on the Pacific coast be governed by the "precautionary principle." In other words, when data needed for informed decision-making are lacking, the most conservative alternative must be followed; the alternative that is most protective of the fisheries resource. Since there are many critical gaps in our understanding of groundfish ecology, this approach will necessitate significant changes in current management practices.

Specifically, we urge the Pacific Fisheries Management Council to take action in five critical areas:

* establish a network of reserves in order to better understand fishery impacts on all habitat types, * increase protection for sensitive habitat types such as kelp, corals and sponges that are essential to groundfish productivity,
* protect a representative sample of unique habitat types from all types of fishing impacts,
* make it easier for fishermen to change to less destructive gear,
* develop an ecosystem-based management plan that truly protects the long-term health of the marine environment.

Thank you very much.

Respectfully submitted,

Pepper W. Trail, Ph.D.

Subject: Comment on 2005 Pacific Coast Groundfish EFH DEIS
From: "ANGELAD@HAWAII.RR.COM" <ANGELAD@HAWAII.RR.COM>
Date: Fri, 11 Mar 2005 20:28:34 -0500
To: GroundfishEFHDEIS.nwr@noaa.gov

Dear Pacific Fishery Management Council,

Bottom contact gear, such as trawls, longlines, pots and traps, are dangerously destructive to marine life and the habitat they depend on. In your plan to minimize the adverse effects of such gear to essential fish habitat, please close ecologically sensitive areas to bottom trawling and other bottom contact gear, establish a process for setting a limit on the bycatch of habitat-forming invertebrates, such as corals and sponges, and create other provisions agreed upon by conservationists and scientists to protect the health of our oceans for future generations.

Please consider this an official comment on the 2005 Pacific Coast Groundfish EFH DEIS.

ANGELA DECRESCENZI
P.O. BOX 143
KEALAKEKUA, HI 967500143

Subject: Comment on 2005 Pacific Coast Groundfish EFH DEIS
From: "brbptts@aol.com" <brbptts@aol.com>
Date: Mon, 21 Mar 2005 16:26:35 -0500
To: GroundfishEFHDEIS.nwr@noaa.gov

Dear Mr. Lohn, Regional Administrator, National Marine Fisheries Service:

A healthy Pacific Ocean is crucial for our way of life, including our economy and recreation.

A key to keeping the Pacific Ocean healthy is the protection of marine habitats necessary to support its diverse assemblage of ocean life, including economically valuable fish species. Sadly, many of these habitats have and continue to be impacted by destructive fishing practices. I support protecting ecologically sensitive areas of the Pacific seafloor such as corals and sponges; and special places such as seamounts, biogenic areas, and deep sea canyons from destructive fishing practices.

As you consider the Essential Fish Habitat Draft Environmental Impact Statement, please adopt a management alternative that protects these ecologically sensitive habitats necessary to maintain vibrant fisheries.
Barbara Potts
19078 Chaparral Dr
Penn Valley, CA 959469686

Subject: Comment on 2005 Pacific Coast Groundfish EFH DEIS
From: Andrew Ericskson <akerickson@earthlink.net>
Date: Thu, 21 Apr 2005 11:15:48 -0500 (CDT)
To: GroundfishEFHDEIS.nwr@noaa.gov, nepa.comments@noaa.gov

Dear Administrator Lohn,
A healthy Pacific Ocean is crucial for our way of life including our economy and recreation.

For more than three years, Oceana has been bringing science and information to the Pacific Fishery Management Council and NOAA regarding the importance of protecting deep sea corals and sponges from bottom trawling. I support protecting ecologically sensitive areas of the Pacific seafloor such as corals and sponges; and special places such as seamounts, biogenic areas, and deep sea canyons from destructive commercial fishing.

As you consider the Essential Fish Habitat Draft Environmental Impact Statement, please adopt Alternative 12, which protects habitat and maintains vibrant fisheries.
Andrew Ericskson
2209 Marian Pl.

Venice, CA 90291

Subject: Comment on Pacific coast groundfish EFH DEIS
From: "Miranda Vorhees" <DM110104@peoplepc.com>
Date: Fri, 22 Apr 2005 02:22:00 -0400
To: "GroundfishEFHDEIS.nwr@noaa.gov" <GroundfishEFHDEIS.nwr@noaa.gov>

April 22, 2005

D. Robert Lohn
NOAA Fisheries Regional Administrator
7600 Sand Point Way NE
BIN C15700, Bldg. 1
Seattle, WA 98115-0070

Dear Administrator Lohn,

As you consider alternatives to protect Pacific groundfish habitat, I urge you to close ecologically important areas to destructive gears, such as bottom trawls, and to create areas where all groundfish and their habitats are protected.

Pacific groundfish are in trouble. Years of heavy fishing have taken their toll so that today both the fish and the fishermen are suffering. We must take steps today to restore our oceans so that our marine wildlife and our fisheries can thrive in the future. Protecting essential fish habitat is one of the most important steps on this path.

Deep-sea corals, sponges, and rocky reefs are part of the seascape that supports ocean life and must be preserved. I also support actions that would help fishermen move away from destructive gears to more sustainable fishing.

I value the oceans and I want to see them healthy and vibrant in the years to come. I ask you to take real action now to protect underwater habitats.

Sincerely,

Miranda Vorhees
2609 W Oliver Dr
Muncie, IN 47302-2039
USA
DM110104@peoplepc.com

Subject: Comment on 2005 Pacific Coast Groundfish EFH DEIS
From: George Imrie <geodai@webtv.net>
Date: Fri, 6 May 2005 01:02:45 -0500
To: GroundfishEFHDEIS.nwr@noaa.gov

May 6, 2005

Regional Administrator D. Robert Lohn
7600 Sand Point Way NE
Seattle, WA 98115-0070

Dear Regional Administrator Lohn,

I urge you to protect ecologically important and sensitive ocean habitats, including deep water corals and sponges, from destructive fishing practices in the Pacific Ocean.

The waters off the West Coast of the United States contain a diversity and abundance of ocean life, including ecologically and economically important fish species. Sadly, years of unsustainable fishing practices have decimated many fish populations to dangerously low levels and damaged the habitat they need to flourish. Studies have shown that fishing gears such as bottom trawls, which are widely used on the West Coast, damage sensitive marine habitats. Right now you have the opportunity to protect and restore the ocean habitats necessary to sustain our marine life by protecting ecologically important and sensitive areas from destructive fishing practices such as bottom trawling.

I am particularly concerned about the protection of deep water coral and sponges that recent studies have shown occur off the West Coast. These organisms, which can live for centuries, are highly susceptible to damage from fishing. I urge you to protect these areas from further damage by prohibiting the expansion of bottom trawling and protecting known areas of coral and sponge.

Thank you for the opportunity to present these comments.

Sincerely,

Mr. George Imrie
PO Box 540433
Redondo, WA 98054-0043